

ORGANIZERS



ASSOCIAZIONE ITALIANA PER LA RICERCA INDUSTRIALE



SAPIENZA UNIVERSITÀ DI ROMA

Renaissance Cloister by Sangallo
Faculty of Civil and Industrial Engineering

JUNE 11-14 2019

Nano 2019 Innovation

Rome, 11-14 June

Conference & Exhibition



CO-ORGANIZERS



INSTITUTIONAL PARTNERS



IN COOPERATION WITH



www.nanoinnovation2019.eu

index

01

welcome

01

committees

08

about us

10

Sapienza university of Rome

12

prizes

16

foreign delegations

17

joint events

32

brokerage events

33

plan overview

41

daily plan - June 11

44

daily plan - June 12

48

daily plan - June 13

52

daily plan - June 14

54

technical multi-tracks

75

poster sessions

78

wokshops

95

satellite events

100

meeting area

101

exhibitors list

Institutional Patronages



*Ministero degli Affari Esteri
e della Cooperazione Internazionale*

Ministero della Difesa

mipaft

ministero delle politiche agricole
alimentari, forestali e del turismo



Scientific Patronage



Società Chimica Italiana

Got Talent

call for young researchers by
BRACCO FOUNDATION

FB Fondazione
Bracco

The printed version of
NanoInnovation 2019 programme
is updated at June 3rd.

All subsequent changes and updates will
be available on the official website:
www.nanoinnovation2019.eu

Please, refer to the website for the updated
version of the official programme.

WELCOME

NanoInnovation is promoted by **Nanotaly Association and the Italian Association for Industrial Research (Airi)**, in cooperation with the organizing, steering and program committees and the contribution of all co-organizers, sponsors and partners of the event.

The previous three editions of NanoInnovation successfully finished with an average of more than 1100 participants from 10 different countries, and 300 speakers across about 60 thematic symposia and workshops and plenty of opportunities for cooperation. Most of the leading national public and private research players in nanotechnologies have contributed.

The fourth edition of **NanoInnovation** will be held from 11 to 14 June 2019, hosted again in the renaissance cloister by Sangallo at the Faculty of Civil and Industrial Engineering of "Sapienza" University of Rome. NanoInnovation is the reference national event for the wide and multidisciplinary community involved in the study and development of micro and nanotechnologies and in their integration with other enabling technologies (KETs) in all fields of application.

The main goals of **NanoInnovation 2019** are:

- Providing a **meeting forum** for academia, research, companies, and business operators
- Displaying **state of the art** developments in applied research on nanotechnologies
- Acting as **showcase** of the innovations in nanotechnologies and KETs
- Promoting **knowledge transfer** among different R&D players and sectors
- Offering **capacity building** and **training** opportunities for both scholars and professionals

The promotion of a Responsible Research and Innovation towards a sustainable development is one of the driving themes of the event.

The programme of NanoInnovation 2019, strongly oriented toward application and market aspects of nanotechnology and KETs, foresees the presence of highly qualified speakers and organizations.

The 2019 program is enriched by training courses on the application of nano-related techniques and products in the engineering sector.

NanoInnovation also offers to students, PhDs and young researchers an excellent and unique opportunity to follow the latest developments on nanotechnologies, and to meet leading players in the field.

A special thank to our institutional partners:

- **ITA - Italian Trade Agency** that made possible the participation of speakers coming from Iran, Israel, Poland, Russia, and South Korea, representatives of the main leading research, innovation and funding organizations of their countries;
- **APRE - Agency for the Promotion of European Research** that organized the networking event (B2B meetings and elevator pitch), open and free for all participants.

We would like also to thank the Faculty of Civil and Industrial Engineering of Sapienza University of Rome for kindly hosting the conference, the Department of Basic and Applied Sciences for Engineering for logistic and scientific support, the Steering and Programme Committees for setting up the program structure, the Session Chairpersons and the Speakers who accepted our invitation to share their expertise. A particular appreciation goes to the companies and organizations sponsoring the event, and making possible to participate for free.

We extend our thanks to all the people that worked hardly to make NanoInnovation a valuable and informative experience.

The NanoInnovation 2019 Organizing Committee

Organizing Committee



Marco ROSSI (*chair*)

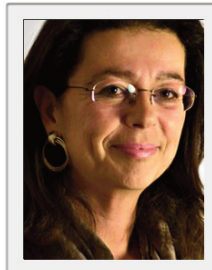
- Sapienza University of Rome
- Nanotaly Association

marco.rossi@uniroma1.it



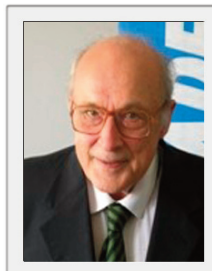
Massimo BERSANI

- FBK



Carla CAPIELLO

- Register of Engineers



Amilcare COLLINA

- MAPEI



Giuseppe GIGLI

- CNR - NANOTEC



Fabrizio PIRRI

- Polytechnic University of Turin



Andrea PORCARI

- AIRI

Steering Committee



Elvio MANTOVANI (*chair*)

- AIRI



Manuel CASALBONI

- Register of Engineers



Luciana DINI (*vice chair*)

- Nanoltaly Association



Sergio D'ALBERTO

- LFoundry



Piero BAGLIONI

- University of Florence



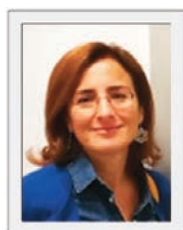
Massimo DEL MARRO

- Assing Spa



Luca BOARINO

- INRIM



Giuliana FAGGIO

- The "Mediterranean" University of Reggio Calabria



Andrea CANESCHI

- INSTM



Cristiana GABURRI

- Federchimica



Chiara CAPPELLI

- Scuola Normale Superiore



Sergio IAVICOLI

- INAIL



Maria Chiara CARROZZA

- Fondazione Don Gnocchi



Andrea LAMBERTI

- Polytechnic of Turin

Steering Committee



Giulio LAMEDICA

- Zeiss



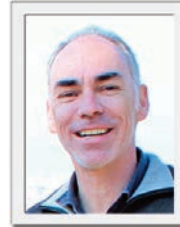
Francesco PRIOLO

- Distretto Tecnologico Sicilia Micro e Nano Sistem



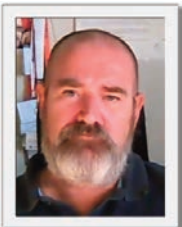
Paride MANTECCA

- University of Milano-Bicocca



Georg PUCKER

- FBK



Luca MARCHIOL

- University of Udine



Maria Sabrina SARTO

- Sapienza University of Rome



Francesco MATTEUCCI

- Dhitech



Corrado SPINELLA

- CNR-DSFTM



Vittorio MORANDI

- CNR-IMM



Fulvio UGGERI

- Fondazione Bracco



Donatella PAOLINO

- University Magna Graecia of Catanzaro



Sergio VALERI

- University of Modena and Reggio Emilia



Daniele PASSERI

- Sapienza University of Rome

Programme Committee



Marco VITTORI ANTISARI
(chair)

- Nanotaly Association



Sabrina CONOCI

- STMicroelectronics



Eugenio AMENDOLA

- CNR



Massimo CERRI

- Register of Engineers



Marzia BEDONI

- Fondazione Don Gnocchi



Miriam COLOMBO

- University of Milano-Bicocca



Francesco BIANCARDI

- ZEISS



Filippo D'ARPA

- Distretto Tecnologico Sicilia
Micro e Nano Sistemi



Stefano BIANCO

- Polytechnic of Turin



Dario DELLA SALA

- ENEA



Fabio BOCCUNI

- INAIL



Roberta FANTONI

- ENEA



Onofrio Antonino CACIOPPO

- LFoundry



Luisa FIANDRA

- University of Milano-Bicocca



Guglielmo FORTUNATO

- CNR-IMM



Giacomo MESSINA

- The “Mediterranean” University of Reggio Calabria



Francesco FULVI

- Register of Engineers



Giovanni PATERNOSTER

- FBK



Ettore GAROFALO

- Assing Spa



Giancarlo PEPPONI

- FBK



Roberto GIANNANTONIO

- Dhitech



Pasqualantonio PINGUE

- Scuola Normale Superiore



Rodorico GIORGI

- CSGI



Maria Laura SANTARELLI

- Sapienza University of Rome



Carlo MARIANI

- Sapienza University of Rome



Francesca SCARAMUZZO

- NanoShare



Francesco MARINUZZI

- Register of Engineers



Giovanni TOSI

- University of Modena and Reggio Emilia

Honorary Committee



Vincenzo BARONE

- Scuola Normale Superiore di Pisa



Roberto BATTISTON

- University of Trento



Sergio GALBIATI

- LFoundry



Luigi NICOLAIS

- University of Naples "Federico II"



Emanuele RIMINI

- University of Catania

Open Infrastructure for Advanced TOMography and Microscopies (ATOM)

<http://www.lazioinnova.it/news/premiati-i-vincitori-dei-bandi-kets-e-infrastrutture-per-la-ricerca/#>

The aim of the project is the foundation of an open research infrastructure for materials and devices characterization, using advanced tomography and microscopy techniques.

The presence in the region of a cluster of scientific instrumentation operating at the nanoscale is one of the fundamental requirements for fast technological transfer in the field of nanotechnology. The **ATOM** project is jointly presented by the Department of Basic and Applied Sciences for Engineering of Rome Sapienza University, together with other institutions of the same University (CNIS - Research Center for Nanotechnologies applied to Engineering and the Department of Chemistry), and by the Rome Unit of the CNR Institute of Nanotechnology, carrying out cutting-edge research in the nanotechnology sector in the Lazio region, as well as in Italy and internationally.

The network that these research institutions intends to set up in order to develop the **ATOM** infrastructure will be joined, as strategic partners, by some of the most significant companies in the sector operating in the region, such as Leonardo Finmeccanica, ASSING, Rina-CSM, CRISEL and ZEISS.

ATOM has been founded with the aim of investigating in detail the 3D structure of materials, devices, components and biological tissues, from the mesoscopic to the nanoscopic scale, through functional and dynamic nano-characterization.

The planned acquisition will provide users with innovative instrumental platforms with applications to the bio-medical, micro- and nano-electronics, cultural heritage and additive manufacturing sectors.

ATOM is conceived as a link between research and business, in virtuous synergy between public and private, to stimulate research and, at the same time, to develop the market linked to its technological applications.

The public sector, which will host the scientific instrumentation and will provide the staff for management and research development, aims to acquire state-of-the-art equipment to enhance nanotechnology skills and international competitiveness.

The private sector, which will guarantee the use of the equipment and, hence, the financial sustainability of **ATOM**, needs to position itself in the making of products in activity sectors of higher added value. It, thus, requires access to advanced characterization equipment, both to speed up production and to verify the quality of the products.

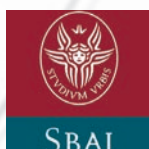
Regional, national and international companies and research institutions will have access to the services provided by **ATOM** through an online reservation platform, according to a specific Access Regulation for the Infrastructure.

<https://www.uniroma1.it/it/notizia/il-progetto-atom-advanced-tomography-and-microscopies-vince-il-bando-della-regione-lazio>

ENTE FINANZIATORE



PARTNER di PROGETTO



AIRI

Associazione Italiana per la Ricerca Industriale



Airi (Italian Association for Industrial Research) is a not-for-profit private organization, founded in 1974. Its mission is to promote industrial Research and Innovation and co-operation between the private and public sectors, to enhance the competitive position of the Country.

Airi members are large industrial enterprises and SMEs, leading universities, public research institutions, technology clusters and financial organizations. The researchers of Airi members represent about one third of those operating in the Country.

Strategic themes of Airi activity include future industrial innovation, R&I policies and strategies, sustainability and social responsibility of technological innovation, dissemination and communication on R&I.

Key Enabling Technologies are amongst the main objectives of Airi action. The Airi/NanotecIT committee is a national focal point for promoting research and application of nanotechnologies and the other KETs in Italy.

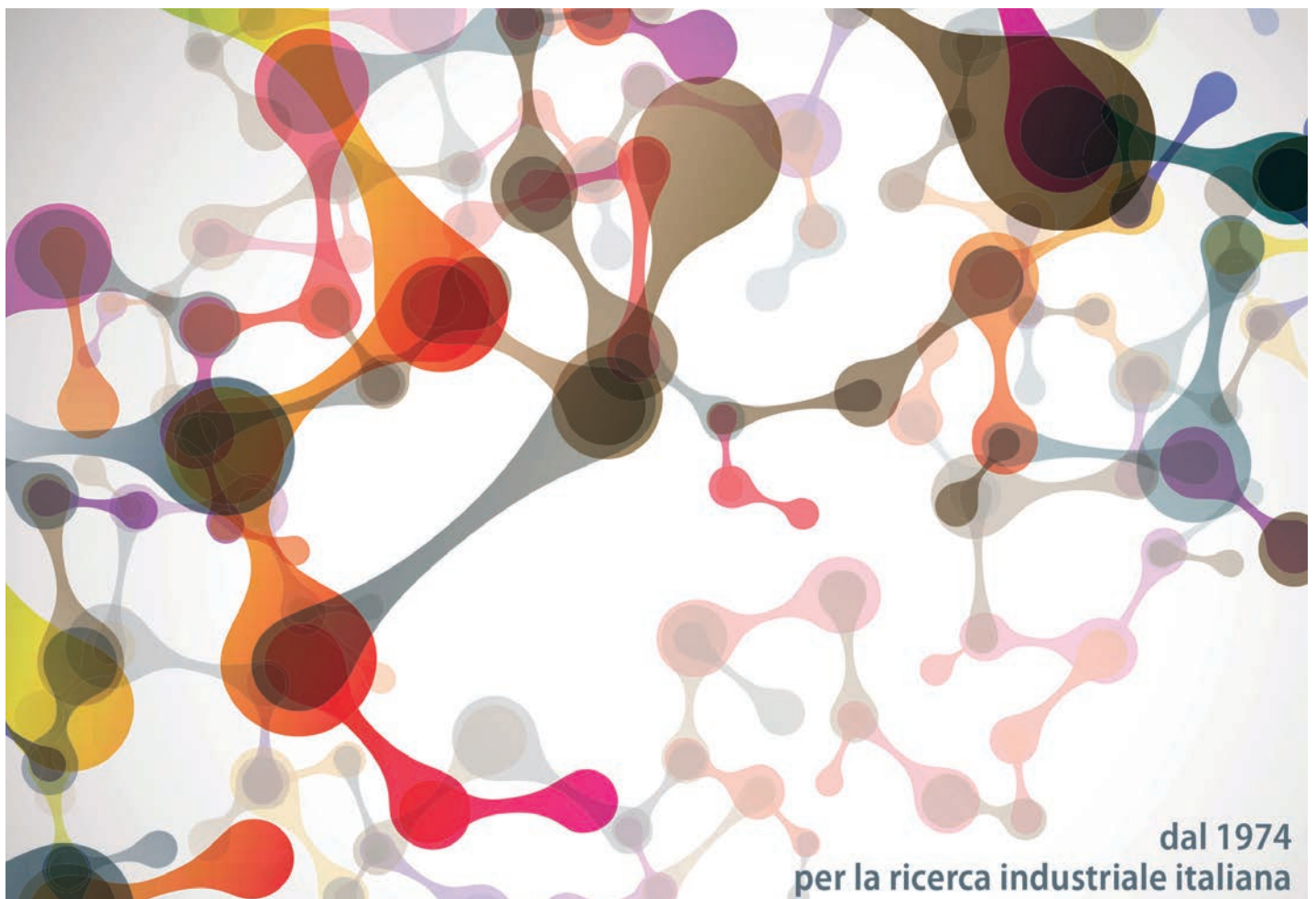
Due to its broad representative base, Airi has become a key opinion leader on R&I, advising national decision-makers for their initiatives to sustain industrial research and innovation.

During its lifetime, Airi has built a long experience in monitoring scientific R&D trends and their applications, development of policies and tools for risk governance, analysis of ethical, legal and social impacts of R&I, organization of multi-stakeholder dialogues, exploitation & tech transfer, networking & dissemination of R&I outcomes.

Over the past 15 years Airi has been very active in participating in European, national and regional cooperative projects, in particular in the NMBP and SWAFS areas of EU framework programmes, both as coordinator or partner.

Airi has contributed to organize several workshops and dialogue events at national and EU level, showcasing situation and trends of technological innovation and its societal impact, that involved representatives of industry, research institutions and universities, research policy makers, civil society organizations.

www.airi.it - www.nanotec.it



Associazione Nanoitaly



The Nanotaly Association has been established with the aim of promoting, enhancing and supporting the role of bio-nano technologies in the Italian and European societies in all applicative, social and economic contexts, with particular reference to the development of technologies of industrial interest and to the social impact on the population of product innovations based on nano aspects.

Nanoitaly is a cultural no-profit, non-political association, organized on the sovereignty of the members' assembly and whose corporate offices are elective and held without charge.

The main purpose of the Association is to promote and support the integration of the scientific and industrial communities relating the wide field of bio-nano technologies, composed of researchers, technologists and professionals from public research and industrial laboratories, in order to discuss innovative ideas, exchange knowledge and enhance transfer of know-how, in order to allow the integration of ideas and knowledge between different areas of application.

We strongly believe that the encounter and integration of scientific and technological communities traditionally separated from each other to build a new reality able to define new goals and influence the transfer of skills and knowledge from laboratories to businesses and markets, is an absolute need for a profitable development of nanotechnology in our country. The Association aims to support and encourage collaboration between research institutions and industry, in order to jointly contribute to the regional, national and European programs, to promote the creation of research networks and infrastructure for the needs of research in nano-bio-technology and nanoscience.

The association membership is open to both individuals and organizations interested in participating in the development of the variegated world of nano-bio-technology.

For more information and adhesion please refer to the Association website: www.associazione-nanoitaly.it.

The Association is managed by a Scientific Board which is presently composed by:

Luigi Ambrosio

Luciana Dini

Roberto Morabito

Fabrizio Pirri (Scientific Secretary)

Giancarlo Ruocco

Giancarlo Salviati

Pietro Siciliano (Treasurer)

Corrado Spinella

Maria Letizia Terranova

Marco Vittori Antisari (President)

Associazione Nanoitaly
c/o Dip.to di Scienze di Base ed Applicate
Sapienza Università di Roma
Via Antonio Scarpa, 16 – 00161 Roma
Contact person: Marco Vittori Antisari (marco.vittori@nanoitaly.it)

www.associazione-nanoitaly.it



SAPIENZA UNIVERSITY OF ROME

*The Largest University in Europe
The Oldest University in Rome*

Sapienza University of Rome, founded in 1303 by Pope Boniface VIII, is one of the oldest universities in the world and a high performer among the largest universities in international rankings. It is the first University in Rome and the largest University in Europe: a city within a city, with over 700 years of history. With over 125,000 students, 4,000 professors and nearly as many administrative and technical staff, Sapienza represents a vast knowledge community.

Since its founding over 700 years ago, Sapienza has played an important role in Italian history and has been directly involved in key changes and developments in society, economics and politics. It has contributed to the development of Italian and European science and culture in all areas of knowledge.

The University offers a vast array of courses including 290 degree programmes, over 74 PhD courses, 200 professional courses and 121 Specialization Schools in Medicine and Health, run by 63 Departments and 11 Faculties. There are 59 libraries and 21 museums, as well as comprehensive student services. The student body includes over 8,000 foreign students from all over the world. Ciao and Hello (the welcoming centre for foreign students), SoRT (Counselling and tutorship services) and assistance for disabled students.

Sapienza plans and carries out important scientific investigations in almost all disciplines, achieving high-standard results both on a national and on an international level, thanks to the work of its faculties, departments and centres devoted to scientific research. There are also more than 150 PhD programmes which include almost all major fields of knowledge.

The first University in Rome is proud to have had many famous scholars among his students. Dealing with the field of Physics' students, members of the so called 'Via Panisperna' group – including the scientists Enrico Fermi, Edoardo Amaldi and Emilio Segrè – gave a crucial contribute to Physics and left an important heritage in subjects like Quantum Physics, Physics of Disordered Systems and Astrophysics. Sapienza enhances research by offering opportunities also to international human resources. Thanks to a special programme for visiting professors, many foreign researchers and professors periodically come to Sapienza, consolidating the quality of its education and research programmes.

Sapienza University of Rome is a public, autonomous and free university, involved in the development of society through research, higher level of education and international cooperation.

The University has an annual budget of 1 billion euros, one of the most important in the region.

The future of Sapienza starts today thanks to its rich past and the contribution of the entire University community.

Faculty of Civil and Industrial Engineering

The Faculty was founded in 1817 by Pope Pius VII, following the model of the most famous Parisian and Viennese School of Engineering of the time; in 1935, due to the Gentile's reform, the School became the Faculty of Engineering. The Faculty was founded with the aim of training professionals of high cultural background, qualified to meet the real needs of training and research company, possessing the ability to promote and to develop technological innovation processes in different cultural environments. The ancient Faculty of Engineering has a long educational tradition which is appreciated all over the world. This rich experience has allowed the Faculty to offer a very innovative syllabus today, including also a specific program on Nanotechnology Engineering. It aims particularly at satisfying local engineering needs, yet also at preparing graduates for employment in an increasingly globalised and international job market. Recently, a more general internal reorganization of Sapienza required a thematic splitting of the research and teaching activity, with the consequent born of the new Faculty of Civil and Industrial Engineering, the headquarter of which remained in the pristine site, and of the new Faculty of Information Engineering, Informatics and Statistics.

The Faculty of Civil and Industrial Engineering is spread among various buildings in the area of via Eudossiana, the most representative is the old monastery of the church of San Pietro in Vincoli (San Peter in Chains), also known as basilica Eudossiana, but educational and scientific activities are also held in other locations in Rome and Lazio, like Latin and Rieti.

An ancient tale

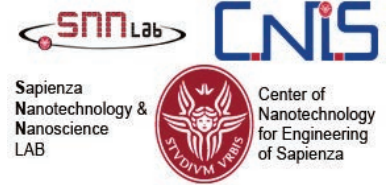
An ancient tale connects the name of Eudossia and San Pietro in Vincoli: the empress Eudossia, wife of Teodosio II (408-550), emperor of the East, sent from Costantinoples to her daughter Eudossia part of the chains ("vincoli") of San Peter which she found at Jerusalem. These chains were donated to the Pope Leone Magno. He put them near the ones that hold San Peter during his roman captivity, and the miracle happened: The two chains melted together.



CNIS

Research Centre for Nanotechnology applied to Engineering of Sapienza University of Rome

(Centro per le Nanotecnologie applicate all'Ingegneria di Sapienza Università di Roma)

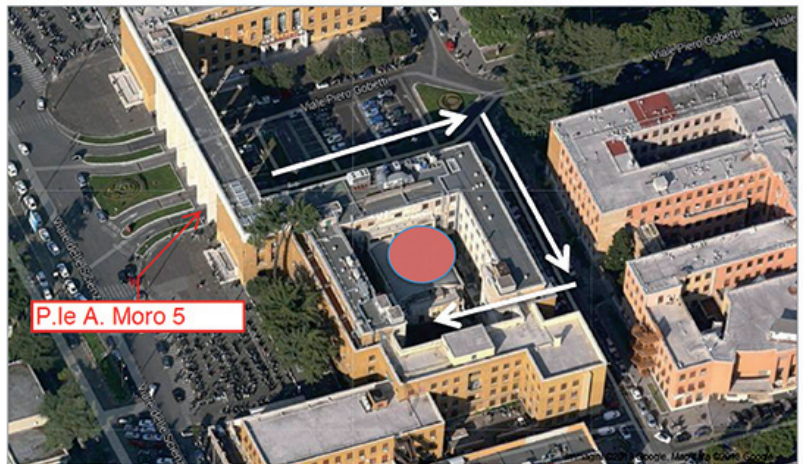


CNIS has been constituted in 2006, and now involves over 90 professors and researchers, coming from different Departments of the Faculties of Engineering, Sciences and Medicine. The vision and goal of CNIS is to embrace and support a multidisciplinary user base of researchers of Sapienza and co-workers of other universities or private laboratories. CNIS activities are now developed in the new (2012) Sapienza Nanotechnology & Nanoscience Laboratory (SNN Lab), which is the core-facility at Sapienza devoted to nanoscience and nanotech multidisciplinary applications in materials science, life sciences, engineering and solid state physics. It gathers state-of-art instrumentation for nanotechnology together with an experienced staff that will perform the structural and functional characterization of all the materials, devices and systems in the framework of the foreseen project activities.

In particular, a wide set of microscopy and nanoscopy techniques is available. The facility also offers our users a variety of sample preparation equipment, a light microscopy lab with image analysis, an X-ray lab, and a materials testing lab.

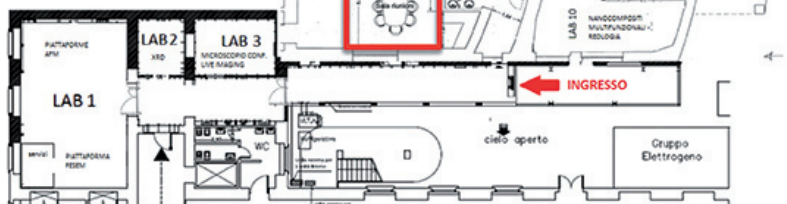
The SNN-Lab is finalized to:

- Integrate the multidisciplinary competences available at Sapienza University in the fields of nanotechnology and nanosciences, with the aim of creating synergies among research groups operating in different areas of science, engineering, medicine.
- Constitute a research infrastructure at Sapienza to support to the design, realization and characterization of nanostructures and innovative micro/nano-devices for different fields of applications.
- Provide instrumentation and services to high quality research in the field of: micro/nano-fabrication, micro/nano-manipulation, advanced characterization (functional and structural microscopy) of the chemical-physical properties of micro/nanostructured materials, engineering of the designed micro/nanostructured devices and systems, nanomedicine and genomics.
- Create a reference structure for territory and enterprise, responding to the research and technological development needs of the research programs at regional, national and international levels.



Total Area: 400 mq
Installed power: 168 kW

- **Microscopes and characterizations at nanoscale:** LAB1, 2, 3
- **Nanofabrication:** LAB5,10
- **Processing and chemistry:** LAB 6,7
- **Genomics and bioinformatics:** LAB 4,8,9
- **Meeting room**



The SNN-Lab has been realized also thanks to funds from Lazio Region aimed at promoting innovation and technological transfer. The Lab is located on an area of 400 mq, at Sapienza University main campus.

More information on: web.uniroma1.it/cnis/

SNN Lab – CNIS

Sapienza University of Rome, P.le A. Moro n. 5 - 00185 Rome

Director: Antonio d’Alessandro (antonio.dalessandro@uniroma1.it) - Contact person: Prof. Marco Rossi (marco.rossi@uniroma1.it)

NEST PRIZE

Tuesday 11 June, 14:40 - 15:00

In collaboration with



Sponsored by



Laboratorio NEST of Scuola Normale Superiore is proud to present at Nanoinnovation 2019 the NEST Prize for research in nanoscience, edition 2018. Sponsored by Rivoira, a company of Nippon Gas Group, the purpose of the NEST Prize is to promote and recognize the activity of young scientists (less than 35 years old) working in Italy on nanoscience field, represented by a submitted scientific publication in the last two years on a peer review international journal.

The prize is awarded by an evaluating committee composed by Directors and/or Coordinators of Laboratorio NEST of Scuola Normale Superiore (SNS), Istituto Nanoscienze of Consiglio Nazionale delle Ricerche (CNR) and Center for Nanotechnology Innovation of Istituto Italiano di Tecnologia (IIT) at the NEST Centre in Pisa.

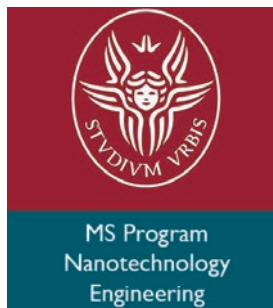
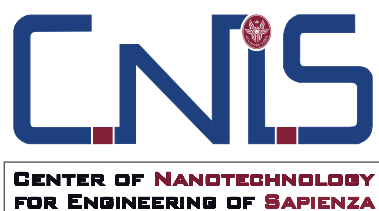
The NEST Prize consists of € 5,000 Euros cash prize for the winner, a trophy and reimbursement of the fees, travel and living expenses to attend the conference in Rome. The winner will also receive the opportunity to present his/her research activity at the conference.

This year the prize will be dedicated in loving memory of Stefano Guiducci, a young and brilliant PhD student of the Scuola Normale Superiore at NEST, passed away prematurely in 2018. During the award ceremony, the edition 2019 of the NEST Prize will be finally presented.

The poster features a vertical title 'PREMIO NEST 2018' on the left side. The main content area includes the NEST logo, the Scuola Normale Superiore logo, and the Rivoira logo with the tagline 'Making our planet more productive'. The central text reads 'PREMIO NAZIONALE NEST PER LA NANOSCIENZA ANNO 2018'. Below this, it states: 'Riservato a giovani ricercatori di età non superiore a 35 anni, alla data di scadenza fissata al 23 dicembre 2018, che abbiano pubblicato su una rivista scientifica internazionale tra il 1 gennaio 2017 e il 30 novembre 2018, come unici o primi autori, uno studio nell'ambito della Nanoscienza sperimentale.' It then lists eligibility criteria: 'Possono concorrere ricercatori che non afferiscono al Laboratorio NEST, di qualunque nazionalità, a condizione di essere affiliati ad un laboratorio di ricerca in Italia e che lo studio proposto sia stato realizzato almeno in parte in Italia. Non saranno presi in considerazione lavori presentati in precedenti edizioni del Premio.' The prize amount is specified: 'Il Premio, che ammonta a 5.000 euro lordi, sarà erogato al vincitore direttamente dalla Ditta Rivoira SpA.' The application process is detailed: 'La domanda di ammissione al concorso deve essere compilata e trasmessa entro il 23 dicembre 2018, a pena esclusione, secondo le modalità previste sul sito del Laboratorio NEST all'indirizzo: www.laboratorionest.it.' At the bottom left, contact information is provided: 'Info e bando su www.laboratorionest.it www.rivoiragas.it'. The background of the poster shows a laboratory setting with a person working and a diagram of molecular structures.

Best Nano ex-Alumnus Sapienza

Thursday 13 June, 16:00 - 17:30



EX-ALUMNI Nanotechnology Engineering @ Sapienza

NanoInnovation 2019 is glad to announce the symposium “Ex-alumni Nanotechnology Engineering @ Sapienza”, supported by Sapienza University of Rome with the aim to promote and recognize the activity all around the world of ex-alumni of the Master Science program on Nanotechnology Engineering.

The symposium is part of the workshop “Nanotechnology @ Sapienza”, jointly organized with CNIS, that will be held on 13th June 2019 with the aim to create a forum and to gather scientific contributions on research activities on Nanotechnologies and Nanoscience in Sapienza University.

This oral session is reserved exclusively to the ex-alumni of the Master Science program in Nanotechnology Engineering of Sapienza University of Rome, regardless of age, degree year, professional profile and field of present activity.

All submissions will be evaluated by the Organizing Committee of NanoInnovation 2019 and selected for the oral or poster session. A partial financial support could be provided, on adequately motivated request, for travel and accommodation.

On the basis of submitted abstract and CV, the Organizing Committee will award the “Best Nano ex-Alumnus Sapienza Prize 2019”. Sapienza will cover all the participation costs (travel and accommodation) of the winner.



NANOINNOVATION'S GOT TALENT

Thursday 13 June, 16:00 - 17:30

NanoInnovation 2019 is glad to renew the call for young researchers "**NanoInnovation's Got Talent**" supported by "Bracco Foundation".

The Call is reserved to young nanotechnology researchers who will have the possibility to present their research activity in an ad-hoc session dedicated to them. The Programme Committee of the conference will select the best proposals and the authors will illustrate their activity in front of a vast audience composed of industry representatives, scientists, experts, investors, entrepreneurs.

Research activities of interest:

- Industry 4.0, Additive, 3D Manufacturing
- Agri-Food
- Construction, Building & Restoration
- Electronics, micro and Nanosystems
- Energy & Environment
- Health & Nanomedicine
- Innovative and Smart Textiles
- Nano - Bio Related Products
- Nanofabrication
- Nano-Materials Based Innovation (including graphene and 2D materials beyond graphene)
- Nanoscale Characterization and Measurements
- Safety and Social Impacts (including nano-toxicology)
- Transport, Space & Aeronautics

NanoInnovation offers you the opportunity to present your work to a high-profiled audience.

The **Fondazione Bracco** will cover all the participation costs of selected contributions.



Nanoinnovation's Got Talent - Special Session - TT.VIII.E

Chair: Fulvio UGGERI, R&S Director Bracco Imaging

Thursday 13 June, 16:00 - 17:30

Gabriele MESSINA

Sapienza University of Rome & CNR-ISC

Novel Detectors for Terahertz Imaging based on High-Tc Superconductor Materials

Alessandro TALONE

University of Roma Tre & CNR-ISM

Ionic liquid dispersions of magnetic nanoparticles

Eleonora MARETTI

University of Modena and Reggio Emilia

Novel engineered lipid-based nanoparticles for pulmonary tuberculosis inhalation therapy

Clara GUIDO

University of Salento & CNR-NANOTEC

Non-viral gene delivery using polymeric NPs

Maria Clara RIGHI

University of Modena and Reggio Emilia & CNR Institute of Nanoscience

2D Materials for friction reduction

Nanoinnovation's Got Talent - Special Poster Session - PO.II

Posters will be displayed in the Sangallo Cloister during the event:

Tuesday 11 – Friday 14 June, 09:00 - 18:00

- 01** Francesco BARBIERI, *University of Siena*
Effects of the food additive titanium dioxide on plant systems
- 02** Tommaso CIVITARESE, *Sapienza University of Rome*
Analysis of peptide-chains and transport properties of polar amino-acids chains
- 03** Francesca LIMOSANI, *University of Rome Tor Vergata*
Synthesis and Characterization of Novel Carbon Materials-Porphyrin Hybrid Architectures as Active Light Harvesting Systems
- 04** Emanuele MAURI, *Campus Bio-Medico*
Smart functionalized nanogels as selective carriers for intracellular drug release
- 05** Ilaria RAGAZZINI, *University of Bologna*
PANI/Au/Fe₃O₄ Nanocomposite Materials for High Performance Electrochemical Capacitors

ICE Delegation from Israel, Poland, Russia, Iran and South Korea

Thanks to the contribution of the Italian Trade Agency, an international delegation of experts from Israel, Poland, Russia, South Korea and Iran representatives of leading companies, research centers, funding organizations, networks and clusters active in research and innovation on nanotechnologies, will participate to the NanoInnovation Conference.

The list of experts and their profile is reported below. Anyone interested to have further information, get in contact or organize a meeting them, is invited to register to the networking event. During the conference, visit the ICE booth or ask to the registration desk.

SOUTH KOREA 				
1	Jin Young	Kim	Assistant Professor	Seoul National University
2	Hyun Suk	Jung	Professor	Sungkyunkwan University
TA	Jaehyang	Lee	Trade Analyst	ICE SEOUL
IRAN 				
1	Saeed Sima	Sarkar Sarkar	Secretary General	Iran Nanotechnology Innovation Council (INIC)
2	Shahin Seyed	Asan Saadat	CEO	NANO ARISA
3	Nader	Naderi	CEO	Fannavarano Nano Meghyas (FNM)
4	Reza	Saeidizadeh	Commercial Director	Nano Biofeedback (Padideh Zisti Nano)
5	Amir Masoud	Bozorgian	CEO	Zhinatex Co.
TA	Laleh	Esfandiari	Trade Analyst	ICE TEHERAN
RUSSIA 				
1	Svyatoslav	Amelin	Head of PR & GR Department	Association for the development of clusters and technology parks of Russia
2	Peter	Gorelkin	CEO	Medical Nanotechnology
3	Mikhail	Mukhin	Deputy dean of the Faculty of Physics and Technology	ITMO University
4	Denis	Sidorov	Director	LLC "UNT-M"
5	Sergey	Dubkov	PhD	National Research University of Electronic Technology (MIET),
6	Elizaveta	Anastasova	Student, Engineer	SCAMT laboratory (Solution Chemistry of Advanced Materials and Technologies), ITMO University
7	Ivan	Iorsh	Head of laboratory	ITMO University
TA	Alessandro	Salacone	Trade Analyst	ICE MOSCOW
POLAND 				
1	Kinga	KADZIOLA-DŁUGOŁĘDZKA	PhD- Ricercatrice del Laboratorio di Biofisica Molecolare e Nano-strutturale	Bionanopark Ltd.
2	Wojciech	Ratymirski	Partner/Board Member	VALUETECH SEED VC FUND
3	Michał	Marchewka	Ricercatore presso Centro di Microelettronica e Nanotecnologie dell'Università di Rzeszow	The Podkarpackie Innovation Centre
ISRAEL 				
1	Yovav	Kalifon	Technology and public funding	NOVA MEASURING INSTRUMENTS
3	Avi	Voldman	CTO	RACAH NANOFUND



OPEN INFRASTRUCTURES FOR RESEARCH: an innovative approach supported by Regione Lazio

Wednesday 12 June

co-organized with:



TECHNICAL COMMITTEE

Gian Paolo MANZELLA, *Assessore allo Sviluppo Economico, Regione Lazio*
 Paolo ORNELI, *Lazio Innova, Presidente*
 Corrado SPINELLA, *Direttore CNR-DSFTM*
 Andrea GHIGO, *INFN*
 Dario DELLA SALA, *ENEA*
 Maria Sabrina SARTO, *Sapienza Università di Roma*
 Maurizio CICOLANI, *Leonardo*

09:00 - 10:30

JE.I.1	<p align="center">NanoMicroFab - Infrastruttura aperta di ricerca per il supporto di aziende operanti nell'ambito della micro-nanoelettronica</p> <p align="center">Chair: Guglielmo FORTUNATO, <i>CNR-IMM</i></p>	
JE.I.1.1	Alessandro PECORA, <i>CNR-IMM</i>	Overview del progetto NanoMicroFab
JE.I.1.2	Claudio LANZIERI, <i>Leonardo SPA</i>	Technological solutions for GaN based Radars
JE.I.1.3	Stefano COLONNA, <i>CNR-ISM</i>	Material characterization at NanoMicroFab
JE.I.1.4	Ennio GIOVINE, <i>CNR-IFN</i>	Electron Beam Lithography a powerfull tool for research and industrial applications
JE.I.1.5	Andrea REALE, <i>University of Rome Tor Vergata</i>	Printable electronics for energy, bioelectronics and sensing applications
10:30 - 11:00 Coffe Break		



Wednesday 12 June

11:00 - 12:30

JE.I.2	MAIA - Materiali Avanzati in una Infrastruttura Aperta Chair: Dario DELLA SALA, ENEA	
JE.I.2.1	Giuseppe BARBIERI, ENEA	Overview del progetto MAIA
JE.I.2.2	Daniele MIRABILE GATTIA, ENEA	Design Alloy e Caratterizzazione Microstrutturale
JE.I.2.3	Antonio RINALDI, ENEA	Bio Materiali e stampa 3D di bioscaffolds
JE.I.2.4	Angelo TATI, ENEA	Indagini non distruttive in ambito aerospaziale, industriale e per il patrimonio artistico
JE.I.2.5	Marzia PENTIMALLI, ENEA	Compositi particellari a matrice polimerica per applicazioni avanzate
12:30 - 14:00 Light Lunch		

14:00 - 15:30

JE.I.3	ATOM - Advanced Tomography and Microscopies Chair: Marco ROSSI, Sapienza University of Rome	
JE.I.3.1	Luca LEUZZI, CNR NANOTEC, Roma	Overview del progetto ATOM
JE.I.3.2	Nicola Viorel PAVEL, Sapienza University of Rome	Applicazioni tecnologiche della diffrazione con raggi-X
JE.I.3.3	Alessia CEDOLA, CNR NANOTEC, Roma	La tomografia X e le sue applicazioni: dai beni culturali all'industria elettronica
JE.I.3.4	Daniele PASSERI, Sapienza University of Rome	Tecniche di Microscopia a Sonda ed applicazioni industriali
JE.I.3.5	Giuseppe FAMILIARI, Sapienza University of Rome	La Microscopia Elettronica e le sue applicazioni in ambito Life Science
15:30 - 16:00 Coffee Break		



Wednesday 12 June

16:00 - 17:30

JE.I.4	LATINO – Laboratory in Advanced Technologies for INnOvation Chair: Andrea GHIGO, <i>Accelerator Division Head @ LNF-INFN</i>
JE.I.4.1	Lucia SABBATINI, <i>LNF-INFN</i> Technology transfer at INFN Frascati: Magnetic measurement Lab and Mechanical Integration Labs
JE.I.4.2	Antonio FALONE, <i>LNF-INFN</i> Radiofrequency and Vacuum Labs and LATINO management organization
JE.I.4.3	<i>in definition</i>



ELECTRON MICROSCOPY School

Wednesday 12 June - Friday 14

co-organized with

**SISM**

Italian Society for Microscopical Sciences

Bridging organic and inorganic electron microscopy methods

The recent achievements of transmission electron microscopy, with particular attention to the cryo-microscopy aspects are illustrated by recognized experts in the field. The school, structured also for non-specialists, illustrates the basis of Transmission Electron Microscopy either in material science and in life sciences, describes the main methods providing information at atomic level both on hard and soft matter together with the main sample requirement and the relative preparation methods.

SCIENTIFIC COMMITTEE

Roberto BALBONI, CNR-IMM, Bologna
 Elvio CARLINO, CNR-IMM, Lecce
 Elisabetta FALCIERI, Università di Urbino
 Giuseppe FAMILIARI, Sapienza, Università di Roma
 Vittorio MORANDI, CNR-IMM, Bologna
 Marco ROSSI, Sapienza, Università di Roma
 Beatrice VALLONE, Sapienza, Università di Roma
 Marco VITTORI ANTISARI, Associazione NanolItaly

Wednesday 12 June

Introduction to electron microscopy	
09:00 - 10:30	
JE.II.A.1	Introduction to TEM in material science Laura LAZZARINI, CNR-IMEM, Parma
10:30 - 11:00 Coffe Break	
11:00 - 12:30	
JE.II.A.2	TEM: A precious evergreen approach to Cell Biology and Pathology Elisabetta FALCIERI, University of Urbino Carlo Bo & Italian Society of Microscopical Sciences
12:30 - 14:00 Light Lunch	
14:00 - 15:30	
JE.II.A.3	Scanning Transmission Electron Microscopy imaging and spectroscopy Corrado SPINELLA, CNR, Catania
15:30 - 16:00 Coffee Break	
16:00 - 17:30	
JE.II.A.4	Radiation Damage in Electron Microscopy and Low Dose Approaches Elvio CARLINO, CNR-IMM, Lecce



Thursday 13 June

Advanced TEM/STEM imaging methods	
09:00 - 10:30	
JE.II.B.1	Phase contrast and high-resolution electron microscopy Andrea PARISINI, <i>CNR-IMM, Bologna</i>
10:30 - 11:00 <i>Coffe Break</i>	
11:00 - 12:30	
JE.II.B.2	In line holography and Coherent Diffraction imaging in electron microscopy Tatiana LATYCHEVSKAIA, <i>Paul Scherrer Institute, Villigen, Switzerland</i>
12:30 - 14:00 <i>Light Lunch</i>	
14:00 - 15:30	
JE.II.B.3	Correlative light-electron microscopy: From optical techniques to cryo-electron tomography Roman POLISHCHUK, <i>Telethon Institute of Genetics and Medicine (TIGEM)</i>
15:30 - 16:00 <i>Coffee Break</i>	
16:00 - 17:30	
JE.II.B.4	Electron Microscopy: from Qualitative to Quantitative Gustaaf VAN TENDELOO, <i>University of Antwerp, Belgium</i>

Friday, 14 June AM

Sample preparation	
09:00 - 10:30	
JE.II.C.1	Sample preparation for TEM in Materials Science Antonietta TAURINO, <i>CNR-IMM, Lecce</i>
10:30 - 11:00 <i>Coffe Break</i>	
11:00 - 12:30	
JE.II.C.2	TEM in LifeSciences: from sample preparation to data interpretation Claudia TESTI, <i>Sapienza University of Rome</i>
12:30 - 14:00 <i>Light Lunch</i>	

Friday, 14 June PM

Examples of Clinical Applications of TEM	
14:00 - 14:30	
JE.II.C.3	Ultrastructure of human oocytes subjected to different protocols of assisted reproduction Stefania Annarita NOTTOLA, <i>Sapienza University of Rome</i>
14:30 - 15:00	
JE.II.C.4	Ultrastructure of human spermatozoa subjected to different protocols of assisted reproduction Selenia MIGLIETTA, <i>Sapienza University of Rome</i>
15:00 - 15:30	
JE.II.C.5	Innovative TEM techniques for ultrastructural characterization of human colon cancer stem cell-derived spheroids and xenograft in a mouse model Michela RELUCENTI, <i>Sapienza University of Rome</i>
15:30 - 16:00 <i>Coffe Break</i>	

OPEN INNOVATION & OPEN SCIENCE: La situazione italiana

Friday 14 June

In collaboration with: AIRI, NanolItaly Association and Sapienza University of Rome



SAPIENZA
UNIVERSITÀ DI ROMA

Anche quest'anno, a seguire del successo del evento 2018, verrà proposta a NanolInnovation un workshop dedicato al tema del rapporto ricerca pubblica e privata, in un'ottica di valorizzazione della conoscenza.

La capacità di identificare e sfruttare competenze e conoscenze di rete, di gestire processi cooperativi rapidi e complessi, di promuovere processi inclusivi e multi-stakeholders per accrescere l'impatto sociale dell'innovazione, di aggregare competenze e conoscenze multidisciplinari, sono sempre più fattori determinanti per il successo della ricerca ed innovazione.

Con l'avvento della quarta rivoluzione industriale (modello 4.0), sono richiesti nuovi e più efficaci modelli per l'incontro tra domanda e offerta di tecnologia ed è necessario un cambiamento culturale che coinvolga il management della R&I, oltre a figure professionali dedicate, per sfruttare al meglio le opportunità offerte dallo sviluppo delle tecnologie abilitanti ed emergenti.

Durante le sessioni in cui si articolerà l'evento, alcuni tra i principali Enti di ricerca, Università e Grandi imprese nazionali, PMI, associazioni professionali nazionali e organismi territoriali si confronteranno su modelli ed esperienze relativi a:

- Formazione e competenze
- Trasferimento tecnologico
- Iniziative e approccio territoriali
- Creazione di spin off e start up
- Sostenibilità di processo e prodotto
- Principi e metodi per la open science
- Principi e metodi per la open innovation

09:00 - 10:30

09:00 - 10:30	
JE.III.1	<p align="center">Il Sistema della Ricerca Pubblica</p> <p align="center">Chair: Sesto VITICOLI, <i>Associazione Italiana per la Ricerca Industriale (Airi)</i></p>
JE.III.1.1	<p>Massimo TRONCI, <i>President Team Quality, Sapienza University of Rome</i></p> <p>Formazione e competenze nello scenario dell'Industria 4.0: il lavoro del futuro nel futuro del lavoro</p>
JE.III.1.2	<p>Cristina BATTAGLIA, <i>Responsabile Valorizzazione della Ricerca, CNR</i></p> <p>Il trasferimento di tecnologie e competenze alle imprese: l'esperienza CNR</p>
JE.III.1.3	<p>Oscar AMERIGHI, <i>Technology Transfer Office, ENEA</i></p> <p>La strategia di Knowledge Exchange ENEA: nuove iniziative per rafforzare i rapporti con il sistema industriale e il territorio</p>
JE.III.1.4	<p>Marta PETYX, <i>INAIL</i></p> <p>L'esperienza in INAIL dei bandi BRIC e dei Competence Centre</p>
JE.III.1.5	<p>Andrea CANESCHI, <i>Direttore INSTM</i> e Aniello CAMMARANO, <i>Project Manager Materias srl</i></p> <p>Un accordo pubblico/privato per sviluppare e sostenere il trasferimento tecnologico e la creazione di spin-off e start up, tramite Materias Srl, un acceleratore di idee e tecnologie</p>
JE.III.1.6	<p>Alessandro SOLURI, <i>Co-Founder</i> e Heber Raphael VERRI, <i>General Manager Imagensys</i></p> <p>Nuovo modello di trasferimento tecnologico: il caso Imagensys</p>
10:30 - 11:00 Coffee Break	



11:00 - 12:30

Il Sistema delle ImpreseChair: Sesto VITICOLI, *Associazione Italiana per la Ricerca Industriale (Airi)*

JE.III.2	
JE.III.2.1	Elena MOCCHIO, <i>Responsabile Divisione Innovazione,, UNI, Ente Italiano di Normazione</i> Trasferire le conoscenze: la normazione tecnica a supporto dell'innovazione
JE.III.2.2	Fulvio UGGERI, <i>R&D Director, Bracco IMAGING</i> Open Innovation nel Gruppo Bracco: un Modello in Continua Evoluzione
JE.III.2.3	Giovanni BALDI, <i>R&D Director, Colorobbia Consulting</i> La ricerca industriale tra closed e open innovation: il caso di Cericol nello sviluppo di nuovi materiali e tecnologie
JE.III.2.4	Eleonora TANDOI, <i>Innovation Specialist, Warrant Innovation Lab</i> Il processo di innovazione nelle PMI: casi di successo e best practices
JE.III.2.5	Massimo BERSANI, <i>Programme Manager, FBK</i> KET Infrastructure ed Open Innovation
12:30 - 14:00 Light Lunch	

14:00 - 15:30

Ecosistemi e politica locale dell'innovazione - parte 1Moderatore & Opening: Guido FABIANI, *Presidente del Comitato Direttivo del Centro Ricerche Economiche e Sociali Manlio Rossi-Doria (To be confirmed)*

JE.III.3	
JE.III.3.1	Innovazione e Trasferimento Tecnologico nella Regione Lazio Lorenzo LO CASCIO, <i>Regione Lazio, Sviluppo economico</i>
JE.III.3.2	Narciso GAMBACORTI, <i>Program Manager, Nanocharacterization Silicon Technology Department, CEA LETI, Grenoble, Francia</i> L'ecosistema territoriale di Grenoble
JE.III.3.3	Michele MUCCINI, <i>Presidente MIST E-R</i> Un modello di innovazione basata sulla ricerca
JE.III.3.4	Onofrio Antonino CACIOPPO, <i>R&D Physical and Failure Analysis Lab Senior manager, Lfoundry a SMIC Company</i> L'esperienza Open-Lab quale modello per l'open innovation dal punto di vista industriale
JE.III.3.5	Corrado SPINELLA, <i>Director, CNR-DSFTM</i> L'ecosistema di Catania e del territorio siciliano
15:30 - 16:00 Coffee Break	

16:00 - 17:30

JE.III.4	<p align="center">Ecosistemi e politica locale dell'innovazione - parte 2</p> <p align="center">Moderatore & Opening: Stefano FANTACONE, <i>Direttore del CER - Centro Europa Ricerche (to be confirmed)</i></p>
JE.III.4.1	<p>Maria Sabrina SARTO, <i>Prorettore alle Infrastrutture e strumenti per la ricerca di eccellenza, Sapienza Università di Roma</i> L'infrastruttura di ricerca di Sapienza (IRS): politica di attuazione <i>(titolo da confermare)</i></p>
JE.III.4.2	<p>Francesco MATTEUCCI e Roberto DI GIANNANTONIO, <i>Dhitech Scarl</i> Ecosistemi dell'innovazione regionale: il contesto della Regione Puglia ed Emilia Romagna</p>
JE.III.4.3	<p>Roberto SABELLA, <i>R&D Manager e VicePresidente Distretto Tecnologico Toscano Industria 4.0, ERICSSON</i> L'eco-sistema della ricerca di Ericsson in Toscana</p>
JE.III.4.4	<p>Michela MICHILLI, <i>Coordinatore Spazio Attivo Roma Casilina, Lazio Innova SpA</i> Open Innovation: L'esperienza del Lazio</p>

17:30 - 19:00 Salutation Cocktail





NANOMATERIALI E NANOTECNOLOGIE corsi per aggiornamento professionale

Tuesday 11 June - Friday 14 June

in collaborazione con



Ordine degli Ingegneri
della Provincia
di Roma

Il programma di aggiornamento sulle applicazioni dei nanomateriali e delle nanotecnologie in ambito ingegneristico si articola su 13 moduli di 4 ore per una durata totale di tre giorni e mezzo.

Il corso prevede una prima mezza giornata introduttiva (11 giugno, mattina), organizzata in collaborazione anche con INAIL, inclusiva di tematiche orizzontali quali terminologia e definizioni, caratterizzazione, certificazione e normazione, ed a seguire tre giornate dedicate ad applicazioni nei settori dell'ingegneria civile, industriale e dell'informazione.

Durante il corso verrà affrontato l'utilizzo delle nanotecnologie in molteplici settori applicativi, quali chimica & materiali, costruzioni & architettura, energia, tessili, ICT, elettronica, fotonica e opto-elettronica.

Ogni giornata, basata su lezioni frontali da 45 minuti, si articola su quattro moduli della durata di un'ora e mezza ciascuno.

La struttura generale del corso è così articolata:

martedì 11 giugno 2019

- **Nanomateriali e nanotecnologie: opportunità e rischi**

mercoledì 12 giugno 2019

- **Nanotecnologie nell'ingegneria civile e nell'architettura**

giovedì 13 giugno 2019

- **Nanotecnologie nell'ingegneria industriale**

venerdì 14 giugno 2019

- **Nanotecnologie nell'ingegneria dell'Informazione**

A seguire i dettagli giornalieri, pubblicati a breve anche sulla pagina dedicata del sito ufficiale dell'Ordine degli Ingegneri della provincia di Roma (www.ording.roma.it/formazione/seminari).

I singoli corsi saranno tenuti da esperti provenienti sia dal settore accademico sia da quello industriale e potranno accogliere una partecipazione massima di 70 partecipanti.

La partecipazione al corso è libera e gratuita, previa iscrizione al link <http://www.nanoinnovation.it/CFP/application> e varrà l'ordine di prenotazione fino al raggiungimento del numero massimo di partecipanti.

Per i soggetti interessati, il rilascio della certificazione della partecipazione quale riconoscimento di crediti formativi professionali (CFP) verrà gestito direttamente dalle strutture dell'Ordine degli Ingegneri della Provincia di Roma; in questo caso è obbligatoria la registrazione sul sito ufficiale dell'Ordine degli Ingegneri della provincia di Roma (www.ording.roma.it/formazione/seminari).

Comitato Organizzativo

Chairs: Manuel CASALBONI, *Ordine degli Ingegneri, Vice-Presidente*

Marco ROSSI, *Sapienza Università di Roma, Presidente del Consiglio d'Area Didattica in Ingegneria delle Nanotecnologie*

Fabio BOCCUNI, *INAIL*

Massimo CERRI, *Ordine degli Ingegneri*

Francesco FULVI, *Ordine degli Ingegneri*

Francesco MARINUZZI, *Ordine degli Ingegneri*

Francesco MARRA, *Sapienza Università di Roma*

Tuesday 11 June

Nanomateriali e nanotecnologie: opportunità e rischi

08:45 - 09:00

JE.IV.I.0

Saluti Istituzionali

Ing. Carla CAPPIELLO, *Presidente dell'Ordine degli Ingegneri della Provincia di Roma*
Ing. Francesco MARINUZZI, *Consigliere dell'Ordine degli Ingegneri della Provincia di Roma*

09:00 - 09:45

JE.IV.I.1

I nanomateriali: rischi e vantaggi

Prof.ssa Luciana Dini, *Sapienza Università di Roma*

09:45 - 10:30

JE.IV.I.2

La gestione dei nanomateriali nell'ambito dei regolamenti europei sui prodotti chimici

Dott.ssa Maria ALESSANDRELLI, *Istituto Superiore di Sanità - ISS*

10:30 - 11:00 Coffe Break

11:00 - 11:45

JE.IV.I.3

Potenziali effetti sulla salute dei lavoratori nell'esposizione a nanoparticelle e relative metodologie di studio

Dott.ssa Cinzia Lucia URSINI, *Istituto nazionale Assicurazione Infortuni sul Lavoro - INAIL*

11:45 - 12:30

JE.IV.I.4

Metodologie di analisi, misura e caratterizzazione dell'esposizione a nanomateriali aerodispersi nei luoghi di lavoro

Dott. Fabio BOCCUNI, Dott. Riccardo FERRANTE, *Istituto nazionale Assicurazione Infortuni sul Lavoro - INAIL*

12:30 - 14:00 Light Lunch





Wednesday 12 June

Nanotecnologie nell'ingegneria civile e nell'architettura

08:45 - 09:00

JE.IV.II.0

Saluti Istituzionali

Ing. Carla CAPIELLO, *Presidente dell'Ordine degli Ingegneria della Provincia di Roma*
Ing. Francesco MARINUZZI, *Consigliere dell'Ordine degli Ingegneri della Provincia di Roma*

09:00 - 09:45

JE.IV.II.1

Introduzione alle nanotecnologie e ai nanomateriali nell'ingegneria civile e nell'architettura - parte I

Prof. Marco CASINI, *Sapienza Università di Roma*

09:45 - 10:30

JE.IV.II.2

Introduzione alle nanotecnologie e ai nanomateriali nell'ingegneria civile e nell'architettura - parte II

Prof. Marco CASINI, *Sapienza Università di Roma*

10:30 - 11:00 *Coffe Break*

11:00 - 11:45

JE.IV.II.3

Nanomateriali per l'edilizia

Dott.ssa Francesca PETRONELLA, *CNR-IPCF*

11:45 - 12:30

JE.IV.II.4

Compound polimerici a base grafenica per pavimentazioni stradali

Ing. Loretta VENTURINI, *Ph.D., Iterchimica Srl, Suisio, Bergamo*

12:30 - 14:00 *Light Lunch*

14:00 - 14:45

JE.IV.II.5

Coating e vernici nanostrutturate

Prof. Marco CASINI, *Sapienza Università di Roma*

14:45 - 15:30

JE.IV.II.6

Isolanti termici nanostrutturati

Dott. Alberto DONELLI, *AMA Composites, Campogalliano, Modena*

15:30 - 16:00 *Coffee Break*

16:00 - 16:45

JE.IV.II.7

Self cleaning e altre applicazioni di superidrofonicita' nell'ingegneria civile e architettura

Prof. Simone MELONI, *Ph.D., Sapienza Università di Roma*

16:45 - 17:30

JE.IV.II.8

Nanodispositivi per il fotovoltaico integrato

Dott. Francesco MATTEUCCI, *CNR NANOTEC, Lecce*

Thursday 13 June

Nanotecnologie nell'Ingegneria Industriale**08:45 - 09:00**

JE.IV.III.0

Saluti IstituzionaliIng. Carla CAPPIELLO, *Presidente dell'Ordine degli Ingegneri della Provincia di Roma*
Ing. Francesco MARINUZZI, *Consigliere dell'Ordine degli Ingegneri della Provincia di Roma***09:00 - 09:45**

JE.IV.III.1

Introduzione alle nanotecnologie e ai nanomateriali nell'ingegneria industriale - parte IProf. Francesco MARRA, *Ph.D., Sapienza Università di Roma***09:45 - 10:30**

JE.IV.III.2

Introduzione alle nanotecnologie e ai nanomateriali nell'ingegneria industriale - parte IIProf. Giovanni PULCI, *Ph.D., Sapienza Università di Roma*10:30 - 11:00 *Coffe Break***11:00 - 11:45**

JE.IV.III.3

Nanotecnologie per l'efficiamento del Fotovoltaico

Ing. Renato NOBILI

11:45 - 12:30

JE.IV.III.4

Economia circolare verso le nanotecnologie: nuovi prodotti da batterie a fine vitaProf.ssa Francesca PAGNANELLI, *Sapienza Università di Roma*12:30 - 14:00 *Light Lunch***14:00 - 14:45**

JE.IV.III.5

Nuovi materiali e nanotecnologie per la progettazione e realizzazione della prossima generazione di motori elettriciProf. Enzo CHIRICOZZI, Prof. Marco VILLANI, *Università degli Studi dell'Aquila***14:45 - 15:30**

JE.IV.III.6

Dispositivi magnetici per l'archiviazione dei datiDott. Gaspare VARVARO, *ISM-CNR, Roma*15:30 - 16:00 *Coffee Break***16:00 - 16:45**

JE.IV.III.7

Self cleaning e altre applicazioni di superidrofonicita nei settore dell'ingegneria IndustrialeProf. Carlo Masimo CASCIOLA, *Ph.D., Sapienza Università di Roma***16:45 - 17:30**

JE.IV.III.8

Materiali nanostrutturali ad elevate prestazioni meccaniche ottenuti per processi di lavorazione meccanicaIng. Francesco SINTONI, *Associazione dell'Arma Aeronautica, Sezione Roma2-Luigi Broglio*



Friday 14 June

Nanotecnologie nell'ingegneria dell'Informazione	
08:45 - 09:00	
JE.IV.IV.0	Saluti Istituzionali Ing. Carla CAPIELLO, <i>Presidente dell'Ordine degli Ingegneri della Provincia di Roma</i> Ing. Francesco MARINUZZI, <i>Consigliere dell'Ordine degli Ingegneri della Provincia di Roma</i>
09:00 - 09:45	
JE.IV.IV.1	L'impatto sui dispositivi e sugli utenti delle nanotecnologie in Microelettronica Ing. Massimo PIZZARI, <i>Responsabile Sistemi Informativi di DEKRA Italia</i>
09:45 - 10:30	
JE.IV.IV.2	Nanotecnologie per l'industria dei semiconduttori - parte I Dott. Marco RENZELLI, <i>LFoundry a SMIC Company, Avezzano</i>
10:30 - 11:00 <i>Coffe Break</i>	
11:00 - 11:45	
JE.IV.IV.3	Nanotecnologie per l'industria dei semiconduttori - parte II Dott. Marco RENZELLI, <i>LFoundry a SMIC Company, Avezzano</i>
11:45 - 12:30	
JE.IV.IV.4	Nuove Molecole per l'Elettronica Organica Prof. Leonardo MATTIELLO, <i>Ph.D. Dip. SBAI & CNIS, Sapienza Univeristà di Roma</i>
12:30 - 14:00 <i>Light Lunch</i>	
14:00 - 14:45	
JE.IV.IV.5	Le nanotecnologie per i display monitor Ing. Mario D'ETTORRE, <i>Presidente della Commissione Data Center - Ordine degli Ingegneri della Provincia di Roma</i>
14:45 - 15:30	
JE.IV.IV.6	Nanostrutturazione di superfici di semiconduttore tramite fascio ionico Dott.ssa Rossana DELL'ANNA, <i>FBK - Fondazione Bruno Kessler, Trento</i>
15:30 - 16:00 <i>Coffee Break</i>	
16:00 - 16:45	
JE.IV.IV.7	Nanomateriali per l'optoelettronica - parte I Prof. Antonio d'ALESSANDRO, <i>Direttore CNIS, Sapienza University of Rome</i>
16:45 - 17:30	
JE.IV.IV.8	Nanomateriali per l'optoelettronica - parte II Prof. Antonio d'ALESSANDRO, <i>Direttore CNIS, Sapienza Università di Roma</i>



School on SILICON MICRO- AND NANO-TECHNOLOGIES

Wednesday 12 June

Co-organized with:

It-fab

Italian Network for
Micro and Nano Fabrication

In the “European Strategy for Key Enabling Technologies”, the EU has defined six Key Enabling Technologies (KET):

(1) micro- and nanoelectronics, (2) nanotechnology, (3) industrial biotechnology, (4) advanced materials, (5) photonics and (6) advanced manufacturing technologies, with a strong and well documented global impact. Most of these KETs require state-of-the-art facilities and competence on micro and nano-fabrication, a key area of science and technology that is radically changing our world. The aim of this one-day school is to give a high-level introduction and overview on the mandatory building blocks of the silicon-based micro- and nano-fabrication technologies. The course is dedicated to Master degree and Ph.D students, as well as to scientists working in the wide field of micro- and nano-technology. In the final part of the course examples of application of these technologies in global semiconductor companies will be presented.

The school is organized by It-fab (<http://itfab.bo.imm.cnr.it/>), the Italian network for Micro and Nano Fabrication research infrastructures, an initiative that aims to (i) establish harmonized rules, for clean room management and access policies, IP rules, external costs and reporting, (ii) harmonize and share design and simulation software, service contracts, management of professional services, (iii) define joint best practices for reciprocal support and backup, complementarities, standardization of clean room practices, interoperability and data exchange formats and (iv) define common information system for know-how, projects and equipment databases. Members of It-fab are CNR-DSFTM (IMM and Nanotec Institutes), PoliFAB from Politecnico di Milano, FBK-CMM and Fondazione Inphotec. It-fab is partner of the EuroNanoLab initiative (<http://euronanolab.com>)



09:00 - 10:30

JE.V.1	Introduction Lorenza FERRARIO, <i>FBK</i>
JE.V.2	Deposition techniques Riccardo BERTACCO, <i>PoliFAB</i>

10:30 - 11:00 Coffe Break

11:00 - 12:30

JE.V.3	Litography Alessandro NOTTOLA, <i>INPHOTEC</i>
JE.V.4	Etching Fulvio MANCARELLA, <i>CNR</i>

12:30 - 14:00 Light Lunch

14:00 - 15:30

JE.V.5	Nanoscale characterization and metrology Federico FERRARESE LUPI, <i>INRIM</i>
JE.V.6	Test structures and electrical characterization Francesco FICORELLA, <i>FBK</i>

15:30 - 16:00 Coffee Break

16:00 - 17:30

JE.V.7	Basic concepts of packaging Giovan Battista PREVE, <i>INPHOTEC</i>
JE.V.8	The MEMS Evolution: Materials, Sensors, and Actuators Luca ZANOTTI, <i>STMicroelectronics</i>
JE.V.9	CMOS Image Sensors Technology Giovanni DE AMICIS, <i>LFoundry</i>

Boaga Library

Tuesday 12 June, 09:30 to 12:30 and from 14:30 - 17:30

Would you like to discuss your business idea, your research and innovation projects, your technologies with other interested and very skilled people?

THE NETWORKING EVENT IS YOUR GREAT CHANCE!

The collaboration between NanoInnovation and APRE- Italian Agency for the Promotion of European Research - is renewed for the fourth consecutive year. On the 12th of June NanoInnovation 2019 conference will offer different chances for presenting your ideas and meet potential research and business partners.

The networking event is the best way to meet potential cooperation partners during face-to-face meetings. People have the possibility to meet each other with a pre-set schedule (around 20 minutes for each meeting) for sharing ideas and experience, building connection, exchanging information, and evaluating new opportunities of collaboration at all levels. A wide spectrum of businessmen, entrepreneurs, researchers and innovators from Europe and beyond the network event will participate at the event, looking for new business and cooperation opportunities: **do not miss this** great chance!

The networking event is free for the conference participants.

The whole event is managed by APRE – Agency for the Promotion of European Research

Contacts: Matteo Sabini (sabini@apre.it), Serena Borgna (borgna@apre.it) and staff@apre.it




















TOPICS

The network event will be focused on nanotechnologies in the following sectors:
















- INDUSTRY 4.0, ADDITIVE & 3D MANUFACTURING
- AGRI-FOOD
- CONSTRUCTION, BUILDING & RESTORATION
- ELECTRONICS, MICRO AND NANOSYSTEMS
- ENERGY & ENVIRONMENT
- HEALTH & NANOMEDICINE
- INNOVATIVE AND SMART TEXTILES
- NANO-BIO RELATED PRODUCTS
- NANOFABRICATION
- NANO-MATERIALS BASED INNOVATION (including graphene and 2D materials beyond graphene)
- NANOSCALE CHARACTERIZATION AND MEASUREMENTS
- SAFETY AND SOCIAL IMPACTS (including nano-toxicology)
- TRANSPORT, SPACE & AERONAUTICS


















09:00 10:30	Joint Event	JE.IV.I	Nanomateriali e nanotecnologie: rischi e opportunità (JE.IV.I.0-2)	Room 15
				
10:30 11:00	Coffee Break			Cloister Area
11:00 12:30	Joint Event	JE.IV.I	Nanomateriali e nanotecnologie: rischi e opportunità (JE.IV.I.3-4)	Room 15
				
	Satellite Event	SE.I	Tecnologie abilitanti fondamentali e Infrastrutture di Ricerca ad accesso aperto per il trasferimento tecnologico della Regione Lazio. Organizzazione, gestione e impatti territoriali.	Frescoes Room
				
12:30 14:00	Lunch Break			Cloister Area
14:00 14:40	Opening Sessions	OS.I	Institutional and Organization Greetings	Room 1
				
14:40 15:00		OS.II	Nanoevent and Nanoprize	Room 1
				
15:00 16:45	Plenary Session I	PS.I	Advances in Nanotechnology and Nanosciences	Room 1
				
16:45 17:00	Coffee Break			Cloister Area
17:00 19:00	Plenary Session II	PS.II	Innovation at the Nanoscale: Funding Strategies and Opportunities for Industry and Research World	Room 1
				
19:00 19:30	Welcome Cocktail			Cloister Area






09:00 - 10:30	Joint Events	JE.I	Open Infrastructures for Research: an innovative approach supported by Regione Lazio	Room 7 	
		JE.II.A	Electron Microscopy School (JE.II.A.1)	Frescoes Room 	
		JE.IV.II	Nanotecnologie nell' ingegneria civile e nell'architettura (JE.IV.II.0-2)	Room 15 	
		JE.V	School on Silicon Micro- and Nano-Technologies	Room 6 	
	TS.I Thematic Symposia, also part of WorkShop (Multitrack Session)	TS.I.A	3D micro and nano fabrication and characterization	Room 1 	
		TS.I.B	Innovative Micro and Nanotechnologies for Advanced Driver Assistance Systems (ADAS)	Cloister Room 	
		TS.I.C	Innovation in Environmental Nanotechnology	Room 5 	
		TS.I.D	Round Table: Funding strategies and policies for technology parks and nanotechnology centres	Room 8 	
	Satellite Events	SE.II	Advances in surface electrical characterization at the nanoscale, <i>Sponsored by Park Systems</i>	Room 17 	
	Networking		B2B Meetings	Boaga Library	
	10:30 11:00	Coffee Break			Cloister Area
	11:00 - 12:30	Joint Event	JE.I	Open Infrastructures for Research: an innovative approach supported by Regione Lazio	Room 7 
			JE.II.A	Electron Microscopy School (JE.II.A.2)	Frescoes Room 
			JE.IV.II	Nanotecnologie nell' ingegneria civile e nell'architettura (JE.IV.II.3-4)	Room 15 
JE.V			School on Silicon Micro- and Nano-Technologies	Room 6 	
TS.II Thematic Symposia, also part of WorkShop (Multitrack Session)		TS.II.A	Current Nano perspectives in the Agri-Food sector, part of the Workshop WS.I AgriNano Techniques	Room 1 	
		TS.II.B	Environmental Nanotechnology	Room 5 	
		TS.II.C	WinSiC4AP - A European project to compete in the SiC global market	Cloister Room 	
		TS.II.D	Towards Exascale Supercomputers for Nanotechnology	Room 10 	
		TS.II.E	Photonics and Quantum Optics - part I	Room 9 	
		TS.II.F	Additive Manufacturing: New processes in materials production and holistic quality inspection from powder to product	Room 8 	
Networking			B2B Meetings	Boaga Library	
12:30 14:00		Lunch Break			Cloister Area

14:00 - 15:30	Joint Events	JE.I	Open Infrastructures for Research: an innovative approach supported by Regione Lazio	Room 7 	
		JE.II.A	Electron Microscopy School (JE.II.A.3)	Frescoes Room 	
		JE.IV.II	Nanotecnologie nell' ingegneria civile e nell'architettura (JE.IV.II.5-6)	Room 15 	
		JE.V	School on Silicon Micro- and Nano-Technologies	Room 6 	
	TS.III Thematic Symposia, also part of WorkShop (Multitrack Session)	TS.III.A	Nanomaterials and Plant Nutrition, part of the Workshop WS.I AgriNano Techniques	Room 1 	
		TS.III.B	Beyond the lithium-ion battery - part 1	Room 8 	
		TS.III.C	NANOMEDICINE: applications from bench to bedside - part 1	Cloister Room 	
		TS.III.D	Tools for the 3D world	Room 5 	
		TS.III.E	Photonics and quantum optics - part 2	Room 10 	
	Satellite Events	SE.II	Advances in surface electrical characterization at the nanoscale, <i>Sponsored by Park Systems</i>	Room 17 	
	Networking		B2B Meetings	Boaga Library	
	15:30 16:00	Coffee Break			Cloister Area
	16:00 - 17:30	Joint Event	JE.I	Open Infrastructures for Research: an innovative approach supported by Regione Lazio	Room 7 
			JE.II.A	Electron Microscopy School (JE.II.A.4)	Frescoes Room 
JE.IV.II			Nanotecnologie nell' ingegneria civile e nell'architettura (JE.IV.II.7-8)	Room 15 	
JE.V			School on Silicon Micro- and Nano-Technologies	Room 6 	
TS.IV Thematic Symposia, also part of WorkShop (Multitrack Session)		TS.IV.A	AgriNano Techniques Research Pathways, part of the Workshop WS.I AgriNano Techniques	Room 1 	
		TS.IV.B	Beyond the lithium-ion battery - part 2	Room 8 	
		TS.IV.C	NANOMEDICINE: applications from bench to bedside - part 2	Cloister Room 	
		TS.IV.D	Industria 4.0 e nuovi materiali:strategie, training e opportunità di finanziamento	Room 5 	
		TS.IV.E	Nanotecnologie in Cosmesi	Room 10 	
Networking			B2B Meetings	Boaga Library	

09:00 - 10:30	Joint Events	JE.II.B	Electron Microscopy School (JE.II.B.1)	Frescoes Room 	
		JE.IV.III	Nanotecnologie nell'ingegneria industriale (JE.IV.III.0-2)	Room 15 	
	TS.V Thematic Symposia, also part of WorkShop (Multitrack Session)	TS.V.A	Nanomaterials Enhanced membranes and Processes for water and energy challenges	Cloister Room 	
		TS.V.B	Research on Nanotechnologies @ CNIS - part 1, part of the workshop WS.II on "Nanotechnology @Sapienza"	Room 1 	
		TS.V.C	Risk Governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 1, part of the workshop WS.V on " Solutions to address safety and regulatory aspects of nanomaterials"	Room 7 	
		TS.V.D	Porous media mimicking and analysis through nanotechnology	Room 8 	
	Satellite Events	SE.III	New perspectives in nano-analysis with correlative 3D Raman imaging – workshop and hands-on session, Supported by LOT-QD/WITEC	Room 17 	
	10:30 11:00	Coffee Break			Cloister Area
	11:00 - 12:30	Joint Event	JE.II.B	Electron Microscopy School (JE.II.B.2)	Frescoes Room 
JE.IV.III			Nanotecnologie nell'ingegneria industriale (JE.IV.III.3-4)	Room 15 	
TS.VI Thematic Symposia, also part of WorkShop (Multitrack Session)		TS.VI.A	Advanced membranes nanomaterials for CO ₂ separation	Room 5 	
		TS.VI.B	Risk governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 2, part of the workshop WS.V on " Solutions to address safety and regulatory aspects of nanomaterials"	Room 7 	
		TS.VI.C	Research on Nanotechnologies @ CNIS - part 2, part of the workshop WS.II on "Nanotechnology @Sapienza"	Room 1 	
		TS.VI.D	Multiscale dimensional approaches for multifunctional coatings fabrication on additive manufactured, metallic components	Room 8 	
		TS.VI.E	Synthesis and characterization of 2D nanomaterial, part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"	Cloister Room 	
Satellite Events		SE.III	New perspectives in nano-analysis with correlative 3D Raman imaging – workshop and hands-on session, Supported by LOT-QD/WITEC	Room 17 	
12:30 14:00		Lunch Break			Cloister Area

14:00 - 15:30	Joint Events	JE.II.B	Electron Microscopy School (JE.II.B.3)	Frescoes Room
				
		JE.IV.III	Nanotecnologie nell'ingegneria industriale (JE.IV.III.5-6)	Room 15
				
	TS.VII Thematic Symposia, also part of WorkShop (Multitrack Session)	TS.VII.A	Sustainable materials for CO ₂ photo/electrocatalytic valorization	Room 6
				
		TS.VII.B	Structural characterization techniques for nanomaterials and applications	Room 5
				
		TS.VII.C	Nanotechnologies and Key Enabling Technologies in innovation processes: the NanoKey project for risk prevention in the workplace, part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"	Room 7
				
		TS.VII.D	Research on Nanotechnologies @ CNIS - part 3	Room 1
				
	TS.VII.E	New nanoscale drug delivery systems: recent advances in nanotheranostic	Room 8	
				
TS.VII.F	2D nanomaterial for energy harvesting and storage application, part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"	Cloister Room		
				
15:30 16:00	Coffee Break			Cloister Area
16:00 - 17:30	Joint Event	JE.II.B	Electron Microscopy School (JE.II.B.4)	Frescoes Room
				
		JE.IV.III	Nanotecnologie nell'ingegneria civile e nell'architettura (JE.IV.III.7-8)	Room 15
				
	TS.VIII Thematic Symposia, also part of WorkShop (Multitrack Session)	TS.VIII.A	Technological integration and processing of 2D nanomaterials, part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"	Cloister Room
				
		TS.VIII.B	Innovative nanomaterials for cultural heritage, part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"	Room 7
				
		TS.VIII.C	Biosafety of nanomaterials, part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"	Room 8
				
	TS.VIII.D	Ex-alumni Nanotechnology Engineering @ Sapienza	Room 1	
				
TS.VIII.E	Nanoinnovation's Got Talent	Room 5		
				

09:00 - 10:30	Joint Events	JE.II.D	Electron Microscopy School (JE.II.D.1)	Room 7
				
		JE.III	Open Innovation & Open Science: la situazione italiana	Frescoes Room
				
		JE.IV.IV	Nanotecnologie nell'ingegneria dell'informazione (JE.IV.IV.0-2)	Room 15
				
	TS.IX Thematic Symposia, also part of WorkShop (Multitrack Session)	TS.IX.A	Diagnostics and nanotechnologies for cultural heritage, part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"	Room 1
				
		TS.IX.B	Nanomaterials, device and tools for life sciences	Room 8
				
	TS.IX.C	High efficiency solar cells and developing tandem concepts	Cloister Room	
				
Satellite Events	SE.IV	Breakthrough Lab X-ray Techniques approaching Synchrotron Beamline Performances, Supported by LOT-QD/SIGRAY	Room 17	
				
10:30 11:00	Coffee Break			Cloister Area
11:00 - 12:30	Joint Event	JE.II.D	Electron Microscopy School (JE.II.D.2)	Room 7
				
		JE.III	Open Innovation & Open Science: la situazione italiana	Frescoes Room
				
		JE.IV	Nanotecnologie nell'ingegneria dell'informazione (JE.IV.IV.3-4)	Room 15
				
	TS.X Thematic Symposia, also part of WorkShop (Multitrack Session)	TS.X.A	New Technologies for the safety and the reconstruction in seismic area(s), part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"	Room 1
				
		TS.X.B	Advanced Optical Devices and Techniques	Room 8
				
	TS.X.C	Novel Materials for Solar and Thermal Energy Harvesting	Cloister Room	
				
Satellite Events	SE.IV	Breakthrough Lab X-ray Techniques approaching Synchrotron Beamline Performances, Supported by LOT-QD/SIGRAY	Room 17	
				
12:30 14:00	Lunch break			Cloister Area

14:00 - 15:30	Joint Events	JE.II.D	Electron Microscopy School (JE.II.D.3-5)	Room 7
				
		JE.III	Open Innovation & Open Science: la situazione italiana	Frescoes Room
				
	JE.IV.IV	Nanotecnologie nell'ingegneria dell'informazione (JE.IV.IV.5-6)	Room 15	
				
15:30 16:00	Coffee Break			Cloister Area
16:00 - 17:30	Joint Events	JE.III	Open Innovation & Open Science: la situazione italiana	Frescoes Room
				
	JE.IV.IV	Nanotecnologie nell'ingegneria dell'informazione (JE.IV.IV.7-8)	Room 15	
				





LFOUNDRY

A **SMIC** COMPANY

OVERVIEW

LFoundry, a SMIC company, is a leading specialized foundry. From the heart of ancient Europe, with the Headquarter in Avezzano (Italy), LFoundry is focused on providing access to most advanced analogue manufacturing service with a capacity of >40,000 wafers/month, innovative technology extensions, including volume 90nm and copper manufacturing, a strong emphasis on flexibility and customer partnership. LFoundry is supporting own technology IP for 150nm and 110nm with a large portfolio of process-proven libraries, IP, design tools and reference flows. LFoundry's key focus is primarily in automotive and industrial related applications including CIS, security, smart power, embedded memory, and others.

As a SMIC Company, LFoundry can leverage skills and capabilities of one of the leading semiconductor foundries in the world and the largest and most advanced foundry in mainland China.

OUR PLACE

In Avezzano (AQ), LFoundry is enabling innovation worldwide. We have a continuous commitment to guaranteeing a secure environment in which our customers can realise their ideas to the highest standard, relying on LFoundry as an indispensable partner to unleash their full potential.

DEDICATED FOUNDRY AT AVEZZANO

Since 2006, the 8" Avezzano site has been manufacturing imaging process technologies and products using 180nm to 90nm technologies, including a volume copper, Back End of Line (BEOL), Back Side Illumination processes (BSI) and extensive testing capabilities. The Fab provides automotive ISO-TS16949 certification as well as OHSAS 18001 and ISO 14001

SERVICE MODEL

Technology development and production partnership

CUSTOMER TECHNOLOGY

Adopting customer technology and customizing foundry technology

- ⊙ Special imaging technology know how and capabilities
- ⊙ Engineering know how & IP for non-CMOS technologies such as Optical Sensors, Power MOS, ...

QUALITY
INNOVATIVE
TECHNOLOGY
COMMITMENT
FLEXIBILITY

JOINT TECHNOLOGY DEVELOPMENT

Technology development and production partnership

- ⊙ Excellent network to leading institutes
- ⊙ New integration e.g. for MEMS into CMOS
- ⊙ Technology IP generation
- ⊙ Setup of full solutions

OPEN FOUNDRY

Design environments and wafer fabrication based on advanced analogue/mixed signals technology

- ⊙ Flexible PDK platform (i-PDK) with accurate models
- ⊙ Continuous mainstream technology enrichment with modules like Image Sensors/Pixel, Optical Sensors, High Voltage, RF devices, High density / low cost embedded memory, ...
- ⊙ Specific qualifications like **automotive** and **security**

CONTACT

Via Antonio Pacinotti 7, Avezzano AQ 67051
Home phone:+39 0863 4231
Fax:+39 0863 412763
Pec: lfoundry@pec.it
www.lfoundry.com

11:00





TAVOLA ROTONDA

Area del Chiostro, Sala degli Affreschi

Nell'ambito del convegno NanoInnovation 2019 è stata organizzata una Tavola Rotonda, con partecipazione ad invito, su:

Tecnologie abilitanti fondamentali e Infrastrutture di Ricerca ad accesso aperto per il trasferimento tecnologico della Regione Lazio: organizzazione, gestione e impatti territoriali

La Regione Lazio ha nel corso del 2018 finanziato quattro importanti progetti per la creazione di infrastrutture aperte di ricerca su quattro tecnologie abilitanti:

Micro e nano Elettronica: progetto NanoMicroFab Infrastruttura aperta di ricerca per il supporto di aziende operanti nell'ambito della micro-nanoelettronica, coordinato da CNR	 Consiglio Nazionale delle Ricerche
Materiali avanzati: progetto MAIA Materiali Avanzati in una Infrastruttura Aperta, coordinato da ENEA	 Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile
Nanotecnologie: progetto ATOM Advanced Tomography and Microscopies, coordinato da Sapienza Università di Roma	 ATOMCENTER
Sistemi di fabbricazione avanzati: LATINO Laboratory in Advanced Technologies for INNOVation, coordinato da INFN	 Istituto Nazionale di Fisica Nucleare

Negli ultimi anni si sono intensificati gli sforzi per razionalizzare e coordinare il sostegno alle infrastrutture di ricerca e consentirne l'uso e l'accesso agli operatori delle attività produttive. La Regione Lazio ha recentemente promosso la nascita e lo sviluppo di importanti Infrastrutture aperte di ricerca e trasferimento tecnologico, rivolte alla comunità scientifica e soprattutto alle imprese, sulle quattro tecnologie abilitanti fondamentali: Nanotecnologie, Micro e nano Elettronica, Materiali avanzati e Sistemi di fabbricazione avanzati. L'obiettivo della Tavola Rotonda è quello di aprire un dialogo con tutti i soggetti potenzialmente interessati all'utilizzo delle infrastrutture, fornendo innanzitutto informazioni sulle loro caratteristiche sia tecnologiche che organizzativo-gestionali, che consenta di:

- evidenziare ed aggiornare le effettive esigenze degli operatori, per individuare le eventuali azioni migliorative che dovessero risultare necessarie nella fase di gestione delle infrastrutture;
- stimolare ulteriori interessi degli operatori, grazie ad una maggiore consapevolezza delle potenzialità offerte dalle singole infrastrutture e dalla loro integrazione.

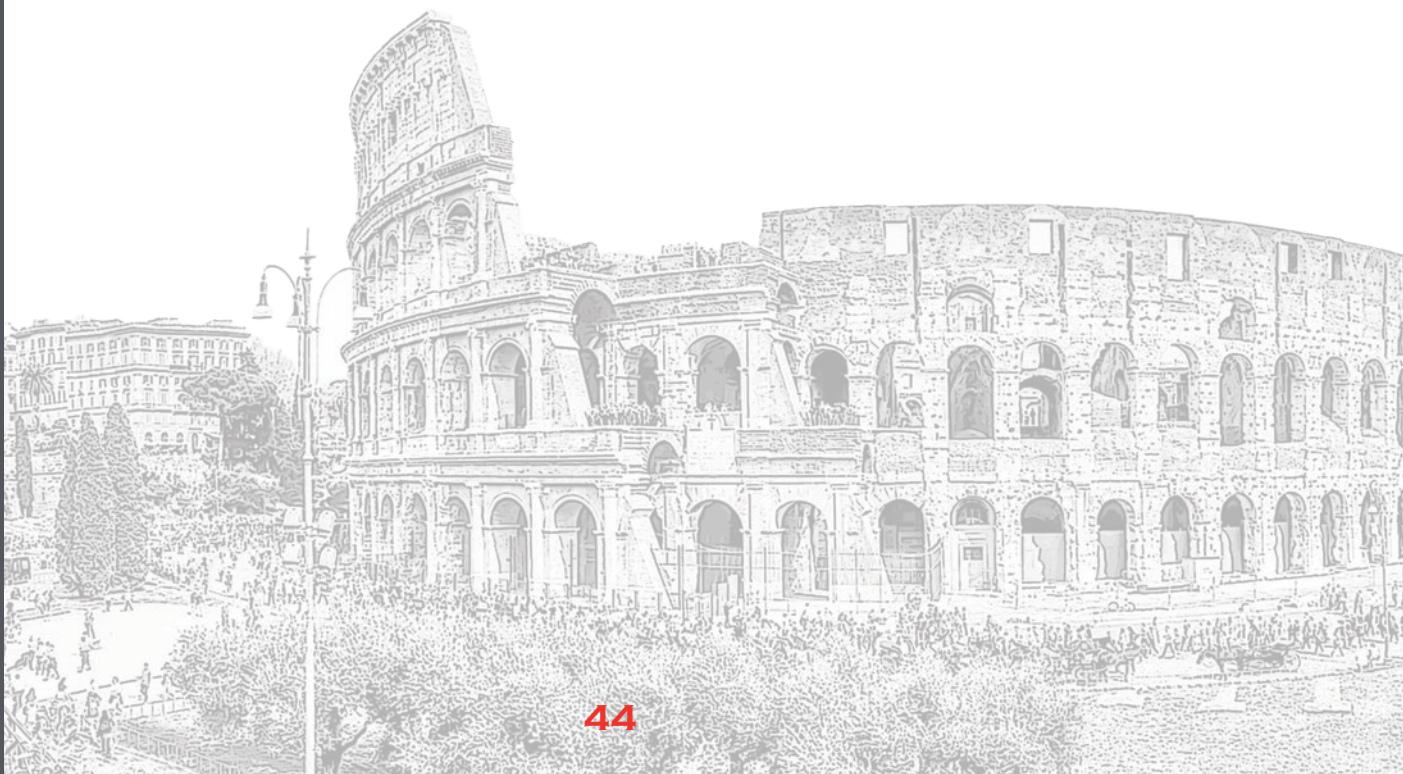


REGIONE
LAZIO

14:00 - 14:40 OS.I - OPENING SESSION I	
Welcome	
Chair: Maria Sabrina SARTO, <i>Sapienza University of Rome</i> (Deputy Rector for Research Tools and Infrastructure)	
OS.I.1	Eugenio GAUDIO <i>Sapienza University of Rome (Rector)</i>
OS.I.2	Antonio D'ANDREA <i>Sapienza University of Rome, Faculty of Civil and Industrial Engineering (Dean)</i>
OS.I.3	Gian Paolo MANZELLA <i>Assessore Sviluppo Economico, Commercio e Artigianato, Start-Up, "Lazio Creativo" e Innovazione Regione Lazio</i>
OS.I.4	Claudio PASQUALUCCI & Salvatore ANGRISANO <i>ITA - Italian Trade Agency</i>
OS.I.5	Marco FALZETTI <i>Director, APRE</i>
14:40 - 15:00 OS.II - OPENING SESSION II	
Nanoevent and Nanoprize	
Chair: Sesto VITICOLI, <i>AIRI</i>	
OS.II.1	Announcement of the NEST PRIZE Winner
OS.II.2	Paola FERRARI <i>President, Accademia di Gagliato delle NanoScienze</i> NanoGagliato: An innovative platform of community engagement through nanotechnology

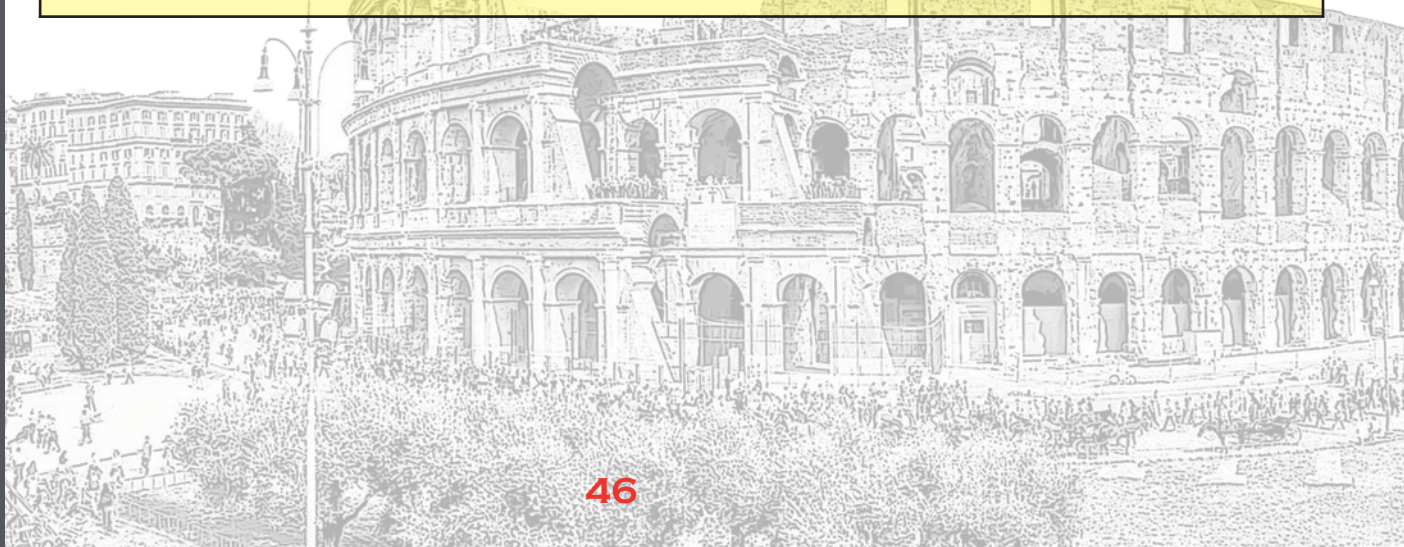
15:00 - 16:45 PS.I - PLENARY SESSION I	
Advances in Nanotechnology and Nanosciences Chair: Carlo MARIANI, <i>Sapienza University of Rome</i>	
PS.I.1	Giorgio ROSSI, <i>Coordinator, NFFA-Europe</i> Research Infrastructures supporting Nano Science and Innovation
PS.I.2	Gustaaf VAN TENDELOO, <i>University of Antwerp, Belgium</i> Advanced Electron Microscopy for Advanced Materials
PS.I.3	Beatrice VALLONE, <i>Sapienza University of Rome</i> The resolution revolution in cryo-electron microscopy opens new avenues in nano-biotechnology and drug design
16:45 - 17:00 Coffee Break	
17:00 - 19:00 PS.II - PLENARY SESSION II	
Innovation at the Nanoscale: Research and innovation strategies and opportunities for the Industry and Research world Chair: To be defined, <i>Regione Lazio & To be defined, Lazio Innova</i>	
PS.II.1	ANDREA BECCARI, <i>Regione Lazio</i> The Research and Innovation Ecosystem of Regione Lazio
PS.II.2	Massimo BUSUOLI, <i>Head of Norwegian University of Science and Technology (NTNU) Brussels Office</i> The NTNU approach to innovation in the Nanotechnology field and the perspectives towards Horizon Europe
PS.II.3	Antonello LAPALORCIA, <i>Ministry of Economic Development, Department of Industrial policies, competitiveness and SMEs</i> A tool halfway between competition policy and industrial policy: the experience with the Project of Important Common European Interest (IPCEIs) on nano/microelectronics
PS.II.4	Amilcare COLLINA, <i>MAPEI</i> Cooperation between Industry and Scientific Community: the MAPEI experience
PS.II.5	Corrado SPINELLA, <i>Director of Department of Physical Sciences and Technologies of Matter DSFTM - CNR</i> The role of CNR in the research and innovation landscape
PS.II.6	Betty PACHUTHO UDONGO, <i>Pincer Training and Research Institute/Albinism Umbrella</i> The need of Africa: may nanotechnologies change the scenario?
PS.II.7	Ennio CAPRIA, <i>Deputy Head of Business Development European Synchrotron (ESRF), Grenoble, France</i> GIANT innovation campus - The hearth of a unique technological ecosystem in (title to be defined)
PS.II.8	Roberto BATTISTON, <i>University of Trento</i> Space Economy: a window to the future
19:00 - 19:30 Welcome Cocktail	

09:00 - 10:30 TT.I - TECHNICAL MULTI-TRACK - PARALLEL SYMPOSIA	
TT.I.A	<p>3D micro and nano fabrication and characterization Chair: Veronica SPARACINO, ZEISS</p> <p><i>In collaboration with: ZEISS</i></p>
TT.I.B	<p>Innovative Micro and Nanotechnologies for Advanced Driver Assistance Systems (ADAS) Chair: Sabrina CONOCI, STMicroelectronics</p> <p><i>In collaboration with: STMicroelectronics & Distretto Tecnologico Sicilia Micro e Nano Sistemi</i></p>
TT.I.C	<p>Innovation in Environmental Nanotechnology Chair: Francesco MATTEUCCI, DHITECH, Lecce</p> <p><i>In collaboration with: DHITECH, Lecce</i></p>
TT.I.D	<p>Round Table: Funding strategies and policies for technology parks and nanotechnology centres Chairs: Prof. Maria Sabrina SARTO, Deputy Rector for Research Infrastructure and Tools, Sapienza University of Rome & Dr. Salvatore ANGRISANO, Italian Trade Agency</p> <p><i>In collaboration with: Italian Trade Agency, Nanoltaly Association, Airi - Italian Association for Industrial Research</i></p>
<p>10:30 - 11:00 Coffee Break</p>	



11:00 - 12:30 TT.II - TECHNICAL MULTI-TRACK - PARALLEL SYMPOSIA	
TT.II.A WS.I.1	<p>Current Nano perspectives in the Agri-Food sector Chair: Nelson MARMIROLI, <i>CINSA Consorzio Interuniversitario Nazionale per le Scienze Ambientali</i></p> <p><i>The symposium is part of the workshop WS.I on "AgriNanoTechniques"</i></p>
TT.II.B	<p>Environmental Nanotechnology Chair: Roberto GIANNANTONIO, <i>DHITECH, Lecce</i></p> <p><i>In collaboration with: DHITECH, Lecce</i></p>
TT.II.C	<p>WInSiC4AP - An European project to compete in the SiC global market Chair: Leoluca LIGGIO, <i>Distretto Tecnologico Sicilia Micro e Nano Sistemi</i></p> <p><i>In collaboration with: STMicroelectronics & Distretto Tecnologico Sicilia Micro e Nano Sistemi</i></p>
TT.II.D	<p>Towards Exascale Supercomputers for Nanotechnology Chair: Massimo CELINO, <i>ENEA</i></p> <p><i>In collaboration with: ENEA</i></p>
TT.II.E	<p>Photonics and quantum optics - part 1 Chair: Georg PUCKER, <i>FBK</i></p> <p><i>In collaboration with: FBK</i></p>
TT.II.F	<p>Additive Manufacturing: New processes in materials production and holistic quality inspection from powder to product Chair: Francesco BIANCARDI, <i>ZEISS</i></p> <p><i>In collaboration with: ZEISS</i></p>
12:30 - 14:00 Light Lunch	

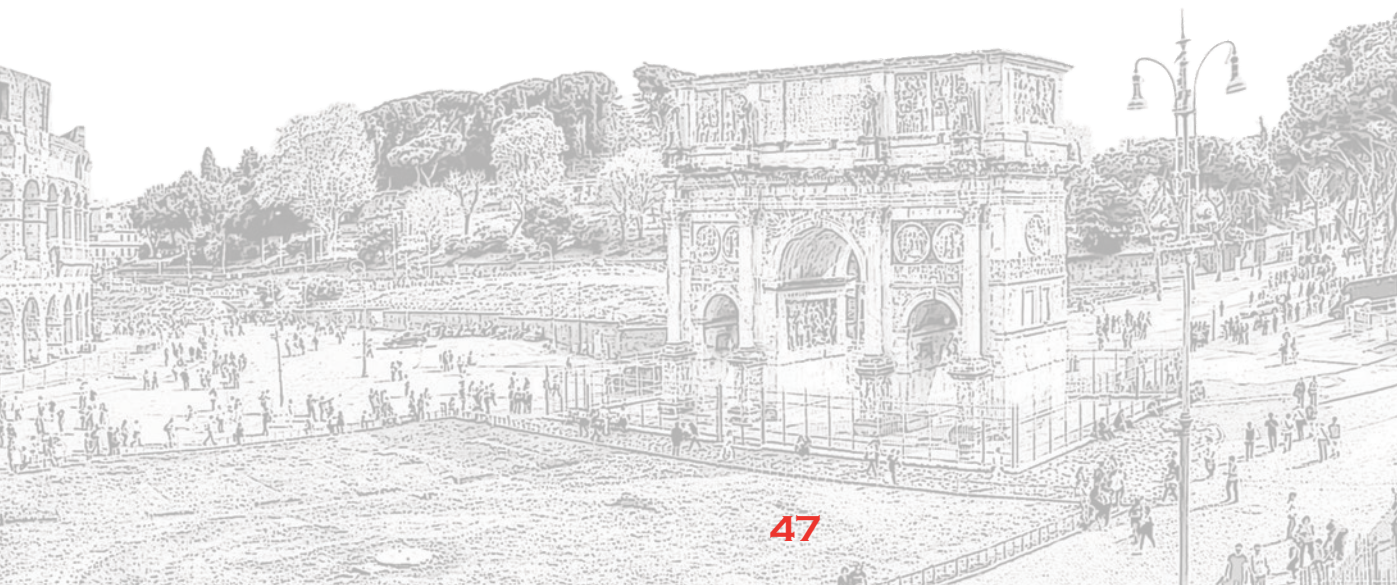
14:00 - 15:30 TT.III - TECHNICAL MULTI-TRACK - PARALLEL SYMPOSIA	
TT.III.A WS.I.2	<p>Nanomaterials and Plant Nutrition Chair: Zeno VARANINI, <i>University of Verona</i></p> <p><i>The symposium is part of the workshop WS.I on "AgriNanoTechniques"</i></p>
TT.III.B	<p>Beyond the lithium-ion battery - part 1 Chair: Pierpaolo PROSINI, <i>ENEA Casaccia</i></p> <p><i>In collaboration with: ENEA</i></p>
TT.III.C	<p>NANOMEDICINE: applications from bench to bedside - part 1 Chair: Giovanni TOSI, <i>Nanomedicine Platform of University of Modena and Reggio Emilia</i> and Marzia BEDONI, <i>Laboratory of Nanomedicine and Clinical Biophotonics (LABION), IRCCS Fondazione Don Gnocchi</i></p> <p><i>In collaboration with: University of Modena and Reggio Emilia, IRCCS Fondazione Don Gnocchi</i></p>
TT.III.D	<p>Tools for the 3D world Chair: Beatrice VALLONE, <i>Sapienza University of Rome</i></p> <p><i>In collaboration with: ASSING</i></p>
TT.III.E	<p>Photonics and quantum optics - part 2 Chair: Georg PUCKER, <i>FBK</i></p> <p><i>In collaboration with: FBK</i></p>
<p>15:30 - 16:00 Coffee Break</p>	



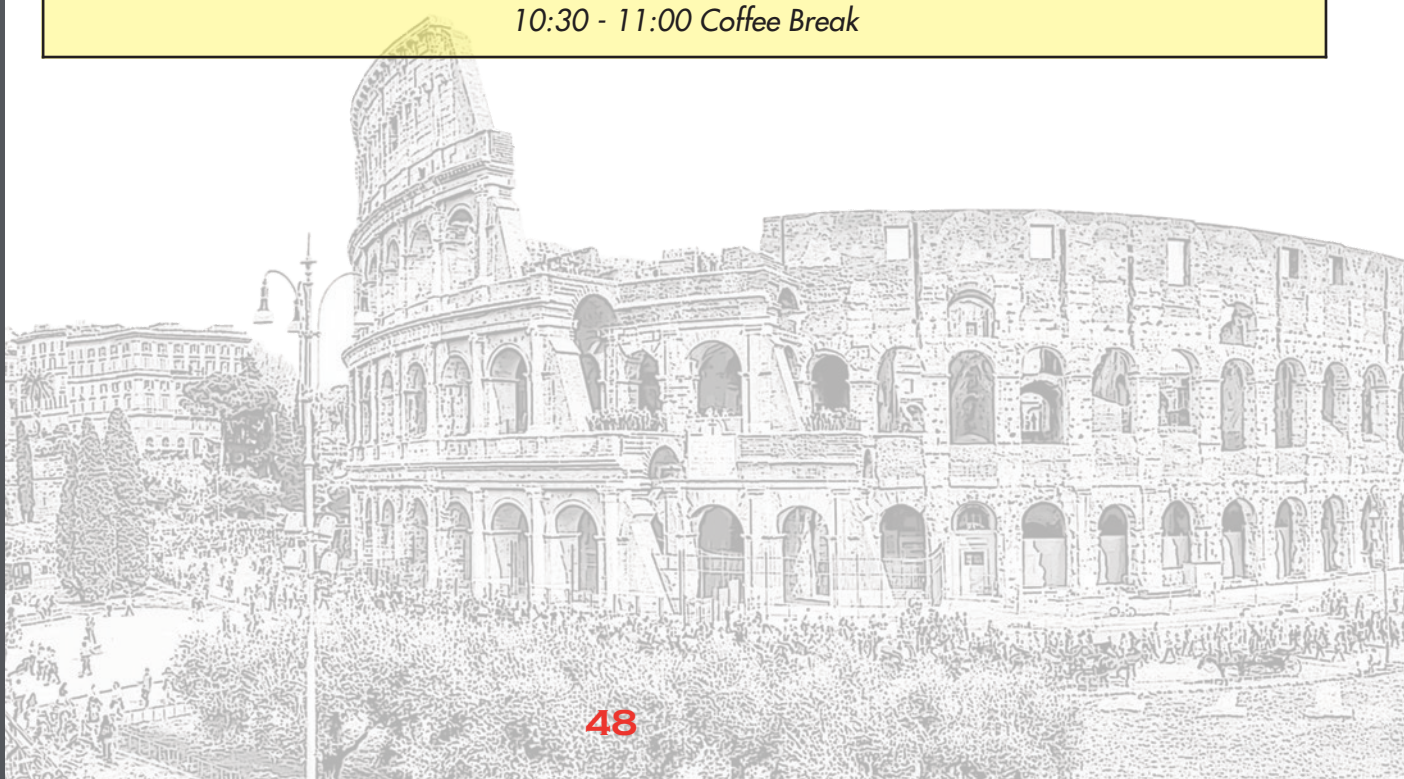
16:00 - 17:30

TT.IV - TECHNICAL MULTI-TRACK - PARALLEL SYMPOSIA

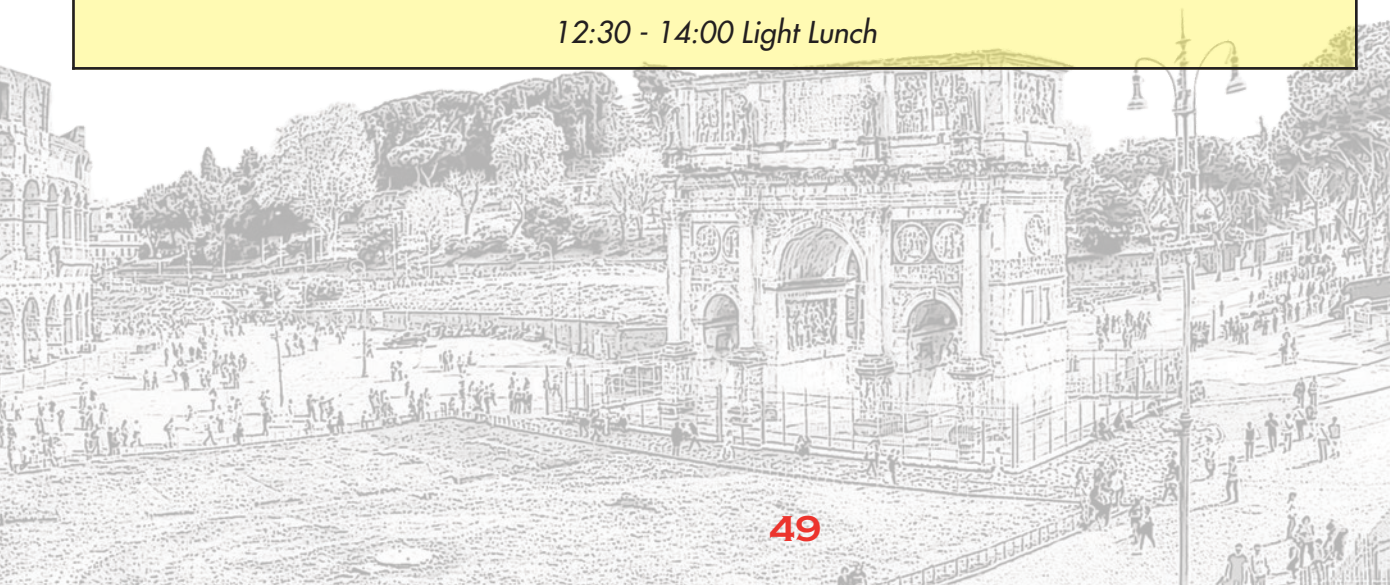
TT.IV.A WS.I. 3	AgriNano Techniques Research Pathways Chair: Luca MARCHIOL, <i>University of Udine</i> <i>The symposium is part of the workshop WS.I on "AgriNanoTechniques"</i>
TT.IV.B	Beyond the lithium-ion battery - part 2 Chair: Pierpaolo PROSINI, <i>ENEA Casaccia</i> <i>In collaboration with: ENEA</i>
TT.IV.C	NANOMEDICINE: applications from bench to bedside - part 2 Chair: Giovanni TOSI, <i>Nanomedicine Platform of University of Modena and Reggio Emilia</i> and Marzia BEDONI, <i>Laboratory of Nanomedicine and Clinical Biophotonics (LABION), IRCCS Fondazione Don Gnocchi</i> <i>In collaboration with: University of Modena and Reggio Emilia, IRCCS Fondazione Don Gnocchi</i>
TT.IV.D	Industria 4.0 e nuovi materiali: strategie, training e opportunità di finanziamento Chair: Chiara CAPPELLI, <i>Scuola Normale Superiore</i> <i>In collaboration with: Scuola Normale Superiore - Macro Nodo del Centro di Competenza MISE - ARTES 4.0</i>
TT.IV.E	Nanotecnologie in Cosmesi Chair: Donatella PAOLINO, <i>University "Magna Graecia" of Catanzaro</i> <i>In collaboration with: University "Magna Graecia" of Catanzaro</i>



09:00 - 10:30 TT.V - Technical multi-Track - parallel SYMPOSIA	
TT.V.A	<p>Nanomaterials Enhanced membranes and Processes for water and energy challenges Chair: Giancarlo CICERO, <i>Polytechnic of Turin</i> & Elena TRESSO, <i>Polytechnic of Turin</i></p> <p><i>In collaboration with: Polytechnic of Turin</i></p>
TT.V.B WS.II.1	<p>Research on Nanotechnologies @ CNIS - part 1 Chairs: Antonio d'ALESSANDRO, <i>Sapienza University of Rome</i> & Carlo Massimo CASCIOLA, <i>Sapienza University of Rome</i></p> <p><i>The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"</i></p>
TT.V.C WS.V.1	<p>Risk governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 1 Chairs: Andrea PORCARI, Elvio MANTOVANI, <i>Airi</i></p> <p><i>In collaboration with: caLIBRAte project, AIRI, Federchimica and INAIL</i></p> <p><i>The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"</i></p>
TT.V.D	<p>Porous media mimicking and analysis through nanotechnology Chairs: Marzia QUAGLIO and Dario VIBERTI, <i>Polytechnic of Turin</i></p> <p><i>In collaboration with: Polytechnic of Turin</i></p>
<p>10:30 - 11:00 Coffee Break</p>	



11:00 - 12:30 TT.VI - Technical multi-Track - parallel SYMPOSIA	
TT.VI.A	<p>Advanced Membranes nanomaterials for CO₂ separation Chairs: Sergio BOCCHINI, IIT, Center for Sustainable Future Technologies - CSFT@POLITO & Elena TOCCI, CNR-ITM</p> <p><i>In collaboration with: IIT, Center for Sustainable Future Technologies - CSFT@POLITO</i></p>
TT.VI.B WS.V.2	<p>Risk governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 2 Chairs: Andrea PORCARI & Elvio MANTOVANI, Airi</p> <p><i>In collaboration with: caLIBRAte project, AIRI, Federchimica and INAIL</i></p> <p><i>The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"</i></p>
TT.VI.C WS.II.2	<p>Research on Nanotechnologies @ CNIS - part 2</p> <p><i>The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"</i></p>
TT.VI.D	<p>Multiscale dimensional approaches for multifunctional coatings fabrication on additive manufactured, metallic components Chair: Sergio VALERI, University of Modena and Reggio Emilia and CNR-NANO</p> <p><i>In collaboration with: University of Modena and Reggio Emilia</i></p>
TT.VI.E WS.III.1	<p>Synthesis and characterization of 2D nanomaterial Chair: Vittorio MORANDI, CNR-IMM, Bologna</p> <p><i>In collaboration with: Polytechnic of Turin and CNR-IMM</i></p> <p><i>The symposium is part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"</i></p>
12:30 - 14:00 Light Lunch	

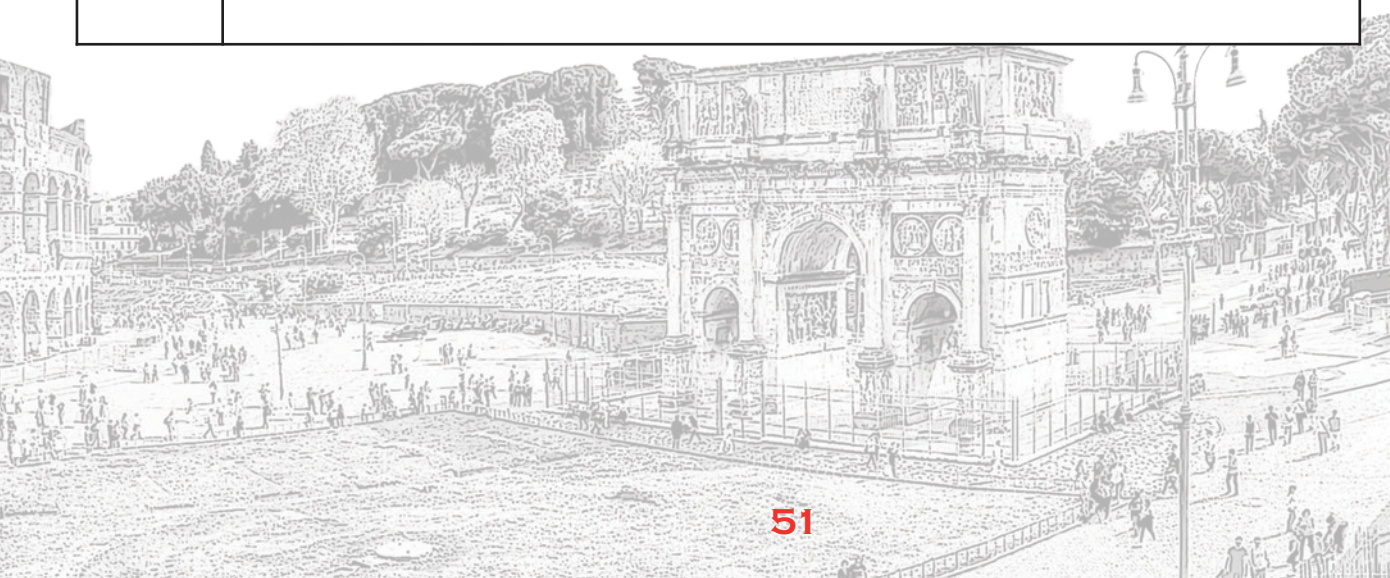


14:00 - 15:30 TT.VII - Technical multi-Track - parallel SYMPOSIA	
TT.VII.A	<p>Sustainable materials for CO₂ photo/electrocatalytic valorization Chairs: Angelica CHIODONI, IIT, Center for Sustainable Future Technologies - CSFT@POLITO and Francesca RISPLENDI, Polytechnic of Turin</p> <p><i>In collaboration with: IIT, Center for Sustainable Future Technologies - CSFT@POLITO and Polytechnic of Turin</i></p>
TT.VII.B	<p>Structural characterization techniques for nanomaterials and applications Chair: Giuliana FAGGIO, The "Mediterranean" University of Reggio Calabria</p> <p><i>In collaboration with: The "Mediterranean" University of Reggio Calabria</i></p>
TT.VII.C WS.V.3	<p>Nanotechnologies and Key Enabling Technologies in innovation processes: the NanoKey project for risk prevention in the workplace Chair: Fabio BOCCUNI, INAIL</p> <p><i>In collaboration with: INAIL, IIT</i></p> <p><i>The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"</i></p>
TT.VII.D WS.II.3	<p>Research on Nanotechnologies @ CNIS - part 3 Chair: Antonio d'ALESSANDRO, Sapienza University of Rome</p> <p><i>The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"</i></p>
TT.VII.E	<p>New nanoscale drug delivery systems: recent advances in nanotheranostic Chairs: Miriam COLOMBO, NanoBioLab - University of Milano-Bicocca and Laura PANDOLFI, IRCCS Policlinico San Matteo, Pavia</p> <p><i>In collaboration with: University of Milano-Bicocca</i></p>
TT.VII.F WS.III.2	<p>2D nanomaterial for energy harvesting and storage application Chair: Andrea LAMBERTI, Polytechnic of Turin</p> <p><i>In collaboration with: Polytechnic of Turin and CNR-IMM</i></p> <p><i>The symposium is part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"</i></p>
<p>15:30 - 16:00 Coffee Break</p>	

16:00 - 17:30

TT.VIII - Technical multi-Track - parallel SYMPOSIA

TT.VIII.A WS.III.3	<p>Technological integration and processing of 2D nanomaterials Chair: Vittorio MORANDI, CNR-IMM, Bologna & Andrea LAMBERTI, Polytechnic of Turin</p> <p><i>In collaboration with: Polytechnic of Turin and CNR-IMM</i></p> <p><i>The symposium is part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"</i></p>
TT.VIII.B WS.IV.1	<p>Innovative nanomaterials for cultural heritage Chair: David CHELAZZI, CSGI</p> <p><i>In collaboration with: CSGI</i></p> <p><i>The symposium is part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"</i></p>
TT.VIII.C WS.V.4	<p>Biosafety of nanomaterials Chair: Luisa FIANDRA, POLARIS Research Center - University of Milano-Bicocca</p> <p><i>In collaboration with: University of Milano-Bicocca</i></p> <p><i>The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"</i></p>
TT.VIII.D WS.II.4	<p>Ex-alumni Nanotechnology Engineering @ Sapienza Chair: Carlo Massimo CASCIOLA, Sapienza University of Rome</p> <p><i>The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"</i></p>
TT.VIII.E	<p>NanoInnovation's Got Talent Chair: Fulvio UGGERI, Bracco Foundation</p> <p><i>In collaboration with: Bracco Foundation</i></p>



09:00 - 10:30 TT.IX - Technical multi-Track - parallel SYMPOSIA	
TT.IX.A WS.IV.2	<p>Diagnostics and nanotechnologies for cultural heritage Chair: Roberta FANTONI, ENEA Co-Chair: Maria Sabrina SARTO, Sapienza University of Rome</p> <p><i>In collaboration with: Centre of Excellence DTC Lazio</i></p> <p><i>The symposium is part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"</i></p>
TT.IX.B	<p>Nanomaterials, device and tools for life sciences Chair: to be defined</p> <p><i>In collaboration with: Sapienza University of Rome & Italian Trade Agency</i></p>
TT.IX.C	<p>High efficiency solar cells and developing tandem concepts Chair: Mario TUCCI, ENEA Casaccia</p> <p><i>In collaboration with: ENEA</i></p>
10:30 - 11:00 Coffee Break	

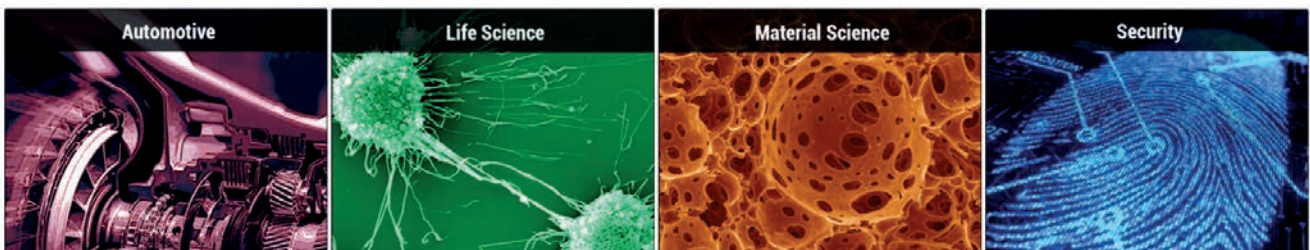
11:00 - 12:30 TT.X - Technical multi-Track - parallel SYMPOSIA	
TT.X.A WS.IV.3	<p>New Technologies for the safety and the reconstruction in seismic area Chair: Maria Laura SANTARELLI, Sapienza University of Rome Co-Chair: Maria Sabrina SARTO, Sapienza University of Rome</p> <p><i>In collaboration with: Centre of Excellence DTC Lazio</i></p> <p><i>The symposium is part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"</i></p>
TT.X.B	<p>Advanced Optical Devices and Techniques Chair: Onofrio Antonino CACIOPPO, LFoundry</p> <p><i>In collaboration with: Sapienza University of Rome & Italian Trade Agency</i></p>
TT.X.C	<p>Novel Materials for Solar and Thermal Energy Harvesting Chair: Mario TUCCI, ENEA Casaccia</p> <p><i>In collaboration with: Sapienza University of Rome & Italian Trade Agency</i></p>
12:30 - 14:00 Light Lunch	



The official distributor of TESCAN scientific equipment

Take your lab to the next level
with the right instruments
that best fit your analytical needs

Scanning Electron Microscopy
Focus Ion Beam Scanning Electron Microscopy
Advanced Quantitative Phase Imaging
Wide variety of microanalytical techniques



I.A 3D micro and nano fabrication and characterization

Chair: Veronica SPARACINO, ZEISS
In collaboration with: ZEISS

- I.A.1 Francesco BIANCARDI, ZEISS Microscopy
Correlative workflows from X-Ray to FIBSEM for advanced nanotomography characterization
- I.A.2 Giulio LAMEDICA, ZEISS Microscopy
Sub-10 nanometer Nanofabrication with Helium-Neon-Gallium Multi-Beam system
- I.A.3 Paola BASSANI, CNR-ICMATE
Understanding the behavior of high performance Aluminium alloys: the importance of multiscale analyses
- I.A.4 Rameez AHMAD, Nanoscribe
Pushing the limits of micro/nano 3D fabrication

I.B Innovative Micro and Nanotechnologies for Advanced Driver Assistance Systems (ADAS)

Chair: Sabrina CONOCI, STMicroelectronics
In collaboration with: STMicroelectronics & Distretto Tecnologico Sicilia Micro e Nano Sistemi

- I.B.1 Giovanni NERI, University of Messina
Nanoinnovation in chemical sensors for the automotive field
- I.B.2 Giorgio FALLICA, STMicroelectronics
Optical Probes for Driver Drowsiness Monitoring
- I.B.3 Roberto PAOLESSE, University of Rome Tor Vergata
Air quality monitoring with a gas sensor array for automotive application
- I.B.4 Paolo PAVAN, University of Modena and Reggio Emilia
Nano-Sensors Integration and Fusion for driver assistance

I.C Innovation in Environmental Nanotechnology

Chair: Francesco MATTEUCCI, DHITECH, Lecce
In collaboration with: DHITECH, Lecce

- I.C.1 Alessandro MARGHERITA, University of Salento
Exponential Technologies and Innovation – A Focus on Nanotechnologies
- I.C.2 Gianluca ELIA, University of Salento
Environmental Nanotechnology Innovation
- I.C.3 Alberto FIGOLI, CNR-ITM, Rende
Innovative Membrane Applications in Water Treatment
- I.C.4 Chiara LO PORTO, TCT Srl
Heath Transfer nanofluids and photocatalytic nanomaterials
- I.C.5 Magda BLOSI, CNR-ISTEC, Faenza
Nano-bio systems for water remediation

I.D Round Table: Funding strategies and policies for technology parks and nanotechnology centres

Chairs: Prof. Maria Sabrina SARTO, Deputy Rector for Research Infrastructure and Tools, Sapienza University of Rome & Dr. Salvatore ANGRISANO, Italian Trade Agency

In collaboration with: Italian Trade Agency, Nanoltaly Association, Airi - Italian Association for Industrial Research

- I.D.1 Svyatoslav AMELIN, *Head of PR & GR Department, Association for the development of clusters and technology parks of Russia*
- I.D.2 Saeed SARKAR, *Secretary General, Iran Nanotechnology Innovation Council (INIC), Iran*
- I.D.3 Valeria PIGNEDOLI, *General Manager, Bologna CNR Technopole, Italy*
- I.D.4 Antonio MASTINO, *President, ARTOV: Tor Vergata CNR Research Area, Italy*
- I.D.5 Mikhail MUKHIN (*to be confirmed*), *Deputy Dean of the Faculty of Physics and Technology, ITMO University, Moscow, Russia*
- I.D.6 Yovav KALIFON, *Technology Partnership, CTO Group, NOVA Measuring Instruments, Israel*
- I.D.7 Avi VOLDMAN, *CTO, Racah NANOFUND*



II.A Current Nano perspectives in the Agri-Food sectors

Chair: Nelson MARMIROLI, *CINSA Consorzio Interuniversitario Nazionale per le Scienze Ambientali*

The symposium is part of the workshop WS.I on "AgriNanoTechniques"

- II.A.1 Alejandro PÉREZ-DE-LUQUE, *Department of Plant Breeding and Biotechnology - IFAPA, Spain*
When Nanotechnology meets Agriculture: will it help to improve farming?
- II.A.2 Francesco CUBADDA, *ISS*
Nanotechnology agri-food applications: how to assess their safety?
- II.A.3 Alessio ADAMIANO, *CNR-ISTEC*
Bones as a source of calcium phosphates nanoparticles: towards a circular economy of smart phosphorous fertilizer
- II.A.4 Maria Adele PROSPERONI, *Coldiretti, Roma*
Nanotechnology in the Agrifood sector: The role of regulation
- II.A.5 Francesco BIANCARDI, *ZEISS Microscopy*
Correlative and Analytical case studies for micro and nanoparticles detection in Agrifood research

II.B Environmental Nanotechnology

Chair: Roberto GIANNANTONIO, *DHITECH, Lecce*
In collaboration with: DHITECH, Lecce

- II.B.1 Paola VERLICCHI, *University of Ferrara*
Environmental Nanotechnology
- II.B.2 Lucia CURRI, *University of Bari*
Nanostructured materials for environmental photocatalysis
- II.B.3 Anna COSTA, *CNR-ISTEC*
Engineered Nanomaterial: a risk, an opportunity
- II.B.4 Giuseppe MASCOLO, *CNR-IRSA*
Advanced Oxidation Processes for water remediation
- II.B.5 Valeria ANCONA, *CNR-IRSA*
Nanotechnology for soil remediation

II.C WInSiC4AP - A European project to compete in the SiC global market

Chair: Leoluca LIGGIO, *Distretto Tecnologico Sicilia Micro e Nano Sistemi*
In collaboration with: STMicroelectronics & Distretto Tecnologico Sicilia Micro e Nano Sistemi

- II.C.1 Leoluca LIGGIO, *Distretto Tecnologico Sicilia Micro e Nano Sistemi*
The WInSiC4AP European project and its outcomes for efficient and cost-effective applications in automotive, avionics, railway and defence
- II.C.2 Antonio IMBRUGLIA, *STMicroelectronics*
WInSiC4AP and More than Moore
- II.C.3 Giovanni COPPOLA, *ENEL X*
High efficiency SiC based converter and the nano/microgrid scenario
- II.C.4 Patrick FIORENZA, *CNR-IMM*
Advanced characterization of gate oxides for 4H-SiC MOSFETs
- II.C.5 Gennaro RUSSO, *DAC - Distretto Aerospaziale della Campania*
SiC Based Power Plant and Avionics

II.D Towards Exascale Supercomputers for Nanotechnology

Chair: Massimo CELINO, ENEA
In collaboration with: ENEA

- II.D.1 Francesco BUONOCORE, ENEA
EOCOE: Materials for energy challenge
- II.D.2 Mariella IPPOLITO, CINECA & MaX
Supporting material science at exascale with MAX centre of excellence
- II.D.3 Giuseppe ZOLLO, Sapienza University of Rome
Vibration assisted electron tunneling processes through nano-gaps in graphene nano-ribbons for amino-acids recognition
- II.D.4 Paolo PALAZZARI, ENEA
The Quickplay High Level Synthesis flow to target FPGA-based accelerators
- II.D.5 Vincenzo FIORENTINI, University of Cagliari and CNR-IOM
Picking a Rolex out of a box of Swatches: high-throughput calculations with Pymatgen

II.E Photonics and quantum optics - part 1

Chair: Georg PUCKER, FBK
In collaboration with: FBK

- II.E.1 Francesco MATTIOLI, IFN-CNR, Rome
Integrated superconducting nanowire single photon detectors for quantum optics and quantum communications
- II.E.2 Matteo PERENZONI, Centre for Materials and Microsystems, Fondazione Bruno Kessler
SUPERTWIN: Quantum Imaging Challenging the Rayleigh Limit
- II.E.3 Mher GHULINYAN, Centre for Materials and Microsystems, Fondazione Bruno Kessler
Development of Silicon integrated photonic platforms for probabilistic sources of quantum states of light

II.F Additive Manufacturing: New processes in materials production and holistic quality inspection from powder to product

Chair: Francesco BIANCARDI, ZEISS
In collaboration with: ZEISS

- II.F.1 Edson COSTA SANTOS, ZEISS Additive Manufacturing Group
ZEISS 3D ManuFACT improving yield in additive manufacturing with holistic quality inspection and correlation
- II.F.2 Nicolò MORGANTI, CERTEMA
Electron scanning (FESEM)/ laser scanning (SLM) in search of structural defects
- II.F.3 Ekaterina MAKAROVA & Giorgia LETO, Pometon Spa
Pometon – 80 years of Metal Powder Production. Additive Manufacturing: a renaissance for Powder Metallurgy
- II.F.4 Daniele DE CONSOLE, ZEISS Industrial Quality Solutions
X-Ray Technologies for non-destructive analysis of additive manufactured components

III.A Nanomaterials and Plant Nutrition

Chair: Zeno VARANINI, *University of Verona*

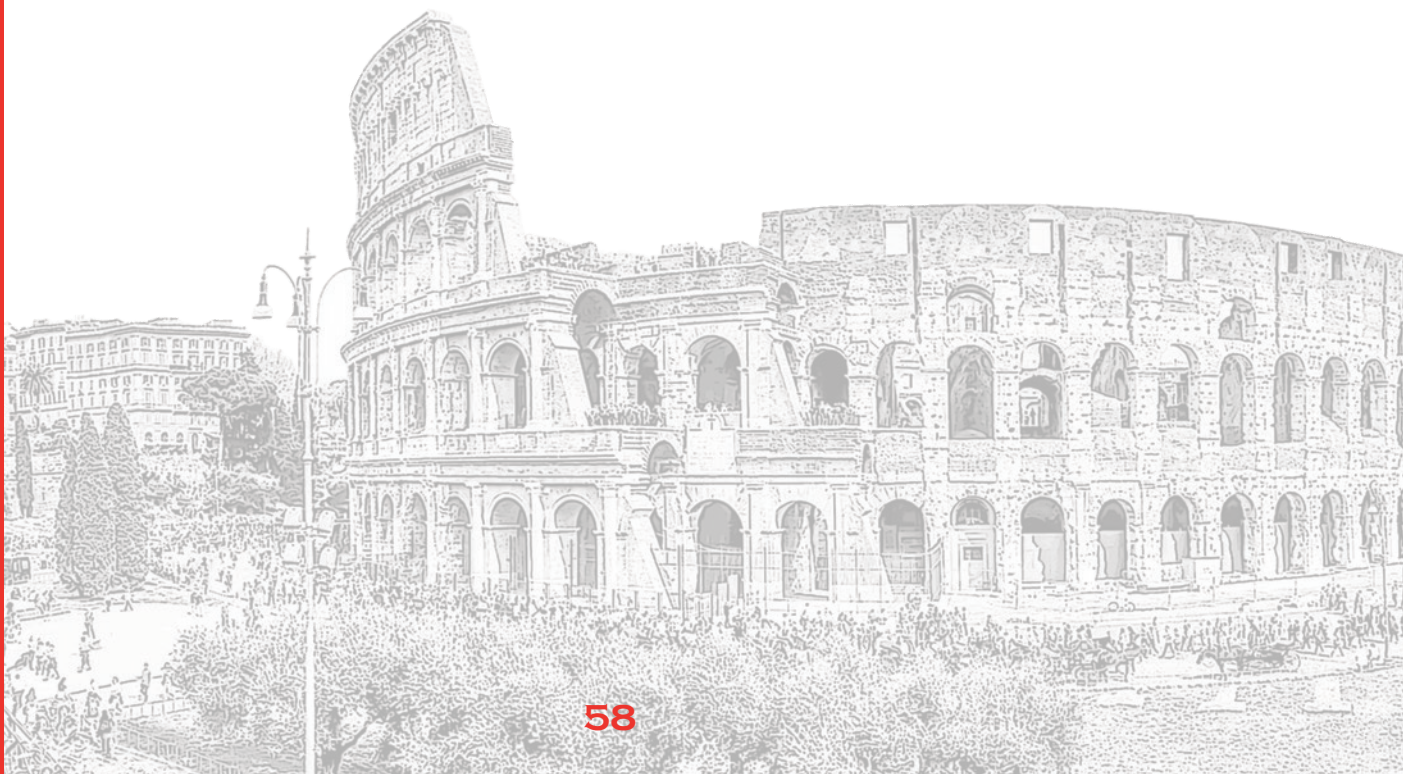
The symposium is part of the workshop WS.I on "AgriNanoTechniques"

- III.A.1 Marta MARMIROLI, *University of Parma*
Effects of multiple treatment with ENMs on zucchini plants
- III.A.2 Andrea CIURLI, *University of Verona*
FePO₄ nanoparticles as a source of nutrients: effects on plant transcriptome and on soil microbial communities and functions
- III.A.3 Giuseppe CIUFFREDA, *Fabbrica Cooperativa Perfosfati Cerea*
Smart fertilizer: first results of nano fertilizer application in open field (kiwi - *Actinidia chinensis* ssp Jintao)
- III.A.4 Antonio FILIPPI, *University of Udine*
Hydroxyapatite Nanoparticles influence Germination and Plant Metabolism of *Solanum lycopersicum*
- III.A.5 Davide ZANELLI, *University of Trieste*
Possible applications and critical aspects of carbon nanomaterials use in agriculture

III.B Beyond the lithium-ion battery - part 1

Chair: Pierpaolo PROSINI, *ENEA Casaccia*
In collaboration with: ENEA

- III.B.1 Sergio BRUTTI, *Sapienza University of Rome*
Artificial Solid Electrolyte Interphases on metallic Lithium
- III.B.2 Margherita MORENO, *ENEA*
Silicon nanowires as anodes for lithium-ion batteries: effect of different substrates on the electrochemical performance and energy densities
- III.B.3 Francesco NOBILI, *University of Camerino*
Vanillin-Templated Fe₂O₃ Nanoparticles as Anode Material for Li-Ion Batteries
- III.B.4 Francesca SCARAMUZZO, *Sapienza University of Rome*
Electrochemical properties of Si-NWs with different morphologies used as anodes for Li-ion batteries



III.C NANOMEDICINE: applications from bench to bedside - part 1

Chair: Giovanni TOSI, *Nanomedicine Platform of University of Modena and Reggio Emilia* and Marzia BEDONI, *Laboratory of Nanomedicine and Clinical Biophotonics (LABION), IRCCS Fondazione Don Gnocchi*
 In collaboration with: University of Modena and Reggio Emilia, IRCCS Fondazione Don Gnocchi

- III.C.1 Adriele PRINA MELLO, *Trinity College Dublin, Ireland*
Translational requirements for nanotechnology enable medical products: a converging model applied to the SPION case
- III.C.2 Silke KROL, *IRCCS "Saverio de Bellis"*
DiaChemo- Chemotherapeutic Drug Selective Nanoparticles and their Application in a Point-of-care Therapeutic Drug Monitoring Device
- III.C.3 Jason T DUSKEY, *University of Modena and Reggio Emilia*
Nanomedicine for Brain Diseases: preclinical application
- III.C.4 Beatrice FORMICOLA, *University of Milano-Bicocca*
Anti-Tumor Activity of mApoE-Functionalized Drug-Loaded Liposomes through Glioblastoma Stem Cells Targeting

III.D Tools for the 3D world

Chair: Beatrice VALLONE, *Sapienza University of Rome*
 In collaboration with: ASSING

- III.D.1 Mathias MOSIG, *Protochips*
New Capabilities for in-situ Nanoscale Sample Characterization in Transmission Electron Microscopy
- III.D.2 Ettore DI MASSO
Micro-CT: a solution for materials science
- III.D.3 Martin SUCHANEK, *Tescan Orsay Holding*
Cryo-FIB-SEM: a powerful tool for imaging and structural analysis of sensitive biological samples
- III.D.4 Giuliano CASATI
3D Microanalysis: powering the future of 3D materials characterization by high throughput Xe PlasmaFIB-SE

III.E Photonics and quantum optics - part 2

Chair: Georg PUCKER, *FBK*
 In collaboration with: FBK

- III.E.1 Giacomo CORRIELLI, *IFN-CNR, Milano*
Laser written waveguide circuits for quantum technology development
- III.E.2 Georg PUCKER, *Centre for Materials and Microsystems, Fondazione Bruno Kessler*
Quantum random number generators based on SPADs and silicon LED's
- III.E.3 Matteo SECLI, *SISSA, Trieste*
Topological laser

IV.A AgriNano Techniques Research Pathways

Chair: Luca MARCHIOL, *University of Udine*

The symposium is part of the workshop WS.I on "AgriNanoTechniques"

- IV.A.1 Sonia DEMASI, *University of Turin*
Dextrin-based nanosponges as carriers for natural herbicides in horticulture
- IV.A.2 Elodie Genevieve VANDELLE, *University of Verona*
Plant disease biocontrol by means of biodegradable proteinaceous nanoparticles
- IV.A.3 Monica RUFFINI CASTIGLIONE, *University of Pisa*
TiO₂ nanoparticles may lighten cadmium harmfulness in co-treatment experiments on the aquatic fern *Azolla filiculoides*
- IV.A.4 Sara FALSINI, *University of Florence*
Encapsulating a germination adjuvant in lignin nanoparticles to reactivate quiescent seeds

IV.B Beyond the lithium-ion battery - part 2

Chair: Pierpaolo PROSINI, *ENEA Casaccia*

In collaboration with: ENEA

- IV.B.1 Francesca COLÒ, *Polytechnic of Turin*
Safe polymer electrolytes and high performing anode materials for Na-based secondary batteries
- IV.B.2 Maria Assunta NAVARRA, *Sapienza University of Rome*
Bis(oxalato)borate- and difluoro(oxalato)borate-based ionic liquids as electrolyte components for high voltage lithium batteries
- IV.B.3 Michele PAVONE, *University of Naples, Federico II*
Nano-electrodes for Na-ion batteries: new insights from ab initio calculations
- IV.B.4 Gabriele TARQUINI, *Sapienza University of Rome*
A sodium-ion battery based on reduced graphene oxide decorated with tin nanospheres
- IV.B.5 in definition

IV.C NANOMEDICINE: applications from bench to bedside - part 2

Chair: Giovanni TOSI, *Nanomedicine Platform of University of Modena and Reggio Emilia* and Marzia BEDONI, *Laboratory of Nanomedicine and Clinical Biophotonics (LABION), IRCCS Fondazione Don Gnocchi*

In collaboration with: University of Modena and Reggio Emilia, IRCCS Fondazione Don Gnocchi

- IV.C.1 Dora MEHN, *JRC*
Physico-chemical characterisation of nanomedicine products – Obstacle or opportunity?
- IV.C.2 Davide MALAGOLI, *University of Modena and Reggio Emilia*
In vivo testing of nanomedicines: Seeking New Animal models for Investigating Life
- IV.C.3 Carlo A. BORTOLOTTI, *University of Modena and Reggio Emilia*
Electrolyte-Gated Organic Transistors as biosensors for detection across different lengthscales
- IV.C.4 Leonardo ORAZI, *University of Modena and Reggio Emilia*
Osteoblast cell response to LIPSS-modified Ti-implants

IV.D Industria 4.0 e nuovi materiali: strategie, training e opportunità di finanziamento

Chair: Chiara CAPPELLI, *Scuola Normale Superiore*

In collaboration with: Scuola Normale Superiore - Macro Nodo del Centro di Competenza MISE - ARTES 4.0

- IV.D.1 Chiara CAPPELLI, *Scuola Normale Superiore*
Il centro di competenze: nodi, strategie e prospettive di cooperazione e finanziamento
- IV.D.2 Daniela REPETTO, *HITACHI Rail*
Tecnologie per la fabbrica intelligente
- IV.D.3 Daniele PRATI, *ST Microelectronics*
Nuovi sensori e materiali per l'I4.0
- IV.D.4 Fabio BOCCUNI, *INAIL*
Un caso studio per il futuro: il NanoLabel approach per la gestione ed il training sui rischi emergenti
- IV.D.5 speaker in definition
Training: nuove metodologie di training virtuale

IV.E Nanotecnologie in Cosmesi

Chair: Donatella PAOLINO, *University "Magna Graecia" of Catanzaro*

In collaboration with: University "Magna Graecia" of Catanzaro

- IV.E.1 Tiziana PECORA, *Labomar s.r.l*
Nanomateriali in Cosmetica: aspetti regolatori
- IV.E.2 Angelo MARRA, *CEO iDelivery*
L'impatto delle nanotecnologie in ambito cosmetico
- IV.E.3 Marcello LOCATELLI, *University of Chieti "G. D'Annunzio"*
Metodi analitici: un ausilio per il controllo di qualità dei nanomateriali cosmetici
- IV.E.4 Maria Chiara CRISTIANO, *University "Magna Graecia" of Catanzaro*
Nanocarriers per uso cosmetico



V.A Nanomaterials Enhanced membranes and Processes for water and energy challenges

Chair: Giancarlo CICERO & Elena TRESSO, *Polytechnic of Turin*
In collaboration with: Polytechnic of Turin

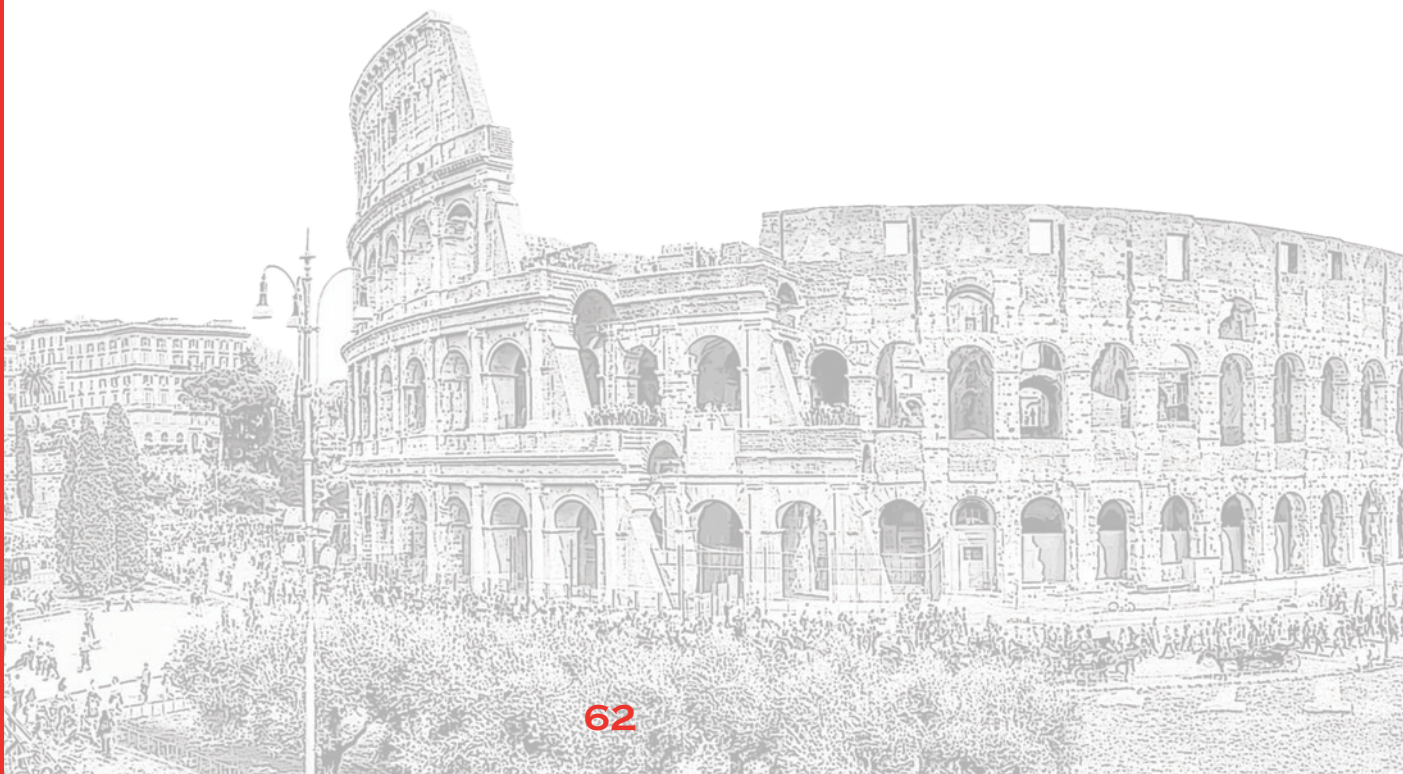
- V.A.1 Rahul RAVEENDRAN NAIR, *University of Manchester, UK*
Tunable graphene-based membranes
- V.A.2 Marco LAURENTI, *Polytechnic of Turin*
2D Graphene-Based Membranes for Wastewater Treatment
- V.A.3 Enrica FONTANANOVA, *CNR-ITM, Rende*
Nanostructured membranes functionalized with graphene oxide
- V.A.4 Maria DI VINCENZO, *University of Montpellier, France*
Highly Permeable and Selective Reverse Osmosis Membranes incorporating Artificial Water Channels

V.B Research on Nanotechnologies @ CNIS - part 1

Chairs: Antonio d'ALESSANDRO, *Sapienza University of Rome*
& Carlo Massimo CASCIOLA, *Sapienza University of Rome*

The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"

- V.B.1 Antonio d'ALESSANDRO, *CNIS, Director*
CNIS: structure, overview, research lines and SNN-Lab
- V.B.2 Maria Sabrina SARTO, *DIAAEE, Sapienza University of Rome*
Graphene & Zn-Based Multifunctional Nanomaterials
- V.B.3 Carlo Massimo CASCIOLA, *Dept. DIMA, Sapienza University of Rome*
A blood-vessel-on-a-chip for cavitation enhanced endothelial permeability
- V.B.4 Teresa RINALDI, *DBB "C. Darwin", Sapienza University of Rome*
Calcite biomineralization in the Etruscan tombs of Tarquinia
- V.B.5 Giuseppe ZOLLO, *Dept. SBAI, Sapienza University of Rome*
Atomistically resolved peptide bonds and amino-acids by tunneling current in nano-gaps of graphene nano-ribbons



V.C Risk governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 1

Chairs: Andrea PORCARI, Elvio MANTOVANI, Airi

In collaboration with: caLIBRAte project, AIRI, Federchimica and INAIL

The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"

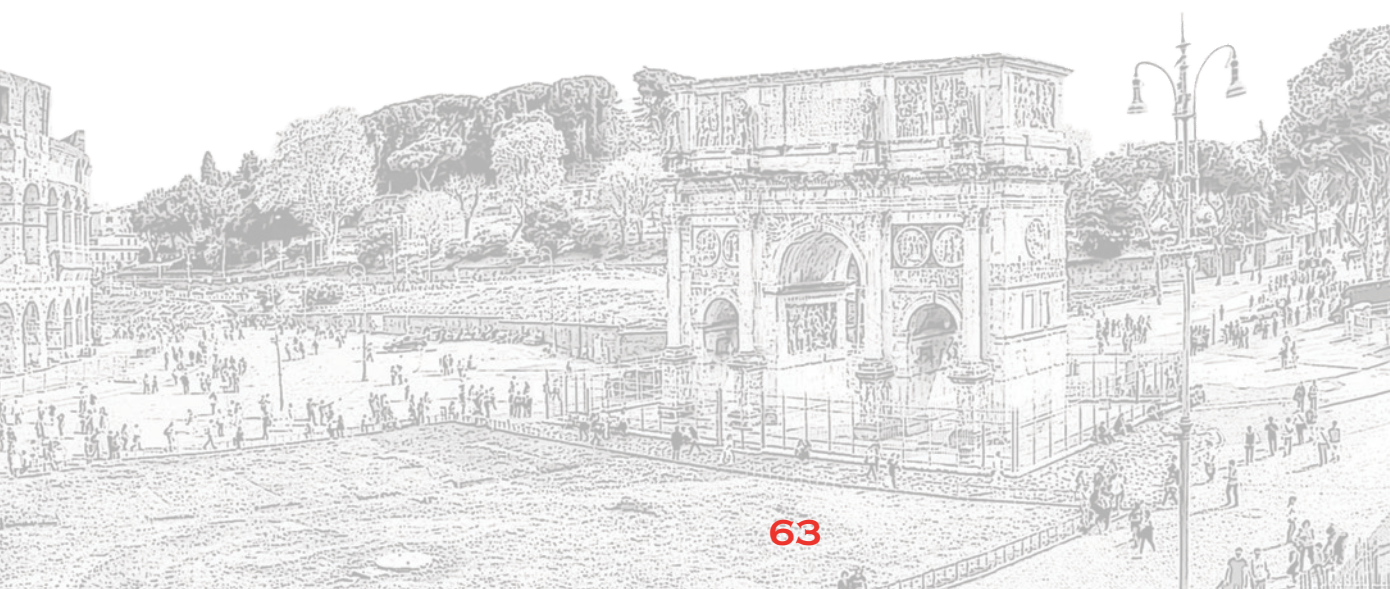
- V.C.1 Andrea PORCARI, AIRI
Introduction from the chair: the caLIBRAte risk governance framework
- V.C.2 Fabio BOCCUNI, Italian Workers' Compensation Authority (INAIL)
State of the art of methods and models for risk management of nanomaterials
- V.C.3 Flavia BARONE, National Institute of Health (ISS)
Risk governance of nanomaterials: state of the art and the role of the ISS multidisciplinary unit on nanotechnologies
- V.C.4 Alex ZABEO, Green Decision Srl
Risk management models for nanomaterials: practical experiences and perspectives

V.D Porous media mimicking and analysis through nanotechnology

Chairs: Marzia QUAGLIO and Dario VIBERTI, Polytechnic of Turin

In collaboration with: Polytechnic of Turin

- V.D.1 Dario VIBERTI, Polytechnic of Turin
Are geosciences benefitting from microfluidics as they really should be?" An Oil and Gas perspective
- V.D.2 Simone MARASSO, Polytechnic of Turin & CNR-IMEM, Parma
From micromodels to microfluidics: technologies evolution and leading applications overview
- V.D.3 Valentina PREZIOSI, University of Naples Federico II
Microconfined flow-based imaging methods to investigate emulsion microstructure and droplet deformability
- V.D.4 Nicolò VASILE, IIT
Multi-physics and microfluidics modelling approach as powerful tool to investigate the multi-phase internal phenomena in micro-porous materials used for bio-chemical and electrochemical applications



VI.A Advanced Membranes nanomaterials for CO₂ separation

Chair: Sergio BOCCHINI, IIT, Center for Sustainable Future Technologies - CSFT@POLITO & Elena TOCCI, CNR-ITM

In collaboration with: IIT, Center for Sustainable Future Technologies - CSFT@POLITO

- VI.A.1 John JANSEN, CNR - ITM, Rende
Nanocomposite and nanostructured membranes for gas separation
- VI.A.2 Maria Grazia DE ANGELIS, University of Bologna
Graphenic fillers as stabilizers and permselectivity tuners in highly permeable membranes for gas separation and CO₂ Capture
- VI.A.3 Victor SANS SANGORRIN, University of Nottingham, UK
Capture and valorisation of CO₂ with 3D printable ionic and polyionic liquids
- VI.A.4 Annalisa CHIAPPONE, Polytechnic of Turin
CO₂ permeability control in light responsive membranes and 3D structures

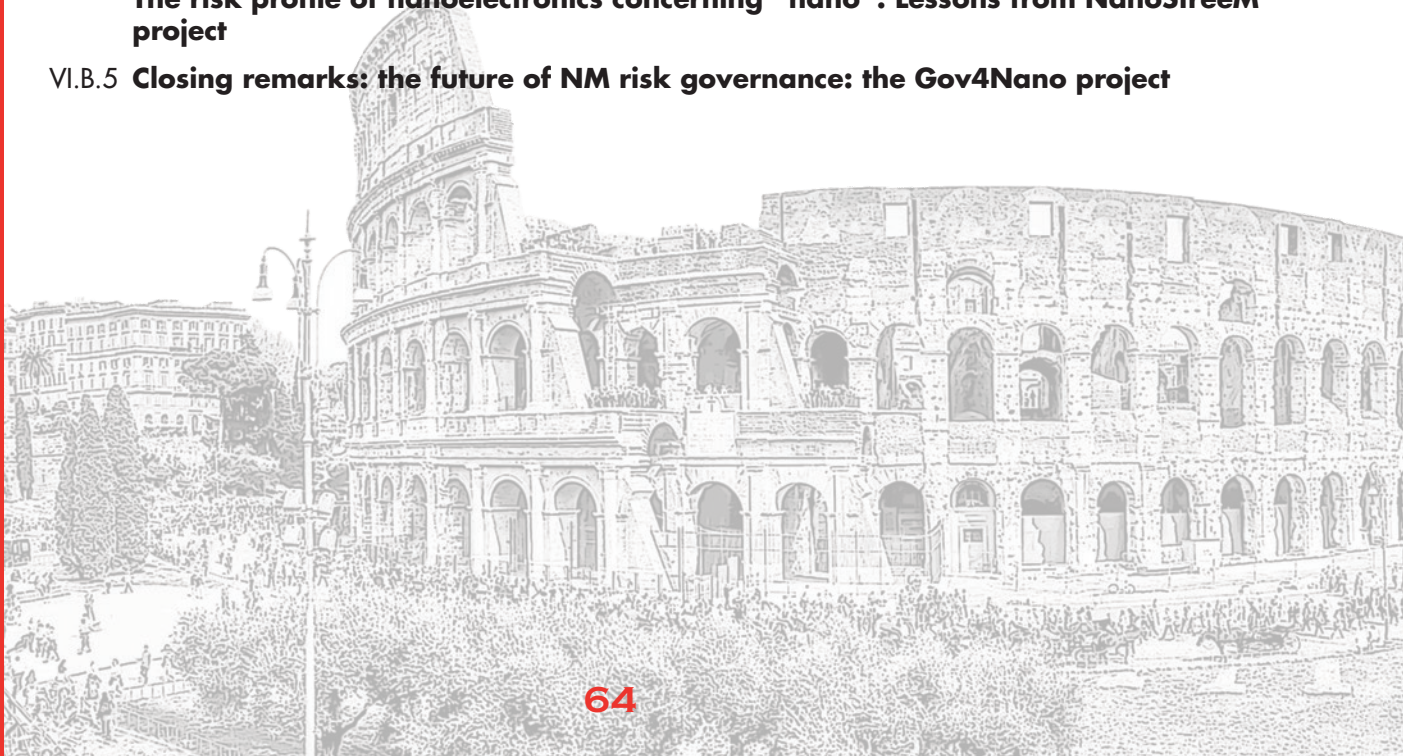
VI.B Risk governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 2

Chairs: Andrea PORCARI, Elvio MANTOVANI, Airi

In collaboration with: caLIBRATE project, AIRI, Federchimica and INAIL

The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"

- VI.B.1 Elisabetta BORSELLA, AIRI
Risk perception and risk management of nanomaterials: stakeholders views
- VI.B.2 Camila DEL PIVO, LEITAT, Spain
A comparative analysis of case studies on specific R&I value chain: exposure scenarios on production of nanomaterials in selected sectors
- VI.B.3 Simona ORTELLI, CNR-ISTEC and Protect Project
Managing occupational safety issues of nanomaterials in manufacturing processes: the PROTECT case studies
- VI.B.4 Dimiter PRODANOV, IMEC, Belgium
The risk profile of nanoelectronics concerning "nano". Lessons from NanoStreeM project
- VI.B.5 **Closing remarks: the future of NM risk governance: the Gov4Nano project**



VI.C Research on Nanotechnologies @ CNIS - part 2

The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"

- VI.C.1 Francesco MURA, CNIS, Sapienza University of Rome
Activities and nanocharacterization results at SNN-Lab: FESEM platform
- VI.C.2 Paola PIEDIMONTE, Dept. DIET, SBAI and DFF, Sapienza University of Rome
Low Temperature and CMOS Compatible Growth of Silicon Nanowires for Biosensing applications
- VI.C.3 Virgilio GENOVA, Dept. DITCA, Sapienza University of Rome
Nanocomposite Coatings for Antifouling and Antiwear Applications in Turbomachinery Components
- VI.C.4 Roberto LI VOTI, Dept. SBAI, Sapienza University of Rome
Photoacoustic Spectroscopy of noble metal functionalized nanoparticles based networks
- VI.C.5 Olga RUSSINA, Dept. of Chemistry, Sapienza University of Rome
X-Ray diffraction (XRD) applied to Nanoscience

VI.D Multiscale dimensional approaches for multifunctional coatings fabrication on additive manufactured, metallic components

**Chair: Sergio VALERI, University of Modena and Reggio Emilia and CNR-NANO
 In collaboration with: University of Modena and Reggio Emilia**

- VI.D.1 Sergio VALERI, University of Modena and Reggio Emilia and CNR-Nano
Introduction to RIMMEL project
- VI.D.2 Fabio CUOGHI BERTACCHINI, Beam.It S.p.A
Surface finishing in additive manufacture components: a review
- VI.D.3 Leonardo ORAZI, University of Modena and Reggio Emilia
Laser patterning of surfaces for (nano) mechanical applications
- VI.D.4 Alessandro COROZZI, CNR-ISTEC
Nanostructures for smart surfaces

VI.E Synthesis and characterization of 2D nanomaterial

**Chair: Vittorio MORANDI, CNR-IMM, Bologna
 In collaboration with: Polytechnic of Turin and CNR-IMM**

The symposium is part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"

- VI.E.1 Carlo GRAZIANETTI, CNR-IMM, Agrate
Silicene and the X-enes for a new nanotechnology platform
- VI.E.2 Cristina AFRICH, CNR-IOM, Trieste
In-operando atomic-scale study of graphene CVD growth on corrugated polycrystalline nickel
- VI.E.3 Giuseppe VALERIO BIANCO, CNR-NANOTEC
Chemical strategies to improve CVD graphene's functionalities in technological applications
- VI.E.4 Marco FONTANA, IIT@Polito
An insight into Laser Induced Graphene and MoS₂ as 2D active materials for nanotechnology applications

VII.A Sustainable materials for CO₂ photo/electrocatalytic valorization

Chairs: Angelica CHIODONI, IIT, Center for Sustainable Future Technologies - CSFT@POLITO and Francesca RISPLENDI, Polytechnic of Turin
In collaboration with: IIT, Center for Sustainable Future Technologies - CSFT@POLITO and Polytechnic of Turin

- VII.A.1 Massimiliano LO FARO, CNR-ITAE, Messina
Advanced electroceramics for high temperature electrochemical conversion of CO₂
- VII.A.2 Wenbo.JU, Empa, Swiss Federal Laboratories for Materials Science and Technology, Zurich, (SWI)
Electrocatalytic Reduction of Gaseous CO₂ to CO on Sn/Cu- Nanofiber-Based Gas Diffusion Electrodes
- VII.A.3 Nicola SERIANI, ICTP, Trieste
Characterization of photoelectrochemical processes for energy conversion through computer simulation
- VII.A.4 Juqin ZENG, Center for Sustainable Future Technologies @POLITO, IIT
Copper-based electrodes for electrochemical CO₂ conversion

VII.B Structural characterization techniques for nanomaterials and applications

Chair: Giuliana FAGGIO, The "Mediterranean" University of Reggio Calabria
In collaboration with: The "Mediterranean" University of Reggio Calabria

- VII.B.1 Simonpietro AGNELLO, University of Palermo, ATeN Center, CNR-IMM Catania
High-k substrate effect on the thermal doping of graphene by oxygen
- VII.B.2 Andrea CAPASSO, International Iberian Nanotechnology Laboratory, Portugal
Recent progresses in the CVD growth of graphene for electronic applications
- VII.B.3 Carlo Maria CARBONARO, University of Cagliari
Carbon dots in water and mesoporous matrix: chasing the origin of their PL
- VII.B.4 Nicola LISI, ENEA Casaccia
Graphene derivatives: CVD Growth, characterization and modelling
- VII.B.5 Maria DONATO, CNR-IPCF, Messina
Optical trapping and positioning of nanoparticles
- VII.B.6 Emanuela SCHILIRÒ, CNR-IMM, Catania
Structural and electrical properties of ultra-thin Al₂O₃ films grown by seed-layer-free atomic layer deposition on epitaxial graphene

VII.C Nanotechnologies and Key Enabling Technologies in innovation processes: the NanoKey project for risk prevention in the workplace

Chair: Fabio BOCCUNI, INAIL
In collaboration with: INAIL, IIT

The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"

- VII.C.1 Sergio IAVICOLI, INAIL
Introduction addresses
- VII.C.2 Stefania SABELLA, IIT, Genova
The NanoKey project for Prevention-through-Design approach to nanotechnologies and KETs
- VII.C.3 Luisana DI CRISTO, IIT, Genova
3-D models and innovative in vitro test to evaluate potential toxic effects of NMs
- VII.C.4 Francesca TOMBOLINI, INAIL
Exposure measurements and samplings in the workplaces: study design and preliminary results
- VII.C.5 Delia CAVALLO, INAIL
Bio-monitoring of exposed workers

VII.D Research on Nanotechnologies @ CNIS - part 3

Chair: Antonio d'ALESSANDRO, *Sapienza University of Rome*

The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"

- VII.D.1 Francesca SCARAMUZZO, *CNIS, Sapienza University of Rome*
Activities and nanocharacterization results at SNN-Lab: AFM platforms
- VII.D.2 Daniele PASSERI, *Dept. SBAI, University of Sapienza*
AFM-based methods for Elastic Measurements
- VII.D.3 Elena BLUNDO, *Dept. of Physics, Sapienza University of Rome*
Controllable micro/nano-dome creation in proton-irradiated bulk transition-metal dichalcogenides
- VII.D.4 Diego DI GIROLAMO, *Dept. of Chemistry, Sapienza University of Rome*
The effect of humidity on CsPbBr₃ thin film: structure, morphology and optoelectronics
- VII.D.5 Laura PAGLIA, *Dept. DITCA, Sapienza University of Rome*
Ceramic nano-filler influence on a carbon-phenolic ablator

VII.E New nanoscale drug delivery systems: recent advances in nanotheranostic

Chairs: Miriam COLOMBO, *NanoBioLab - University of Milano-Bicocca* and Laura PANDOLFI, *IRCCS Policlinico San Matteo, Pavia*

In collaboration with: University of Milano-Bicocca

- VII.E.1 Silvia BIOCCHA, *University of Rome "Tor Vergata"*
Folate-functionalized DNA nanocages for targeted drug delivery
- VII.E.2 Valentina CAUDA, *Polytechnic of Turin*
In-vitro use of Trojan horses nanoconstructs as biomimetic and theranostic weapons against cancer cells
- VII.E.3 Serena MAZZUCHELLI, *University of Milan*
Cardiosafe H-ferritin-doxorubicin co-administered with Trastuzumab in neoadjuvant setting improves antitumor efficacy and prevents Trastuzumab-mediated cardiotoxicity
- VII.E.4 Agnese MOLINARI, *ISS*
Liposomes as Drug delivery Systems to Cancer Cells
- VII.E.5 Lucia SALVIONI, *NanoBioLab - University of Milano-Bicocca*
NP-mediated suicide gene therapy for triple negative breast cancer treatment

VII.F 2D nanomaterial for energy harvesting and storage application

Chair: Andrea LAMBERTI, *Polytechnic of Turin*

In collaboration with: Polytechnic of Turin and CNR-IMM

The symposium is part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"

- VII.F.1 Antonio AGRESTI, *CHOSE - University of Rome Tor Vergata*
Emerging 2D materials for perovskite photovoltaics
- VII.F.2 Sebastiano BELLANI, *IIT, Genova*
Design and large-scale production of 2D materials for energy conversion and storage applications
- VII.F.3 Mara SERRAPEDE, *IIT@Polito*
Few-layer mixed 1T-2H phase MoS₂ as electrode material in supercapacitor and catalyst for hydrogen evolution reaction
- VII.F.4 Hui SHAO, *Université Paul Sabatier, Toulouse, France*
2D MXene materials for electrochemical energy storage

VIII.A Technological integration and processing of 2D nanomaterials

Chair: Vittorio MORANDI, CNR-IMM, Bologna
& Andrea LAMBERTI, Polytechnic of Turin

In collaboration with: Polytechnic of Turin and CNR-IMM

The symposium is part of the workshop WS.III on "Graphene and 2D Materials, progresses and challenges"

- VIII.A.1 Sergio PEZZINI, CNI@NEST, IIT Pisa
Toward wafer-scale integration of graphene single crystals arrays
- VIII.A.2 Maurizio CASALINO, CNR-IMM Napoli
Near-infrared all-silicon Schottky photodetectors: New perspectives through graphene
- VIII.A.3 Damiano MARIAN, University of Pisa
Simulations of devices based on two-dimensional materials
- VIII.A.4 Stefano STASSI, Polytechnic of Turin
Fabrication and of graphene nanomechanical resonators and defects and residual stress analysis through non-invasive characterization approach

VIII.B Innovative nanomaterials for cultural heritage

Chair: David CHELAZZI, CSGI

In collaboration with: CSGI

The symposium is part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"

- VIII.B.1 Gabriella DI CARLO, CNR-ISMN, Roma
Multifunctional materials based on chitosan for the chemisorption of degrading species in museum environments
- VIII.B.2 Gianfranco SABELLA & Nello VITULIANO, IONFLY s.r.l.
Plasma & Cultural Heritage: new materials made by plasma technologies
- VIII.B.3 Giovanna POGGI, CSGI
Strengthening and deacidification of paper: a single-step treatment based on nanoparticles and cellulose nanocrystals
- VIII.B.4 Claudia MAZZUCA, University of Rome Tor Vergata
Cellulose nanocrystals and paper artworks: a fruitful association

VIII.C Biosafety of nanomaterials

Chair: Luisa FIANDRA, POLARIS Research Center - University of Milano-Bicocca
In collaboration with: University of Milano-Bicocca

The symposium is part of the workshop WS.V on "Solutions to address safety and regulatory aspects of nanomaterials"

- VIII.C.1 Luciana DINI, Sapienza University of Rome
Aquatic animal models of increasing complexity for the assessment of nanomaterials effects
- VIII.C.2 Rossella BENGALLI, University of Milano-Bicocca
Toxicity of metal oxide nanoparticles in vitro and in vivo: a safe-by-design approach
- VIII.C.3 Carla DISTASI, University of Piemonte Orientale
SiO₂ nanoparticle-neuron interaction: activation of ionic channels and calcium influx
- VIII.C.4 Maddalena COLLINI, University of Milano-Bicocca
Nanoparticles tracking and correlation for in vitro and in vivo systems

VIII.D Ex-alumni Nanotechnology Engineering @ Sapienza

Chair: Carlo Massimo CASCIOLA, *Sapienza University of Rome*

The symposium is part of the workshop WS.II on "Nanotechnology @Sapienza"

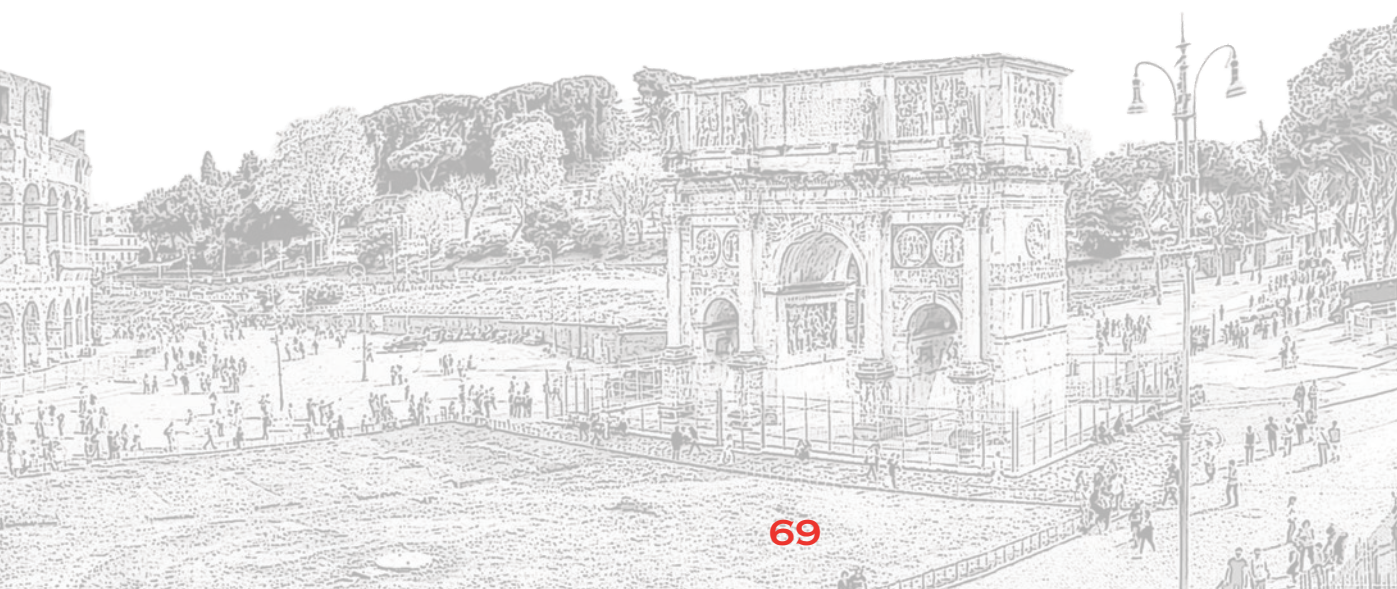
- VIII.D.1 Umberto CELANO, *IMEC, Belgium*
Emerging Nanoelectronics Through Two- and Three-Dimensional Materials Analysis
- VIII.D.2 Alessia GENNARO, *KU Leuven, Belgium*
Real-time monitoring of the dehydration stress in multilamellar lipid vesicles by dielectric spectroscopy in combination with QCM
- VIII.D.3 Livia ANGELONI, *Delft University of Technology, The Netherlands*
Investigating cell mechanics on nanopatterned surfaces by Atomic Force Microscopy
- VIII.D.4 Chiara SCOGNAMIGLIO, *Istituto Italiano di Tecnologia*
In definition
- VIII.D.5 Andrea MICANGELI, *Sapienza University of Rome & State University of New York - SUNY, USA*
Closing Remarks: Sapienza Scholars facing up the U.S. Grand Challenges through their Field Studies Abroad

VIII.E Nanoinnovation's Got Talent

Chair: Fulvio UGGERI, *Bracco Foundation*

In collaboration with: Bracco Foundation

- VIII.E.1 Gabriele MESSINA, *Sapienza University of Rome & CNR-ISC*
Novel Detectors for Terahertz Imaging based on High-Tc Superconductor Materials
- VIII.E.2 Alessandro TALONE, *University of Roma Tre & CNR-ISM*
Ionic liquid dispersions of magnetic nanoparticles
- VIII.E.3 Eleonora MARETTI, *University of Modena and Reggio Emilia*
Novel engineered lipid-based nanoparticles for pulmonary tuberculosis inhalation therapy
- VIII.E.4 Clara GUIDO, *University of Salento & CNR-NANOTEC*
Non-viral gene delivery using polymeric NPs
- VIII.E.5 Maria Clara RIGHI, *University of Modena and Reggio Emilia & CNR Institute of Nanoscience*
2D Materials for friction reduction



IX.A Diagnostics and nanotechnologies for cultural heritage

Chairs: Roberta FANTONI, ENEA & Maria Sabrina SARTO, Sapienza University of Rome

In collaboration with: Centre of Excellence DTC Lazio

The symposium is part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"

- IX.A.1 Roberta FANTONI, ENEA
ADAMO project within DTC focused on analysis, diagnostics and monitoring cultural heritage
- IX.A.2 Claudia PELOSI, University of Tuscia
Surface protection of the Sperone tuff of Villa Mondragone by nanostructured materials in the framework of ADAMO project
- IX.A.3 Laura BERTANI, ENEA Fellow
Nanocomposites effect on laser ablation rate of treated marble samples
- IX.A.4 Laura BRUNO, University of Rome Tor Vergata
Biodeterioration of stone monuments and remediation strategies
- IX.A.5 Antonella MACAGNANO, Institute of Atmospheric Pollution Research (IIA), Rome
Hybrid devices based on nanostructured sensors for gas and VOCs monitoring
- IX.A.6 Javier BECERRA & Pilar ORTIZ, Universidad Pablo de Olavide, Spain
New nanomaterials for the conservation of historic limestone buildings
(in video-conference)

IX.B Nanomaterials, device and tools for life sciences

Chair: Eugenio AMENDOLA, CNR

In collaboration with: Sapienza University of Rome & Italian Trade Agency

- IX.B.1 Peter GORELKIN, Medical Nanotechnology LLC, Moscow, Russia
Scanning Ion Conductance Microscope as a New Tool for Bionanotechnology
- IX.B.2 Miriam HASSAN, CNR-ISM & Università Politecnica delle Marche
Co/Pd-based synthetic antiferromagnetic multi-stacks for biomedical applications
- IX.B.3 Elizaveta ANASTOVA, Information Technologies, Mechanics and Optics (ITMO) University, Saint Petersburg, Russia
Drug-loaded magnetite-based nanocontainers: new way of thrombosis treatment
- IXI.B.4 Emanuele MAURI, Campus Bio-Medico, Roma
Smart functionalized nanogels as selective carriers for intracellular drug release
- IXI.B.5 Matej BUZGO, InoCure s.r.o., Prague, Czech Republic
Importance of up-scaling in electrospinning and electrospaying



IX.C High efficiency solar cells and developing tandem concepts

Chair: Mario TUCCI, ENEA Casaccia
In collaboration with: ENEA

- IX.C.1 Massimo IZZI, ENEA Casaccia, Rome
AMPERE PROJECT: a new hope for solar cells in Italy and Europe
- IX.C.2 Edmondo GILIOLI, CNR-IMEM, Parma
Mechano-synthesis for PV applications
- IX.C.3 Enrico LAMANNA, University of Rome Tor Vergata
Perovskite/silicon tandem solar cell results and perspectives
- IX.C.4 Claudia MALERBA, ENEA Casaccia, Roma
Kesterite/silicon tandem solar cells



X.A New Technologies for the safety and the reconstruction in seismic area

Chair: Maria Laura SANTARELLI & Maria Sabrina SARTO *Sapienza University of Rome*

In collaboration with: Centre of Excellence DTC Lazio

The symposium is part of the workshop WS.IV on "Nanotechnologies and nanomaterials for cultural heritage"

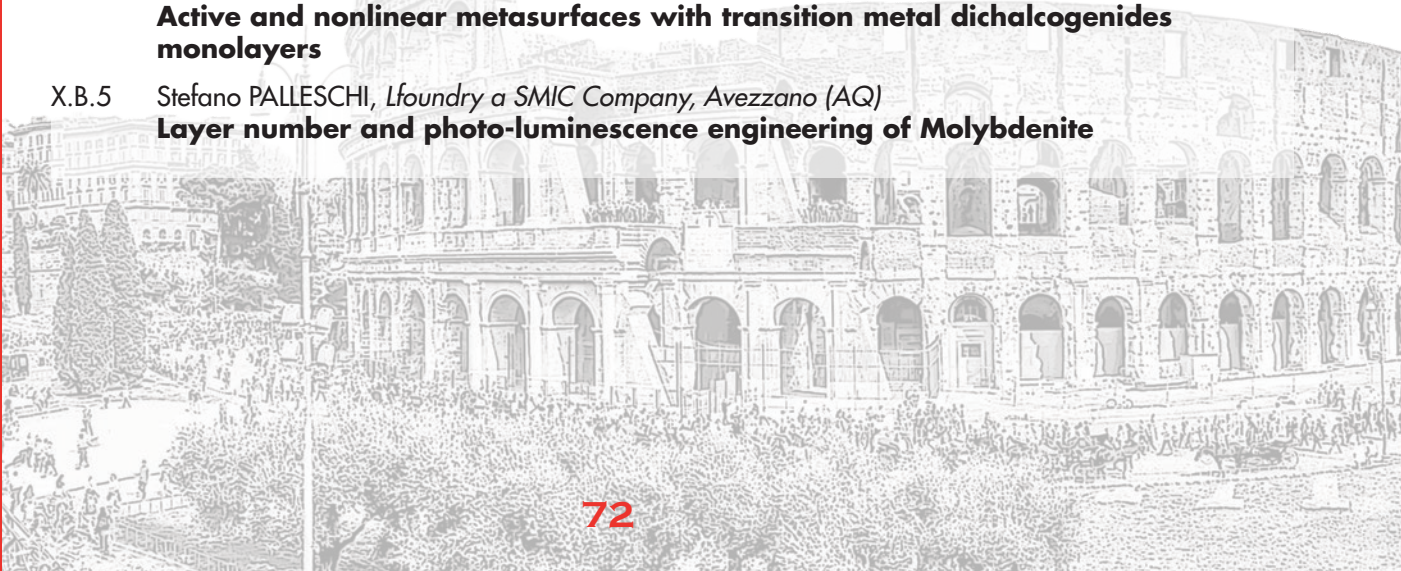
- X.A.1 Maria Laura SANTARELLI, *Sapienza University of Rome*
SISMI Project – A multidisciplinary technology to improve the safety and the reconstruction in seismic areas
- X.A.2 Federica ANTONELLI, *Tuscia University*
Cellulose and lignin nano-based consolidant for waterlogged archaeological wood
- X.A.3 Chiara GIULIANI, *CNR-ISMN, Roma*
Smart materials for the corrosion inhibition of metal artefacts
- X.A.4 Barbara DE FILIPPO, *IAC-CNR, Roma*
Corrosion behavior of Cu-Zn-Al shape memory alloy in controlled environments
- X.A.5 Mohammad SHARBAF, *Sapienza University of Rome*
Application of Nano particles for the consolidation of historical gypsum decoration and artworks
- X.A.6 Chiara D'ERME, *Sapienza University of Rome*
Nanofibrillated cellulose as nano-reinforcement for cementitious composites

X.B Advanced Optical Devices and Techniques

Chair: Onofrio Antonino CACIOPPO, *LFoundry*

In collaboration with: Sapienza University of Rome & Italian Trade Agency

- X.B.1 Daniela IACOPINO, *Tyndall National Institute, University College Cork, Ireland*
From food analysis to art conservation: Bottom up methods for the fabrication of Surface Enhanced Raman Scattering (SERS)
- X.B.2 Sergey DUBKOV, *National Research University of Electronic Technology (MIET), Moscow, Russia*
Prospects and application of plasmonic nanoparticles
- X.B.3 Giuseppe MOCCIA, *Lfoundry a SMIC Company, Avezzano (AQ)*
Raman Spectroscopy Profile for implant and anneal C-MOS image sensor photodiode characterization
- X.B.4 Ivan IORSH, *Information Technologies, Mechanics and Optics (ITMO) University, Saint Petersburg, Russia*
Active and nonlinear metasurfaces with transition metal dichalcogenides monolayers
- X.B.5 Stefano PALLESCHI, *Lfoundry a SMIC Company, Avezzano (AQ)*
Layer number and photo-luminescence engineering of Molybdenite



X.C Novel Materials for Solar and Thermal Energy Harvesting

Chair: in definition

In collaboration with: Sapienza University of Rome & Italian Trade Agency

- X.C.1 Jin Young KIM, *Seoul National University, Korea*
Halide Perovskite-based Tandem Solar Cells
- X.C.2 Francesco ROSSELLA, *Scuola Normale Superiore (SNS), Pisa*
Advanced field effect control of semiconductor nanowire-based devices: electrolyte-gating for energy scavenging and harvesting
- X.C.3 Hyun Suk JUNG, *Sungkyunkwan University (SKKU), Suwon, Korea*
Novel Materials and Process for Commercialization of Perovskite Solar Cells
- X.C.4 Francesca LIMOSANI, *University of Rome Tor Vergata*
Synthesis and Characterization of Novel Carbon Materials-Porphyrin Hybrid Architectures as Active Light Harvesting Systems
- X.C.5 Gloria ZANOTTI, *ISM-CNR, Roma*
Variouly substituted metallophthalocyanines as hole transporting materials for perovskite solar cells





Posters will be displayed in the Sangallo Cloister during the event:

Tuesday 11 - Friday 14, 09:00 - 18:00

General Poster Session- PO.I

- 01** Saeedeh BABAZADEH, *Urmia University, Iran*
Colorimetric and fluorimetric determination of pesticides residues in water using graphene quantum dots coupled with alizarin
- 02** Ginevra BEGANI PROVINCIALI, *Istituto di Nanotecnologia Laboratorio di Soft and Living Matter, CNR, Roma*
X-rays phase contrast tomography for the 3D investigation of ALS disease
- 03** Fabio BOCCUNI, *INAIL*
Risk management and communication approach in R&D of nanomaterials
- 04** Sabina BOTTI, *ENEA*
Creation of localized defects in graphene structure by EUV irradiation
- 05** Inna BUKREEVA, *CNR-Institute of Nanotechnology*
Phase contrast X-ray tomography as a tool of 3D visualization of spine and spinal cord of ex-vivo small animals
- 06** Delia CAVALLO, *INAIL*
Induction of cytotoxic and inflammatory effects by two differently sized Silica Nanoparticles on human bronchial cells
- 07** Cristiano CARLOMAGNO, *Fondazione Don Carlo Gnocchi*
Raman spectroscopy as biochemical "fingerprint" of biofluids for the investigation of neurodegenerative diseases
- 08** Alessandra COLANTUONI, *University of Milano-Bicocca*
Toxicological impact on 3D skin models of antibacterial metal oxide nanoparticles for medical textile coating
- 09** Barbara CORTESE, *CNR NANOTEC*
Guided cell migration in a multi-cue environment
- 10** Antonella D'ALESSANDRO, *University of Perugia*
Smart nanomodified cementitious materials for weigh-in-motion monitoring of roads and bridges
- 11** Rosaria D'AMATO, *ENEA*
Quantum dots synthesis for the project Nanoscrla
- 12** Simone DI MARE, *FBK*
Additive manufacturing of superalloy, early stage activities of project ADAM
- 13** Giovanni DI MUCCIO, *University of Rome Tor Vergata*
Protein sequencing through α -Hemolysin nanopore: an atomistic simulations insights
- 14** Gianluca DI PROFIO, *ITM-CNR, Rende*
AMECRYS - Project overview and main activities performed
- 15** Marianna DIONISI, *University of Piemonte Orientale "A. Avogadro"*
The impact of SiO₂ NPs on neuronal electrical activity and gene expression
- 16** Gianluca FABI, *Università Politecnica delle Marche*
Nanoscale characterization of biological cells using inverted scanning microwave microscopy
- 17** Lara FACCANI, *CNR-ISTEC, Faenza*
Dose properties characterization and redox potential of nanoparticles
- 18** Emma FENUDE, *CNR-DSCTM*
Design and synthesis of peptide building blocks for tunable biopolymers
- 19** Pamela FLORIS, *University of Milano-Bicocca*
Toxicological effects of nZn-CuO antibacterial coating on reverse osmosis membranes in the aquatic model zebrafish
- 20** Alice GUALERZI, *Fondazione Don Carlo Gnocchi*
Nanovesicle characterization by raman spectroscopy: towards clinical application in diagnostics and treatment
- 21** Erica GENTILIN, *University of Padova*
Cerium oxide nanoparticles prevent cisplatin ototoxicity in vitro

- 22** Radenka KRSMANOVIC WHIFFEN, *ENEA Casaccia*
Tailoring co-precipitation synthesis to maximize production yield of nanocrystalline wurtzite ZnS
- 23** Miriam HASSAN, *ISM-CNR*
Perpendicular magnetized GMR spin valves on large-area flexible substrates
- 24** Alfonso MARTONE, *IPCB-CNR, Naples*
Insights on diels-alder coupling agent for the interfacial adhesion recovery in FRP and nanocomposites
- 25** Ivania MARKOVA, *University of Chemical Technology and Metallurgy, Bulgaria*
Properties of intermetallic (Co-Sn, Ni-Sn, Co-Ni) nanoparticles depending on their elemental composition
- 26** Laura MAUGERI, *Istituto di Nanotecnologia Laboratorio di Soft and Living Matter, CNR, Roma*
3D multimodal approach for the study of the CNS in healthy and diseased conditions
- 27** Simona ORTELLI, *CNR-ISTEC, Faenza*
Monitoring occupational exposure scenarios during the production of nanostructured antibacterial textiles
- 28** Gabriella PASQUA & Luca DI PALMA, *Sapienza University of Rome*
Remediation of hexavalent chromium contaminated water by iron nanoparticles and impact of reused water on tomato plant growthformulations
- 29** Valentina PICARDO, *ISS*
Nanopesticides: analytical techniques for chemical-physical characterization of different formulations
- 30** Silvia PICCIOLINI, *Fondazione Don Carlo Gnocchi*
SPRI-based biosensor for the detection of circulating extracellular vesicles as biomarkers of neurological diseases
- 31** Valentina PROTA, *ISS*
Towards a strategy for grouping nanomaterials: contribution of the italian national institute of health to the nanoreg2 project for cytotoxicity and genotoxicity
- 32** Elena SALERNITANO, *ENEA*
ZnS wurtzite via the two-step sintering process: effects on ceramic density and microstructure
- 33** Silvia SANTILOCCHI, *Sapienza University of Rome*
Carbon-based nanocomposites with epoxy and polyurethane matrix and applications in electrochemical biosensors
- 34** Federico SCAGLIONE, *University of Turin*
Functionalized nanoporous gold as a new biosensor platform for ultra-low quantitative detection of human serum albumin
- 35** Sara VESELY, *ITB-CNR*
Signal and power transfer from remote
- 36** Ilaria ZANONI, *CNR-ISTEC, Faenza*
Silver nanoparticles 300K characterization in biological compartments for high and low exposure range
- 37** Gloria ZANOTTI, *ISM-CNR, Roma*
Variously substituted metallophthalocyanines as hole transporting materials for perovskite solar cells



Nanoinnovation's Got Talent - Special Poster Session - PO.II

Tuesday 11 – Friday 14 June, 09:00 - 18:00

- 01** Francesco BARBIERI, *University of Siena*
Effects of the food additive titanium dioxide on plant systems
- 02** Tommaso CIVITARESE, *Sapienza University of Rome*
Analysis of peptide-chains and transport properties of polar amino-acids chains
- 03** Francesca LIMOSANI, *University of Rome Tor Vergata*
Synthesis and characterization of novel Carbon materials-Porphyrin hybrid architectures as active light harvesting systems
- 04** Emanuele MAURI, *Campus Bio-Medico*
Smart functionalized nanogels as selective carriers for intracellular drug release
- 05** Ilaria RAGAZZINI, *University of Bologna*
PANI/Au/Fe₃O₄ nanocomposite materials for high performance electrochemical capacitors

Sapienza Poster Session - PO.III

Tuesday 11 – Friday 14 June, 09:00 - 18:00

- 01** Alessandro BELARDINI, *Dept. SBAI, Sapienza University of Rome*
Optical circular dichroism of chiral molecules in elliptical-holes array
- 02** Sara CERRI, *Dept. SBAI and of Chemistry, Sapienza University of Rome*
Functionalized Noble Metal Nanoparticles as a multifunctionals systems: from optoelectronics to nanomedicine
- 03** Cristina CICERO and Giovanni DE BELLIS, *Dept. DIAEE, Sapienza University of Rome*
Nanoscale evaluation of the effect of X-rays irradiation on parchment artefacts through AFM and SEM
- 04** Fabrizio FREZZA, *Dept. DIET, Sapienza University of Rome*
The detection of X@TiO₂ core-shell nanoparticles in coatings used for stone protection in Cultural Heritage field
- 05** Ivan MAZZETTA, *Dept. DIET, Sapienza University of Rome*
Microwave CVD Silicon Nanowires
- 06** Federica ZACCARDI, *Dept. DIAEE, Sapienza University of Rome*
Synergistic effects of hybrid carbon nanocomposites with aerospace-grade epoxy resin

12 JUNE

AgriNano Techniques

WORKSHOP COMMITTEE

Livia VITTORI ANTISARI, *University of Bologna*
 Nelson MARMIROLI, *University of Parma*
 Zeno VARANINI, *University of Verona*
 Enrico BRAIDOT, *University of Udine*

organized by



UNIVERSITÀ
di PARMA



UNIVERSITÀ
di VERONA
Dipartimento
di BIOTECNOLOGIE



UNIVERSITÀ
DEGLI STUDI
DI UDINE

With the world's population expected to exceed nine billion by 2050, scientists are working to develop new ways to meet rising global demand for food, energy and water without increasing the strain on natural resources. Organizations including the World Bank, and the U.N. Food and Agriculture Organization, as well as the EAT–Lancet commission are calling for more innovation to address the challenges of the agri-food sector. Nanoinnovation 2019 hosts the 3rd edition of the workshop “AgriNanoTechniques” co-organized by the Universities of Bologna, Parma, Verona and Udine. The workshop will be the forum for discussing the perspective of nanotechnologies in the primary sector among the stakeholders and scientific research. The development of AgriNanoTechniques has been started very recently; they will be implemented within the evolving science of precision agriculture, in which farmers use technology to target their use of water, fertilizer, plant protection products and other inputs. A second, broad potential application concerns the issues of reduction and valorization of agri-food wastes. The introduction of nanotechnologies in agriculture still need deepen basic and applied knowledge, however several promising results were achieved, so far. A huge development is taking place in this sector, therefore nanotech applications currently under development will soon be overtaken by other ideas that are expected to contribute to solve several issues in the field of sustainable agriculture.

11:00 - 12:30		WS.I.1 - TT.II.A
Current Nano perspectives in the Agri-Food sectors		
Chair: Nelson MARMIROLI, <i>CINSA Consorzio Interuniversitario Nazionale per le Scienze Ambientali</i>		
WS.I.1.1 TT.II.A.1	Alejandro PÉREZ-DE-LUQUE, <i>Department of Plant Breeding and Biotechnology - IFAPA, Spain</i> When Nanotechnology meets Agriculture: will it help to improve farming?	
WS.I.1.2 TT.II.A.2	Francesco CUBADDA, <i>ISS</i> Nanotechnology agri-food applications: how to assess their safety?	
WS.I.1.3 TT.II.A.3	Alessio ADAMIANO, <i>CNR-ISTEC</i> Bones as a source of calcium phosphates nanoparticles: towards a circular economy of smart phosphorous fertilizer	
WS.I.1.4 TT.II.A.4	Maria Adele PROSPERONI, <i>Coldiretti, Roma</i> Nanotechnology in the Agrifood sector: The role of regulation	
WS.I.1.5 TT.II.A.5	Francesco BIANCARDI, <i>ZEISS Microscopy</i> Correlative and Analytical case studies for micro and nanoparticles detection in Agrifood research	
12:30 - 14:00 Light Lunch		

14:00 - 15:30		WS.I.2 - TT.III.A
Nanomaterials and Plant Nutrition		
Chair: Zeno VARANINI, <i>University of Verona</i>		
WS.I.2.1 TT.III.A.1	Marta MARMIROLI, <i>University of Parma</i> Effects of multiple treatment with ENMs on zucchini plants	
WS.I.2.2 TT.III.A.2	Andrea CIURLI, <i>University of Verona</i> FePO₄ nanoparticles as a source of nutrients: effects on plant transcriptome and on soil microbial communities and functions	
WS.I.2.3 TT.III.A.3	Giuseppe CIUFFREDA, <i>Fabbrica Cooperativa Perfosfati Cerea</i> Smart fertilizer: first results of nano fertilizer application in open field (kiwi - <i>Actinidia chinensis ssp Jintao</i>)	
WS.I.2.4 TT.III.A.4	Antonio FILIPPI, <i>University of Udine</i> Hydroxyapatite Nanoparticles influence Germination and Plant Metabolism of <i>Solanum lycopersicum</i>	
WS.I.2.5 TT.III.A.5	Davide ZANELLI, <i>University of Trieste</i> Possible applications and critical aspects of carbon nanomaterials use in agriculture	
15:30 - 16:00 Coffe Break		

16:00 - 17:30		WS.I.3 - TT.IV.A
AgriNano Techniques Research Pathways		
Chair: Luca MARCHIOL, <i>University of Udine</i>		
WS.I.3.1 TT.IV.A.1	Sonia DEMASI, <i>University of Turin</i> Dextrin-based nanosponges as carriers for natural herbicides in horticulture	
WS.I.3.2 TT.IV.A.2	Elodie Genevieve VANDELLE, <i>University of Verona</i> Plant disease biocontrol by means of biodegradable proteinaceous nanoparticles	
WS.I.3.3 TT.IV.A.3	Monica RUFFINI CASTIGLIONE, <i>University of Pisa</i> TiO₂ nanoparticles may lighten cadmium harmfulness in co-treatment experiments on the aquatic fern <i>Azolla filiculoides</i>	
WS.I.3.4 TT.IV.A.4	Sara FALSINI, <i>University of Florence</i> Encapsulating a germination adjuvant in lignin nanoparticles to reactivate quiescent seeds	

13 JUNE

Nanotechnology @ Sapienza

WORKSHOP COMMITTEE

Antonio d'ALESSANDRO, *Director of CNIS*

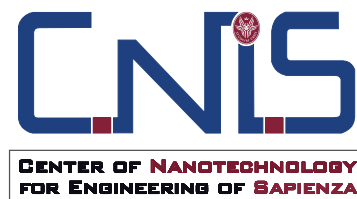
Maria Sabrina SARTO, *Deputy Rector for Research Tools and Infrastructure & former Director of CNIS*

Ruggero CAMINITI, *former Director of CNIS*

Marco ROSSI, *President of Master Science in Nanotechnology Engineering*

Carlo Massimo CASCIOLA, *former President of Master Science in Nanotechnology Engineering*

organized by



The workshop is organized by CNIS, the interdepartmental research center of Sapienza on Nanotechnologies applied to Engineering, and Master Science Programme in Nanotechnology Engineering of Sapienza.

The workshop includes three oral sessions and a poster session on **Research on Nanotechnologies @ CNIS**, that are dedicated to illustrate the infrastructures and research activities in Sapienza on Nanotechnologies and Nanoscience with the aim of highlighting scientific expertises and more recent results.

The **first session (09:00 - 10:30)** is dedicated to the presentation of the current configuration of the CNIS which brings together 15 departments of Sapienza in the areas of basic sciences, engineering and medicine, confirming its purpose and vocation as a multidisciplinary propelling center and main reference point of nanotechnology research activities in Sapienza. The session is enriched by talks illustrating some of the leading research on Nanotechnologies in Sapienza in various application fields.

The **second (11:00 - 12:30)** and **third session (14:00 - 15:30)** illustrate other research activities at the Nanotechnology and Nanoscience Laboratory of Sapienza managed by the CNIS, with a particular focus on multiscale microscopies and characterization activities. The most recent upgrades of the FESEM platform, of the X-ray diffractometer and of the atomic force microscopy platforms will be illustrated, in particular highlighting the most significant results obtained in recent activities in the framework of projects and scientific collaborations of researchers belonging to the CNIS. The sessions aim to evidence the role and relevance of connection and synergy at the level of skills and high-tech equipments, as necessary start-point to achieve scientific results of absolute importance in the state of art of nanotechnology in the international framework.

A **forth special session (16:00 - 17:30) Ex-alumni Nanotechnology Engineering @ Sapienza** will be dedicated to presentations showing significant results achieved by ex-alumni of the Sapienza Master Science programme in Nanotechnology Engineering. The aim is to promote and recognize the activity all around the world of ex-alumni of the Master Science program on Nanotechnology Engineering. On the basis of submitted abstract and CV, the Organizing Committee will award the "Best Nano ex-Alumnus Sapienza Prize 2019 and will cover all the participation costs (travel and accommodation) of the winner.

09:00 - 10:30		WS.II.1 - TT.V.B
Research on Nanotechnologies @ CNIS - part 1		
Chair: Antonio d'ALESSANDRO, Sapienza University of Rome & Carlo Massimo CASCIOLA, Sapienza University of Rome		
WS.II.1.1 TT.V.B.1	Antonio d'ALESSANDRO, <i>CNIS, Director</i> CNIS: structure, overview, research lines and SNN-Lab	
WS.II.1.2 TT.V.B.2	Maria Sabrina SARTO, <i>DIAAEE, Sapienza University of Rome</i> Graphene & Zn-Based Multifunctional Nanomaterials	
WS.II.1.3 TT.V.B.3	Carlo Massimo CASCIOLA, <i>Dept. DIMA, Sapienza University of Rome</i> A blood-vessel-on-a-chip for cavitation enhanced endothelial permeability	
WS.II.1.4 TT.V.B.4	Teresa RINALDI, <i>DBB "C. Darwin", Sapienza University of Rome</i> Calcite biomineralization in the Etruscan tombs of Tarquinia	
WS.II.1.5 TT.V.B.5	Giuseppe ZOLLO, <i>Dept. SBAI, Sapienza University of Rome</i> Atomistically resolved peptide bonds and amino-acids by tunneling current in nano-gaps of graphene nano-ribbons	
10.30-11.00 Coffee Break		

11:00 - 12:30		WS.II.2 - TT.VI.C
Research on Nanotechnologies @ CNIS - part 2		
Chair: in definition		
WS.II.2.1 TT.VI.C.1	Francesco MURA, <i>CNIS, Sapienza University of Rome</i> Activities and nanocharacterization results at SNN-Lab: FESEM platform	
WS.II.2.2 TT.VI.C.2	Paola PIEDIMONTE, <i>Dept. DIET, SBAI and DFF, Sapienza University of Rome</i> Low Temperature and CMOS Compatible Growth of Silicon Nanowires for Biosensing applications	
WS.II.2.3 TT.VI.C.3	Virgilio GENOVA, <i>Dept. DITCA, Sapienza University of Rome</i> Nanocomposite Coatings for Antifouling and Antiwear Applications in Turbomachinery Components	
WS.II.2.4 TT.VI.C.4	Roberto LI VOTI, <i>Dept. SBAI, Sapienza University of Rome</i> Photoacoustic Spectroscopy of noble metal functionalized nanoparticles based networks	
WS.II.2.5 TT.VI.C.5	Olga RUSSINA, <i>Dept. of Chemistry, Sapienza University of Rome</i> Advanced X-ray analyses for nanomaterials (to be confirmed)	
12:30 - 14:00 Light Lunch		

14:00 - 15:30		WS.II.3 - TT.VII.D
Research on Nanotechnologies @ CNIS - part 3		
Chair: Antonio d'Alessandro, <i>Sapienza University of Rome</i>		
WS.II.3.1 TT.VII.D.1	Francesca SCARAMUZZO, <i>CNIS, Sapienza University of Rome</i> Activities and nanocharacterization results at SNN-Lab: AFM platforms	
WS.II.3.2 TT.VII.D.2	Daniele PASSERI, <i>Dept. SBAI, University of Sapienza</i> AFM-based methods for Elastic Measurements	
WS.II.3.3 TT.VII.D.3	Elena BLUNDO, <i>Dept. of Physics, Sapienza University of Rome</i> Controllable micro/nano-dome creation in proton-irradiated bulk transition-metal dichalcogenides	
WS.II.3.4 TT.VII.D.4	Diego DI GIROLAMO, <i>Dept. of Chemistry, Sapienza University of Rome</i> The effect of humidity on CsPbBr₃ thin film: structure, morphology and optoelectronics	
WS.II.3.5 TT.VII.D.5	Laura PAGLIA, <i>Dept. DITCA, Sapienza University of Rome</i> Ceramic nano-filler influence on a carbon-phenolic ablator	
15:30 - 16:00 Coffe Break		

16:00 - 17:30		WS.II.4 - TT.VIII.D
Ex-alumni Nanotechnology Engineering @ Sapienza		
Chair: Carlo Massimo CASCIOLA, <i>Sapienza University of Rome</i>		
WS.II.4.1 TT.VIII.D.1	Umberto CELANO, <i>IMEC, Belgium</i> Emerging Nanoelectronics Through Two- and Three-Dimensional Materials Analysis	
WS.II.4.2 TT.VIII.D.2	Vittorio VERCILLO, <i>AIRBUS, Germany</i> Laser micro-/nano-structuring of surfaces for icephobic applications	
WS.II.4.3 TT.VIII.D.3	Alessia GENNARO, <i>KU Leuven, Belgium</i> Real-time monitoring of the dehydration stress in multilamellar lipid vesicles by dielectric spectroscopy in combination with QCM	
WS.II.4.4 TT.VIII.D.4	Livia ANGELONI, <i>Delft University of Technology, The Netherlands</i> Investigating cell mechanics on nanopatterned surfaces by Atomic Force Microscopy	
WS.II.4.5 TT.VIII.D.5	Chiara SCOGNAMIGLIO, <i>Istituto Italiano di Tecnologia</i> In definition	
WS.II.4.6 TT.VIII.D.6	Andrea MICANGELI, <i>Sapienza University of Rome & State University of New York - SUNY, USA</i> Closing Remarks: Sapienza Scholars facing up the U.S. Grand Challenges through their Field Studies Abroad	

13 JUNE

Graphene and 2D Materials, progresses and challenges**WORKSHOP COMMITTEE**

Fabrizio PIRRI, *Polytechnic of Turin*
 Andrea LAMBERTI, *Polytechnic of Turin*
 Vittorio MORANDI, *CNR-IMM, Bologna*
 Luca ORTOLANI, *CNR-IMM, Bologna*

organized by



**POLITECNICO
DI TORINO**



In the last years graphene-based research has witnessed an incredible expansion, which, for example, in Europe has culminated with the launch of the Graphene Flagship. Moreover, not only graphene but a wide class of 2D materials beyond graphene (Silicene, Phosporene, BN, MoS₂) were attracting the interest of both research institutions and private stakeholders. The aim of the symposium is to bring together scientists working on different technological uses not only of graphene, but also of 2D materials beyond graphene, in a multidisciplinary, academic and industrial environment, to disclose and discuss challenges and opportunities of this new class of materials. More in detail, the symposium will be focused on three different sessions. The first one will be focused on "Synthesis and characterization of 2D nanomaterial", highlighting some keynote advancement in this field, namely emerging classes of 2D monoelemental lattices beyond graphene, advanced anisotropic synthesis strategies of graphene materials and 2D transition metal dichalcogenides as well as recent advancements in advanced characterization of 2D materials. The second one will be on "2D nanomaterial for energy harvesting and storage application", and will provide an overview on the recent developments of in the application on 2D materials in energy harvesting and storage devices, with talks on third generation photovoltaics, mechanical nanogenerators, salinity gradient power and electrochemical energy storage technologies (rechargeable batteries and supercapacitor) covering several aspects of their fabrication and characterization toward their industrialization. The third one will focus on "Technological integration and processing of 2D nanomaterials" and will aim at discussing the technological exploitation and integration of graphene and 2D materials, from the development of a CMOS-compatible technological strategy for the wafer scale integration of these class of materials, up to the capabilities offered by the chemical approaches.

11:00 - 12:30		WS.III.1 - TT.VI.E
Synthesis and characterization of 2D nanomaterial		
Chairs: Vittorio MORANDI, <i>CNR-IMM, Bologna</i> & Andrea LAMBERTI, <i>Polytechnic of Turin</i> In collaboration with: Polytechnic of Turin and CNR-IMM		
WS.III.1.1 TT.VI.E.1	Carlo GRAZIANETTI, <i>CNR-IMM, Agrate</i> Silicene and the X-enes for a new nanotechnology platform	
WS.III.1.2 TT.VI.E.2	Cristina AFRICH, <i>CNR-IOM, Trieste</i> In-operando atomic-scale study of graphene CVD growth on corrugated polycrystalline nickel	
WS.III.1.3 TT.VI.E.3	Giuseppe VALERIO BIANCO, <i>CNR-NANOTEC</i> Chemical strategies to improve CVD graphene's functionalities in technological applications	
WS.III.1.4 TT.VI.E.4	Marco FONTANA, <i>IIT@Polito</i> An insight into Laser Induced Graphene and MoS₂ as 2D active materials for nanotechnology applications	
10.30-11.00 Coffee Break		

14:00 - 15:30		WS.III.2 - TT.VII.F
2D nanomaterial for energy harvesting and storage application		
Chairs: Vittorio MORANDI, <i>CNR-IMM, Bologna</i> & Andrea LAMBERTI, <i>Polytechnic of Turin</i> In collaboration with: Polytechnic of Turin and CNR-IMM		
WS.III.2.1 TT.VII.F.1	Antonio AGRESTI, <i>CHOSE - University of Rome Tor Vergata</i> Emerging 2D materials for perovskite photovoltaics	
WS.III.2.2 TT.VII.F.2	Sebastiano BELLANI, <i>IIT, Genova</i> Design and large-scale production of 2D materials for energy conversion and storage applications	
WS.III.2.3 TT.VII.F.3	Mara SERRAPEDE, <i>IIT@Polito</i> Few-layer mixed 1T-2H phase MoS₂ as electrode material in supercapacitor and catalyst for hydrogen evolution reaction	
WS.III.2.4 TT.VII.F.4	Hui SHAO, <i>Université Paul Sabatier, Toulouse, France</i> 2D MXene materials for electrochemical energy storage	
15.30-16.00 Coffee Break		

16:00 - 17:30		WS.III.3 - TT.VIII.A
Technological integration and processing of 2D nanomaterials		
Chairs: Vittorio MORANDI, <i>CNR-IMM, Bologna</i> & Andrea LAMBERTI, <i>Polytechnic of Turin</i> In collaboration with: Polytechnic of Turin and CNR-IMM		
WS.III.3.1 TT.VIII.A.1	Sergio PEZZINI, <i>CNI@NEST, IIT Pisa</i> Toward wafer-scale integration of graphene single crystals arrays	
WS.III.3.2 TT.VIII.A.2	Maurizio CASALINO, <i>CNR-IMM Napoli</i> Near-infrared all-silicon Schottky photodetectors: New perspectives through graphene	
WS.III.3.3 TT.VIII.A.3	Damiano MARIAN, <i>University of Pisa</i> Simulations of devices based on two-dimensional materials	
WS.III.3.4 TT.VIII.A.4	Stefano STASSI, <i>Polytechnic of Turin</i> Fabrication and of graphene nanomechanical resonators and defects and residual stress analysis through non-invasive characterization approach	



La tecnologia fa bene alla cultura



DTC LAZIO
DISTRETTO TECNOLOGICO
BENI E ATTIVITÀ CULTURALI
CENTRO DI ECCELLENZA

Il Distretto Tecnologico per i beni e le attività Culturali del Lazio è un centro di aggregazione e integrazione di competenze tecnologiche e tecnologie, applicabili alla conservazione, valorizzazione e promozione del patrimonio storico, artistico e culturale della regione Lazio. È una realtà di eccellenze, alla quale partecipano le università Sapienza, Tor Vergata, Roma Tre, Tuscia, Cassino e CNR, ENEA, INFN.



**REGIONE
LAZIO**

- Master, Corsi di alta formazione, Corsi di apprendimento permanente e Corsi online
- 12 Reti di laboratori di Alta Tecnologia
- Anagrafe delle competenze e Osservatorio regionale beni culturali

Vai su dtclazio.it

13 pm, 14 am - JUNE

Nanotechnologies and nanomaterials for cultural heritage**WORKSHOP COMMITTEE**

David CHELAZZI, *CSGI*
 Roberta FANTONI, *ENEA*
 Maria Laura SANTARELLI, *Sapienza University of Rome*
 Maria Sabrina SARTO, *Sapienza University of Rome*

organized by



CoE DTC Lazio is the Centre of Excellence of DTC Lazio, the Technological District for the new technologies applied to cultural heritage of Regione Lazio (<https://dtclazio.it/>). The CoE DTC Lazio was founded in July 2018 by Sapienza University of Rome, Tor Vergata University, University of Roma Tre, University of Cassino and Lazio Meridionale, Tuscia University, CNR, ENEA, INFN. It is a centre of aggregation and integration of technological skills applied to the conservation, enhancement and promotion of the historical-artistic and cultural heritage of the Lazio Region. Objectives of the DTC Lazio are: to connect and enhance the existing research, training and technology transfer skills in the network set up by the founding partners (five state universities and three major research institutions); to create and support qualification and specialization initiatives for students and professionals in the sector, through training and advanced training; to allow a qualitative leap in the growth of the entire regional sector of technologies for cultural assets and activities and contribute to the establishment in Lazio of a competitive centre of excellence at European and international level; to support the processes of networking technical-scientific, entrepreneurial and institutional resources, improving the overall effectiveness of investments in the sector.



CSGI (Research Center for Colloid and Surface Science) is an Italian public research organization. The members of CSGI work in ten different Italian Universities on closely related scientific fields, concerning both fundamental and applied research. Fields of interest include: nanostructured and ultrafine materials, structure and dynamics of supramolecular assemblies, anophasic ternary oxides, structural analysis of biomolecules, formulation of nanophasic systems, innovative processes for the conservation and restoration of cultural heritage, bioelectronics and organic electronics
 CSGI is a key international player in the realization of innovative systems and nanostructured formulations for the conservation and restoration of cultural heritage as highlighted by the international interest in CSGI methods by international scientific journals and reviews, as well as national and international press and media reports.

16:00 - 17:30

WS.IV.1 - TT.VIII.B

Innovative nanomaterials for cultural heritage



Preserving the unique European Cultural Heritage (CH) is a challenging task. In the last decades, environmental pollution in European cities has dramatically increased hindering the preservation and accessibility of both movable (e.g. archives and paintings collection) and immovable (e.g. buildings and monuments) CH. Lengthy and poorly effective restoration practice negatively affect the social and economic activities related to CH valorization. Nowadays, nanotechnology has become a popular tool to produce advanced materials, even in cultural heritage field. Examples include advanced conservation products, such as self-cleaning, deacidification, consolidation, depollutant or repellence; some of these products are already on the market. Among the produced nanomaterials both nanoparticles (TiO_2 , SiO_2 , carbonates, and others) and composite systems (organic/inorganic) have shown great effectiveness. The main problem of 'classic' materials regards the formation of thin surface coatings that poorly adhere to the substrate, resulting in a low durability. For this reason, the development of long-lasting solutions based on nanotechnology (i.e. functionalized nanoparticles integrated in a matrix capable of penetrating the pore structure of substrates and subsequently adhere to CH materials) is a promising approach to be investigated. Namely, in most cases the materials have the same (or very similar) composition and physico-chemical properties than those of the artifacts, in order to grant the full compatibility with the original art materials. In cases where full compatibility cannot be achieved, the goal is the development of materials whose application is, as much as possible, reversible. The session will illustrate state-of-the-art research achievements in the field.

Chair: David Chelazzi, CSGI
In collaboration with: CSGI

WS.IV.1.1
TT.VIII.B.1

Gabriella DI CARLO, CNR-ISMN, Roma

Multifunctional materials based on chitosan for the chemisorption of degrading species in museum environments

WS.IV.1.2
TT.VIII.B.2

Gianfranco SABELLA & Nello VITULIANO, IONFLY s.r.l.

Plasma & Cultural Heritage: new materials made by plasma technologies

WS.IV.1.3
TT.VIII.B.3

Giovanna POGGI, CSGI

Strengthening and deacidification of paper: a single-step treatment based on nanoparticles and cellulose nanocrystals

WS.IV.1.4
TT.VIII.B.4

Claudia MAZZUCA, University of Rome Tor Vergata

Cellulose nanocrystals and paper artworks: a fruitful association

10.30-11.00 Coffee Break

Friday 14 AM

09:00 - 10:30

WS.IV.2 - TT.IX.A

Diagnostics and nanotechnologies for cultural heritage



Preserving the unique European Cultural Heritage (CH) is a challenging task. In the last decades, environmental pollution in European cities has dramatically increased hindering the preservation and accessibility of both movable (e.g. archives and paintings collection) and immovable (e.g. buildings and monuments) CH. Lengthy and poorly effective restoration practice negatively affect the social and economic activities related to CH valorization. Nowadays, nanotechnology has become a popular tool to produce advanced materials, even in cultural heritage field. Examples include advanced conservation products, such as self-cleaning, deacidification, consolidation, depollutant or repellence; some of these products are already on the market. Among the produced nanomaterials both nanoparticles (TiO_2 , SiO_2 , carbonates, and others) and composite systems (organic/inorganic) have shown great effectiveness. The main problem of 'classic' materials regards the formation of thin surface coatings that poorly adhere to the substrate, resulting in a low durability. For this reason, the development of long-lasting solutions based on nanotechnology (i.e. functionalized nanoparticles integrated in a matrix capable of penetrating the pore structure of substrates and subsequently adhere to CH materials) is a promising approach to be investigated. Namely, in most cases the materials have the same (or very similar) composition and physico-chemical properties than those of the artifacts, in order to grant the full compatibility with the original art materials. In cases where full compatibility cannot be achieved, the goal is the development of materials whose application is, as much as possible, reversible. The session will illustrate state-of-the-art research achievements in the field.

Chair: Roberta FANTONI, ENEA

Co-Chair: Maria Sabrina SARTO, *Sapienza University of Rome*

In collaboration with: Centre of Excellence DTC Lazio

WS.IV.2.1 TT.IX.A.1	Roberta FANTONI, ENEA ADAMO project within DTC focused on analysis, diagnostics and monitoring cultural heritage
WS.IV.2.2 TT.IX.A.2	Claudia PELOSI, University of Tuscia Surface protection of the Sperone tuff of Villa Mondragone by nanostructured materials in the framework of ADAMO project
WS.IV.2.3 TT.IX.A.3	Laura BERTANI, ENEA Nanocomposites effect on laser ablation rate of treated marble samples
WS.IV.2.4 TT.IX.A.4	Laura BRUNO, <i>University of Rome Tor Vergata</i> Biodeterioration of stone monuments and remediation strategies
WS.IV.2.5 TT.IX.A.5	Antonella MACAGNANO, <i>CNR-IIT, Roma</i> Hybrid devices based on nanostructured sensors for gas and VOCs monitoring
WS.IV.2.6 TT.IX.A.6	Javier BECERRA, <i>Universidad Pablo de Olavide, Spain</i> New nanomaterials for the conservation of historic limestone buildings (in video-conference)

10.30-11.00 Coffee Break

11:00 - 12:30

WS.IV.3 - TT.X.A

New Technologies for the safety and the reconstruction in seismic area

The SISMI project, according to the aims of the Centre of Excellence for the Latium DTC, promotes the use of innovative technologies, favouring their transfer and dissemination in favour of the multiple stakeholders involved in the improvement of the safety of Cultural Heritage. The reconstruction and seismic improvement are intended as a dynamic process of progressive reduction of risk. Physical structural and socio-economic elements collaborate to this purpose to guarantee the safety of Cultural Heritage, but also to promote innovative forms of development, enhancement and revitalization, and to increase the resilience of local communities. Especially, a specific topic of the project is for identifying innovative methodologies and new generation of materials for the restoration and recovery of historical materials and artifacts to improve the reconstruction and the performance after a heartquake or a catastrophic event.

Chair: Maria Laura SANTARELLI, *Sapienza University of Rome*
In collaboration with: Centre of Excellence DTC Lazio

WS.IV.3.1
TT.X.A.1

Maria Laura SANTARELLI, *Sapienza University of Rome*
SISMI Project – A multidisciplinary technology to improve the safety and the reconstruction in seismic areas

WS.IV.3.2
TT.X.A.2

Federica ANTONELLI, *Tuscia University*
Cellulose and lignin nano-based consolidant for waterlogged archaeological wood

WS.IV.3.3
TT.X.A.3

Chiara GIULIANI, *CNR-ISMN, Roma*
Smart materials for the corrosion inhibition of metal artefacts

WS.IV.3.4
TT.X.A.4

Barbara DE FILIPPO, *IAC-CNR, Roma*
Corrosion behavior of Cu-Zn-Al shape memory alloy in controlled environments

WS.IV.3.5
TT.X.A.5

Mohammad SHARBAF, *Sapienza University of Rome*
Application of Nano particles for the consolidation of historical gypsum decoration and artworks

WS.IV.3.6
TT.X.A.6

Chiara D'ERME, *Sapienza University of Rome*
Nanofibrillated cellulose as nano-reinforcement for cementitious composites

12:30 - 14:00 Light Lunch



13 JUNE

Solutions to address safety and regulatory aspects of nanomaterials**WORKSHOP COMMITTEE**

Andrea Porcari, Airi and caLIBRAte project
 Elvio Mantovani, Airi and caLIBRAte project
 Fabio Boccuni, Inail
 Luisa Fiandra, Polaris Research Center - University of Milano-Bicocca

organized by



The increasing regulatory requirements for characterization and testing of nanomaterials and nano-related products (e.g. recent updates of REACH, and occupational health and safety, biocidal, pharma, medical devices, food, cosmetics regulations), makes mandatory for all R&I players to consider state-of-the-art methodologies, procedures and data, for a safe use of nanomaterials during research, production, use and end-of-life of nano-related products.

Within four sessions on June 13th, speakers from research, companies and governmental bodies will provide an overview of most recent developments in approaches for risk governance of nanomaterials, including prevention, assessment, management and communication aspects.

09:00 - 10:30		WS.V.1 - TT.V.C
Risk governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 1		
Chairs: Andrea PORCARI, Elvio MANTOVANI, <i>Airi</i> <i>In collaboration with: caLIBRAte project, Airi, Federchimica and INAIL</i>		
WS.V.1.1 TT.V.C.1	Andrea PORCARI, <i>AIRI</i> Introduction: the caLIBRAte risk governance framework	
WS.V.1.2 TT.V.C.2	Fabio BOCCUNI, <i>Italian Workers' Compensation Authority, INAIL</i> State of the art of methods and models for risk management of nanomaterials	
WS.V.1.3 TT.V.C.3	Flavia BARONE, <i>National Institute of Health (ISS)</i> Risk governance of nanomaterials: state of the art and the role of the ISS multidisciplinary unit on nanotechnologies	
WS.V.1.4 TT.V.C.4	Alex ZABEO, <i>Green Decision Srl</i> Risk management models for nanomaterials: practical experiences and perspectives	
10.30-11.00 Coffee Break		

11:00 - 12:30		WS.V.2 - TT.VI.B
Risk governance and regulatory preparedness: managing risks and risk perception of nanomaterials - part 2		
Chairs: Andrea PORCARI, Elvio MANTOVANI, Airi <i>In collaboration with: calIBRAte project, Airi, Federchimica and INAIL</i>		
WS.V.2.1 TT.VI.B.1	Elisabetta BORSELLA, AIRI Risk perception and risk management of nanomaterials: stakeholders views	
WS.V.2.2 TT.VI.B.2	Camila DEL PIVO, LEITAT, Spain A comparative analysis of case studies on specific R&I value chain: exposure scenarios on production of nanomaterials in selected sectors	
WS.V.2.3 TT.VI.B.3	Felice C. SIMONE, CNR-ISTEC and Protect Project Managing occupational safety issues of nanomaterials in manufacturing processes: the PROTECT case studies	
WS.V.2.4 TT.VI.B.4	Dimiter PRODANOV, IMEC, Belgium The risk profile of nanoelectronics concerning "nano". Lessons from NanoStreeM project	
WS.V.2.5 TT.VI.B.5	Closing remarks: the future of NM risk governance: the Gov4Nano project	
12:30 - 14:00 Light Lunch		
14:00 - 15:30		WS.V.3 - TT.VII.C
Nanotechnologies and Key Enabling Technologies in innovation processes: the NanoKey project for risk prevention in the workplace		
Chair: Fabio BOCCUNI, INAIL <i>In collaboration with: INAIL, Italian Institute of Technology (IIT)</i>		
WS.V.3.1 TT.VII.C.1	Sergio IAVICOLI, INAIL Introduction addresses	
WS.V.3.2 TT.VII.C.2	Stefania SABELLA, IIT, Genova The NanoKey project for Prevention-through-Design approach to nanotechnologies and KETs	
WS.V.3.3 TT.VII.C.3	Luisana DI CRISTO, IIT, Genova 3-D models and innovative in vitro test to evaluate potential toxic effects of nanomaterials	
WS.V.3.4 TT.VII.C.4	Francesca TOMBOLINI, INAIL Exposure measurements and samplings in the workplaces: study design and preliminary results	
WS.V.3.5 TT.VII.C.5	Delia CAVALLO, INAIL Bio-monitoring of exposed workers	
15.30-16.00 Coffee Break		

16:00 - 17:30

WS.V.4 - TT.VIII.C

Biosafety of nanomaterials

Chairs: Luisa FIANDRA, *POLARIS Research Center - University of Milano-Bicocca*
In collaboration with: University of Milano-Bicocca

WS.V.4.1 TT.VIII.C.1	Luciana DINI, <i>Sapienza University of Rome</i> Aquatic animal models of increasing complexity for the assessment of nanomaterials effects
WS.V.4.2 TT.VIII.C.2	Rossella BENGALLI, <i>University of Milano-Bicocca</i> Toxicity of metal oxide nanoparticles in vitro and in vivo: a safe-by-design approach
WS.V.4.3 TT.VIII.C.3	Carla DISTASI, <i>University of Piemonte Orientale</i> SiO₂ nanoparticle-neuron interaction: activation of ionic channels and calcium influx
WS.V.4.4 TT.VIII.C.4	Maddalena COLLINI, <i>University of Milano-Bicocca</i> Nanoparticles tracking and correlation for in vitro and in vivo systems
10.30-11.00 Coffee Break	





SABENZA
SEPTEMBER 11-14
NANO
2018
Conference & Exhibition
Anno
Aino

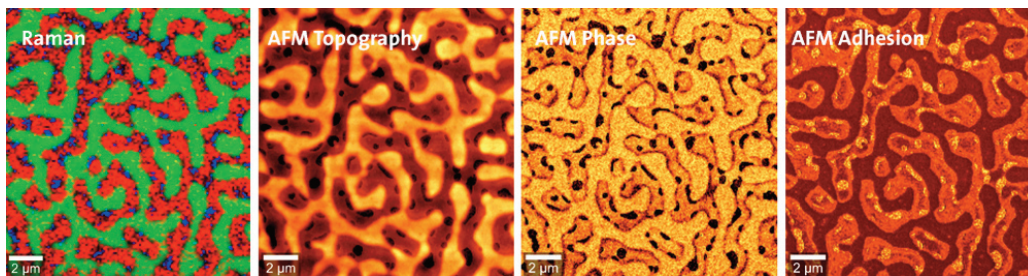
SEPTEMBER 11-14
NANO
2018
Conference & Exhibition
Anno
Aino

LOT-QD/WITEC

Thursday 13 June, 09:00 - 12:30



New perspectives in nano-analysis with correlative 3D Raman imaging – workshop and hands-on session



Correlative Raman AFM Imaging of Polymers.

ABSTRACT

Correlative microscopy combines the advantages of different techniques to facilitate an enhanced characterization of samples. Scanning electron microscopy and Atomic Force Microscopy are powerful methods for investigating surface structures on the nanometer scale. Confocal Raman imaging is a non-destructive, label-free approach that can chemically identify the molecules in a sample in 3D. The presentation will show the hybrid techniques which can be realized with the WITec confocal Raman imaging microscope platform with an accompanying theoretical introduction and examples of measurements.

PROGRAMME

- 09:00 Welcome
- 09.:30 3D Raman Imaging & Correlative Microscopy techniques – An Introduction
- 10:30 Coffee Break
- 11:00 Principles of data evaluation for correlative Raman, SEM and AFM measurements
- 11:30 Hands-on session and measurement workflow demonstration at a confocal Raman Imaging system
- 12:00 Open discussion

SPEAKER INFORMATION:

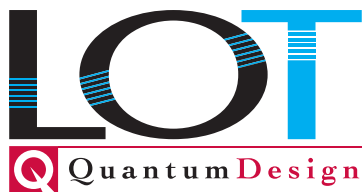
Nour Hafi

WITec GmbH, Ulm, Germany

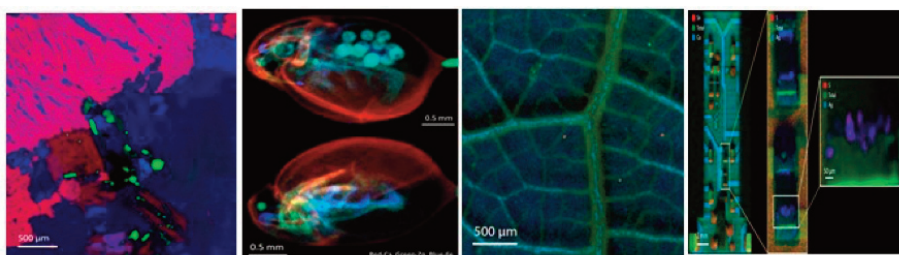
Nour Hafi is currently working as an Applications Scientist at WITec GmbH in Ulm, Germany. He obtained his Ph.D. at the Technical University of Braunschweig and continued in a postdoctoral position at the Technical University of Braunschweig and at the Max Planck Institute of Biophysical Chemistry in Goettingen, Germany simultaneously. His research was focused on super resolution light- and multi-photon- microscopy.



WITec 3D Confocal Raman Imaging System Apyron



Breakthrough Lab X-ray Techniques approaching Synchrotron Beamline Performances



Geomaterials

Life Science

Metallomics

Electronics

Elemental Composition, Valence States and Structural Imaging

ABSTRACT

Synchrotron beamline X-ray techniques have several inherent advantages over their laboratory equivalent in terms of their massively higher source brilliance, energy coherence, tuneability and sub-micron resolution capabilities. Synchrotron x-ray techniques such as microXRF (X-ray fluorescence), XAS (X-ray Absorption Spectroscopy with XANES & EXAFS) and nano XRM (X-ray Microscopy) are becoming increasingly central to advanced research in alternative energy, catalysts, medicine, semiconductor materials to geology. This has led to oversubscription and immense competition in acquiring beamtime. In spite of the growth of these techniques at synchrotron facilities, efforts toward developing higher sensitivity and smaller X-ray spot size laboratory X-ray capabilities have progressed relatively slowly due to bottlenecks in X-ray optics and low brightness laboratory X-ray sources.

We have developed a breakthrough laboratory microfocus X-ray source with user selectable or tunable energy which has significantly higher brightness/flux than conventional micro focus &/or rotating anode sources. Coupling this patented source with our novel double-paraboloidal X-ray mirror lenses, we are introducing a suite of laboratory X-ray instrumentation with performances close to their synchrotron equivalent. These include microXRF, XAS, and nano-XRM.

Rapid non destructive trace level elemental compositional mapping at ambient by the Attomap (μ XRF) will be illustrated with biological tissue, nanoparticles in drug delivery, geology and material science. The metrology of thin film thickness and dopants from atomic layer deposition (ALD) at sub Å thickness sensitivity in semiconductor wafers will also be shown. The detection sensitivity of the Attomap is the sub ppm level which is comparable to TOF-SIMS. The Lab Quantum Leaptm XAS system has sub-eV energy resolution for chemical/oxidation state analysis using XANES. Bond length or neighboring atoms are analyzed with EXAFS techniques. Scan times are in minutes to hours. This technique is crucial for our understanding of in operando of charge-discharge cycle of batteries; the aging of catalysts and processes in a variety of novel advanced materials. Results obtained are comparable to synchrotron XAS. The Trilambda nano-XRM is a tomography system for 3D volumetric representations of material microstructures with spatial resolutions down to 40 nm with a choice of three X-ray energies to analyze soft to hard materials. All these novel X-ray techniques are complementary. They form part of the essential components in the emerging field of correlative and functional microscopy, tying structural information from optical and electron microscopy with elemental, chemical states and 3D volumetric data in applied research.

LOT-QD/SIGRAY

Friday 14 June, 09:00 - 12:30

PROGRAMME

- 09.00 Welcome & Introduction to High brightness, Multi anode X-ray Source & High Resolution X-ray optics technologies for next generation X-ray Techniques
- 09.30 Novel MicroXRF with sub 5 um spot size for rapid elemental composition to sub ppm mapping for geology, cultural heritage, drug delivery, energy research, material science and electronics
- 10.30 Coffee Break
- 11.00 Lab Based X-ray Absorption Spectrometry (XAS) for XANES & EXAFS. Applications in Energy research batteries, fuel cells, catalysts, nanomaterials for charge discharge, ageing & In situ characterization.
- 11.45 Multienergies X-ray Microscopy (XRM) with resolution < 40 nm for non invasive 3D characterization of hard to soft materials
- 12.00 Summary, Q & A



AttoMap microXRF
Elemental imaging & quantification



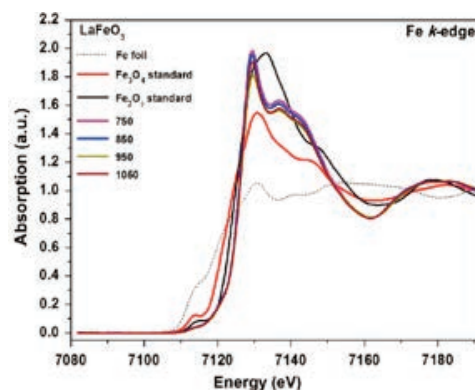
QuantumLeap XAS
Chemical state (oxidation state, bond lengths)



TriLambda NanoXRM
40 nm resolution 3D x-ray microscope (nanoCT)

SPEAKER INFORMATION

S.H. Lau, has over 20 years' experience in microscopy, material characterization and instrumentation in diverse applications from material science research, geoscience, tissue engineering and semiconductor failure analysis,. He has published several papers in material characterization and imaging in the field of X-ray Microscopy. He existed from Xradia after it was acquired by Carl Zeiss in 2013. He is now the Vice President of Business Development in Sigray Inc, pioneering the development of ultra brightness, tunable x-ray sources and advanced x-ray optics for lab instrumentation and synchrotron applications.





Advances in surface electrical characterization at the nanoscale by using Scanning Kelvin probe microscopy (SKPM) Atomic Force Microscopy (AFM) Seminar and Live Demo

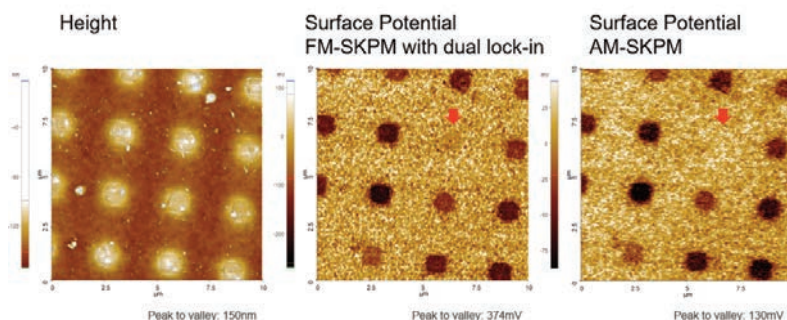


Figure capture: 10x10 μm^2 image of a polymer-patterned array. Topography image (left), FM-SKPM image (center), and AM-SKPM image (right).

MORNING PROGRAMME:

- 09:00 Welcome and Introduction
- 09:10 Talk: **“Advances in surface electrical characterization at the nanoscale by using Scanning Kelvin probe microscopy (SKPM)”**
- 09:30 Instrument Demonstration on Park NX10 AFM
- 10:30 Discussion und Summary

AFTERNOON PROGRAMME:

- 14:00 Welcome and Introduction
- 14:10 Talk: **“Advances in surface electrical characterization at the nanoscale by using Scanning Kelvin probe microscopy (SKPM)”**
- 14:30 Instrument Demonstration on Park NX10 AFM
- 15:30 Discussion und Summary



Park NX10 AFM

ABSTRACT

Scanning Kelvin Probe microscopy (SKPM) allows measuring work function and electrical potential distribution of various materials, to provide a better understanding of nanostructures and CMOS semiconductor devices to improve their performance. SKPM has also been used to determine quantitative information such as the charge distribution in polymer materials. Compared to other techniques, SKPM is nondestructive and compatible to ambient conditions. Conventional Amplitude Modulation (AM) SKPM has already allowed remarkable enhancements in the field of device reliability, but it is limited by its signal-to-noise detection ability. For this scope Park Systems recently developed Frequency Modulation FM-SKPM. The results show that FM-SKPM is significantly more sensitive than AM-SKPM in measuring surface potential distribution.

In this workshop we will demonstrate that FM-SKPM has better sensitivity in detecting surface potential variation of polymer material in comparison to AM-SKPM. In fact, FM-SKPM provided higher resolution with sharper edges of the domains and detected smaller potential variations than AM-SKPM on the same irregular surface.

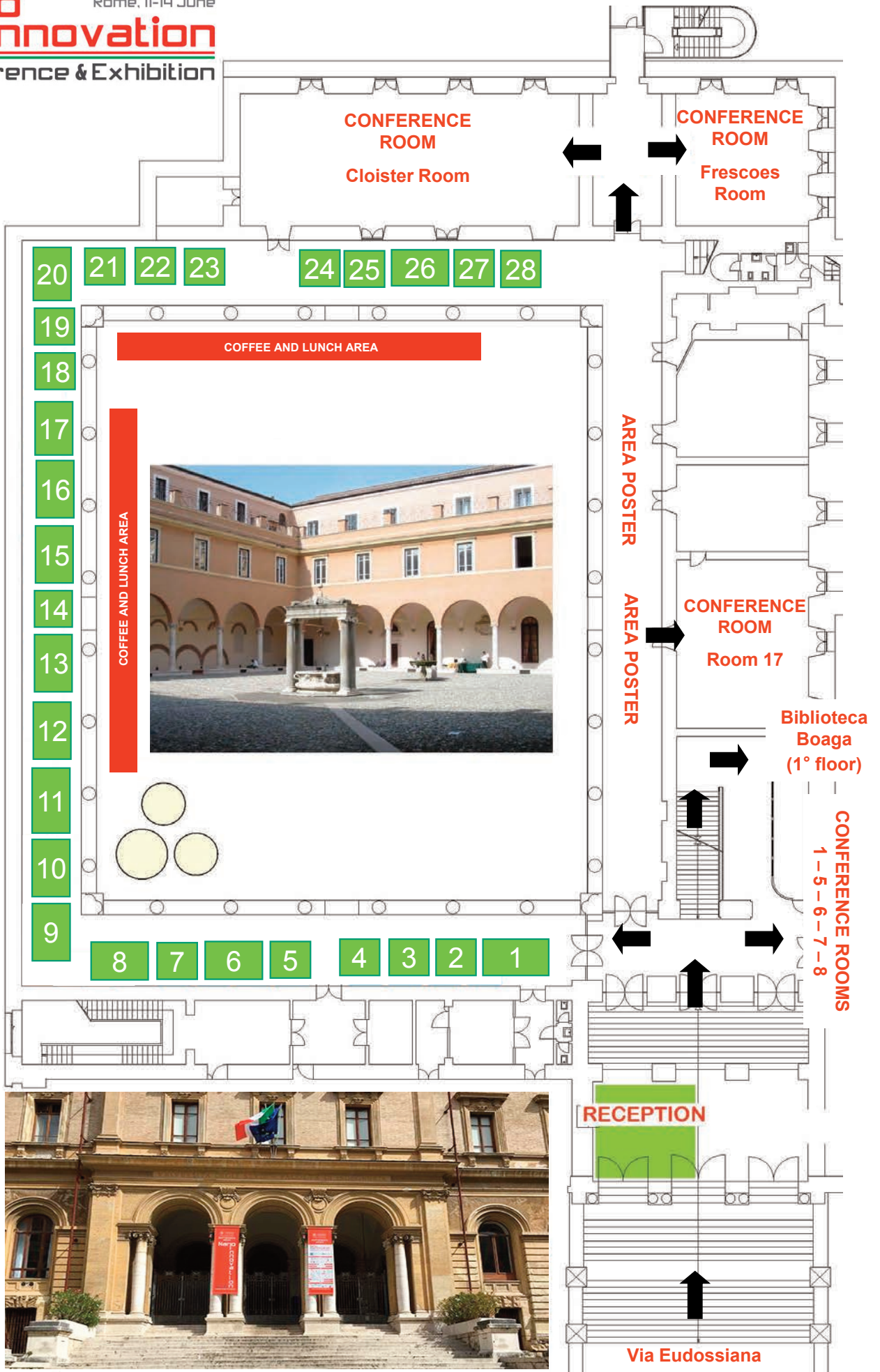
SPEAKER INFORMATION

Dr. Andrea Cerreta – Application Scientist at Park Systems
 pse@parksystems.com | www.parksystems.com



Meeting Area

Nano Rome, 11-14 June
2019 Innovation
 Conference & Exhibition



ALPHABETICAL ORDER

2	2M STRUMENTI
19	AIRI
8	ALFATEST MALVERN PANALYTICAL
7	ALFATEST THERMO FISHER SCIENTIFIC
12	ASSING AGAR SCIENTIFIC BRUKER SURFACE ANALYSIS CRESTEC CORPORATION IMINA TECHNOLOGIES PHYSICAL ELECTRONICS PROTOCHIPS PVA TEPLA ANALYTICAL SYSTEMS RIBER RIGAKU TESCAN XWINSYS
6	BRUKER
27	CNR NANOTEC
13	FONDAZIONE BRUNO KESSLER
11	GAMBETTI KENOLOGIA KLA-TENCOR PARK SYSTEMS
28	GENANO ITALIA
26	INOCURE S.R.O.
16	INRIM
24	IT-FAB
17	ITALIAN TRADE AGENCY
10	JEOL
1	LOT QUANTUMDESIGN SIGRAY WITEC
21	MERCURY
22	MICROLEASE MPI CORPORATION
14	NANOSCRIBE
4	PLATINUM
18	PRISMA PROJECT
5	PRODOTTI GIANNI GOODFELLOW
23	RENISHAW
25	S3 ALLIANCE
20	SCHAEFER ITALY
3	THERMO FISHER SCIENTIFIC
9	ZEISS
15	ZURICH INSTRUMENTS

BOOTHS ORDER

1	LOT QUANTUMDESIGN SIGRAY WITEC
2	2M STRUMENTI
3	THERMO FISHER SCIENTIFIC
4	PLATINUM
5	PRODOTTI GIANNI GOODFELLOW
6	BRUKER
7	ALFATEST THERMO FISHER SCIENTIFIC
8	ALFATEST MALVERN PANALYTICAL
9	ZEISS
10	JEOL
11	GAMBETTI KENOLOGIA KLA-TENCOR PARK SYSTEMS
12	ASSING AGAR SCIENTIFIC BRUKER SURFACE ANALYSIS CRESTEC CORPORATION IMINA TECHNOLOGIES PHYSICAL ELECTRONICS PROTOCHIPS PVA TEPLA ANALYTICAL SYSTEMS RIBER RIGAKU TESCAN XWINSYS
13	FONDAZIONE BRUNO KESSLER
14	NANOSCRIBE
15	ZURICH INSTRUMENTS
16	INRIM
17	ITALIAN TRADE AGENCY
18	PRISMA PROJECT
19	AIRI
20	SCHAEFER ITALY
21	MERCURY
22	MICROLEASE MPI CORPORATION
23	RENISHAW
24	IT-FAB
25	S3 ALLIANCE
26	INOCURE S.R.O.
27	CNR NANOTEC
28	GENANO ITALIA



2M STRUMENTI SRL

Via Giovanni Pontano, 9
00141 Roma (RM), ITALIA
tel: +39 06 868 95 319
fax: +39 06 868 95 241
website: www.2mstrumenti.com
contact person: **Matteo FEDELE**
e-mail: info@2mstrumenti.com

2M STRUMENTI is active in the materials science, biophysics and nanotechnology fields, representing and producing scientific instruments and high quality components for the creation and characterization of inorganic, organic and biological, from micro to nano structure. The main activities of 2M STRUMENTI are the commercialization, installation and technical support of scientific instrumentation, exclusively on the national territory.

The core areas of the company are:

Nanoscopy: AFM, STM, probes and several accessories.

Electron Microscopy: Complete line of SEM and TEM Specimen Preparation Equipments. SEM and TEM Imaging. SEM and TEM Ancillary Equipments: CL, Cryo, Heating and Cooling Stages, Tensile Stages. Consumables for Electron Microscopy and Labs. Diamond and Glass Knives for Microtome and Ultramicrotome.

Deposition: Deposition systems by Metallorganic MO-CVD / LPE / PVD / VPE. Deposition systems Plasma and Reactive Etching Assisted PE-CVD / ICP-RIE. Sputter and evaporators; CVD, PVD.

Graphene growing systems up to 300 mm diameters Nanoimprinting thermal and UV. Inkjet printing and microdispensing.

Surface Physics: Laser and Spectroscopic Ellipsometers. Analysis for chemical surface characterizations (PTIR). Solar simulator. IQE/EQE PV cells characterization. Surface plasma treatment.

High Vacuum and Ultra High Vacuum Components: Flanges (CF, KF, ISO), Windows, Gaskets, Seals, Valves, Feedthroughs, Materials, Deposition Equipment, Sample, Manipulation.

The company can also provide the "design, construction, distribution, repair, transformation of scientific equipment." Some instruments have been made both in the industrial (process control) and science.



ASSOCIAZIONE
ITALIANA
PER LA RICERCA
INDUSTRIALE

AIRI

Viale Gorizia, 25/c
00198 Roma (RM), ITALIA
website: www.airi.it, www.nanotec.it
contact person: **Elvio MANTOVANI**
e-mail: info@airi.it

Airi (Italian Association for Industrial Research) is a not-for-profit private organization. Its mission is to promote industrial Research and Innovation and co-operation between the private and public sectors, to enhance the competitive position of the Country.

Airi works with its members - large industrial enterprises and SMEs, leading universities, public research institutions, technology clusters and financial organizations- to analyse, promote and sustain future industrial innovation, development of R&I policies and strategies, sustainability and social responsibility aspects of technological innovation, and public-private partnerships.

Visit the stand to have updated information on activities and opportunities for cooperation with Airi and Airi/Nanotec IT, including the following publications, projects and initiatives:

- Analysis of Priority Technologies for the Italian Industry
- National Working Group on Responsible Research and Innovation
- NanoRestArt (H2020): Nanomaterials for the Restoration of works of Art
- Prisma (H2020): A roadmap to develop long-term industrial strategies to innovate responsibly
- GoNano (H2020): Societal engagement in nanotechnologies
- Nano-Lab (INAIL): Risk management of nanomaterials in occupational settings
- caLIBRAte (H2020): Risk governance tools to facilitate regulatory compliance and promote safe and sustainable use of nanomaterials
- Gov4Nano(H2020): Risk and Innovation governance of nanotech and enabling technologies

BOOTH 7-8

**ALFATEST SRL**

Via Giulio Pittarelli, 97
00166 Roma (RM), ITALIA

tel. +39 06 87465557

fax +39 06 87465555

website: www.alfatest.it

contact person: **Alice BRUN**

Alfatest is distributing scientific equipment dedicated to Materials science and Bio-sciences, providing its customers with leading technologies and high-level technical and applicative support based on a 30 years' experience. In addition, the contract analysis laboratory AlfatestLab is available to anyone for training, demonstrations, method development, and general scientific support on all our technologies.

Alfatest srl is the exclusive distributor in Italy for Malvern Panalytical products dedicated to particle size and shape analysis, rheology, GPC/SEC and microcalorimetry.

Alfatest is also distributor in Italy for: Thermo Fisher Scientific Desktop SEM, Micromeritics, Formulation, Postnova Analytics, Haver&Boecker, Microfluidics, Freeman Technologies, Sopat, Alpha-MOS, Armfield, Syrris, Dolomite Microfluidics, Applied Photophysics, ForteBio, Molecular Devices and ONI.

BOOTH 8

**MALVERN PANALYTICAL SRL**

Via Cadore, 21
20851 Lissone (MB), ITALIA

tel. +39 039 2434501

fax +39 039 2434520

website: www.mavernpanalytical.com

contact person: **Vincenzo DI MARZIO**

e-mail vincenzo.di-marzio@malvernpanalytical.com

Malvern Panalytical technologies are used by scientists and engineers in a wide range of industries and organizations to solve the challenges associated with maximizing productivity, developing better quality products and getting them to market faster. Our focus is on creating innovative, customer-focused solutions and services to enhance efficiency and deliver tangible economic impact through chemical, physical and structural analysis of materials. Underpinned by extensive industry knowledge and technical and applications expertise, Malvern Panalytical instruments are designed to help users better understand a wide variety of materials, ranging from proteins and polymers, particle and nanoparticle suspensions and emulsions, through to sprays and aerosols, industrial bulk powders, minerals and high concentration slurries, and solids, such as metals and building materials, plastics and polymers. Our technologies enable the measurement of parameters including particle size, shape and concentration, chemical identity, zeta potential, protein charge, molecular weight, mass and conformation, biomolecular interactions and stability, rheological properties, elemental concentrations and crystallographic structures. Highly reliable and robust characterization of these properties is fundamental to predicting how a product will behave during use, to optimizing its performance and achieving manufacturing excellence. Malvern Panalytical was formed by the merger of the businesses Malvern Instruments and PANalytical, including the companies ASD and Claisse, on 1st January 2017, and employs over 2,000 people worldwide. The combined entity is a strong player and innovator in the materials characterization market and will leverage the strengths of the individual companies in their end markets, ranging from building materials to pharmaceuticals and from metals and mining to nanomaterials. Applications laboratories around the world and a global sales and service presence supported by a strong distributor network ensure unrivalled levels of customer support. Malvern Panalytical is part of Spectris plc, the productivity-enhancing instruments and controls company.



ASSING SPA

Via Edoardo Amaldi, 14
00015 Monterotondo (RM), ITALIA
tel. +39 06 906701
fax +39 06 90670200
website: www.assing.it
e-mail: sales@assing.it

Assing S.p.A is a leader in Italy in delivering high technology solutions and products for Industry and Research. Competences range from design to high technology infrastructure; from the identification of the appropriate analytical techniques to the provision of related systems; from technical-scientific consulting to the organization of training courses.

Special attention has always been given to the nanotechnology. **Assing** can propose observation, analysis and process instruments such as: electronic microscopes, X-ray microscopes, dual beam systems (**Tescan - Orsay**), a wide range of diffraction and X-ray fluorescence equipment (**Rigaku**), Electronic lithography systems (**Crestec**), atomic force microscopies, optical and stylus profilometers (**BRUKER Nano Surfaces**), XPS, TOF SIMS, AUGER (**PHi**), in-situ characterization (**Protochips**), nanomanipulators (**Imina**)

Assing, designs, realizes and validates clean rooms for research laboratories and production areas and cell-factories.

Thanks to its know-how, is able to offer a Global Solution to the various customer requests, as a partner, providing all means and services necessary to carry out its activities.

The Company also plays an active role in Research, participating in several projects, both nationally and internationally, aimed at developing new technologies.

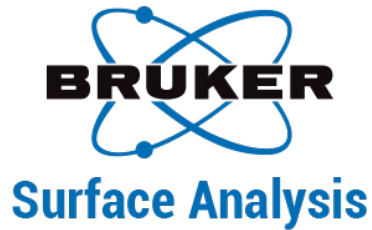


AGAR SCIENTIFIC

Unit 7, M11 Business Link
Parsonage Lane
Stansted, Essex
CM24 8GF, UNITED KINGDOM
website: www.agarscientific.com
e-mail: sales@assing.it

A leading international supplier of scientific instruments and accessories for over 40 years, **Agar Scientific** specialises in consumables and equipment supporting all forms of microscopy.

BOOTH 12



BRUKER SURFACE & DIMENSIONAL ANALYSIS

7 rue de la Croix Martre
 91120 Palaiseau, France
 website: www.bruker.com/products/surface-and-dimensional-analysis.html
 e-mail: sales@assing.it

Bruker Nano Surfaces provides industry-leading surface analysis instruments for the research and production environment. Our broad range of 2D and 3D surface profiler solutions supply the specific information needed to answer R&D, QA/QC, and surface measurement questions with speed, accuracy, and ease.

Bruker's AFMs are enabling scientists around the world to make discoveries and advance their understanding of materials and biological systems. Our tribometers and mechanical testers deliver practical data used to help improve development of materials and tribological systems.

BOOTH 12

The logo for Crestec Corporation consists of the word "CRESTEC" in a bold, green, sans-serif font. The letters are slightly shadowed, giving them a three-dimensional appearance.

CRESTEC CORPORATION

9-2, Owada-machi, Hachioji-shi,
 Tokyo 192-0045, JAPAN
 website: www.crestec8.co.jp
 e-mail: sales@assing.it

Crestec Corporation provides Dedicated electron beam lithography systems, tailored to deliver extremely high currents in a minimal diameter beam spot.

BOOTH 12



IMINA TECHNOLOGIES SA

EPFL Innovation Park, Bâtiment E
 CH-1015 Lausanne, SWITZERLAND
 website: www.imina.ch
 e-mail: sales@assing.it

Imina Technologies is the maker of the miBot™, an extremely versatile and intuitive to use piezo-based sample manipulator. These innovative robotic solutions for positioning, handling and electrical sensing at micro and nano scales in combination with various third party instruments are used to position with precision probe tips on electronic devices, sensors, semiconductors, MEMS, etc or to handle and characterize electric properties of nanoparticles, nano wires & fibers in material science.

These techniques can be used in combination with the SEM, Optical Microscope, X-Ray, AFM, Raman, etc or at an electrical probing workbench.

BOOTH 12



PHYSICAL ELECTRONICS INC. (PHI)

18725 Lake Drive East
 Chanhassen, MN 55317
 tel. +952 8286100
 website: www.phi.com
 e-mail sales@assing.it

Physical Electronics (PHI) the world's leading supplier of UHV surface analysis instrumentation used for research and development of advanced materials in a number of high technology fields including: nanotechnology, microelectronics, storage media, bio-medical, and basic materials such as metals, polymers, and coatings.

PHI's innovative XPS, AES, and SIMS technologies provide our customers with unique tools to solve challenging materials problems and accelerate the development of new materials and products.

BOOTH 12

**PROTOCHIPS EMEA GmbH**

IPW Manfred Von Ardenne
 Kopenicker Str. 325
 12555 Berlin, GERMANY
 Tel. +49 172 5833288
 website: www.protochips.com
 e-mail: sales@assing.it

For over a decade, Protochips pioneered electron microscopy solutions to accelerate in situ research. Protochips innovation is accomplished by continuously focusing on your needs and constantly improving your experience through our products. Researchers can now better understand material behavior by analyzing samples in real-world gas or liquid environments, at high temperature and with ultra-low noise electrochemical and electrical biasing techniques, with high spatial resolution and without sacrificing the analytical capabilities of the TEM (such as EDS).

BOOTH 12

**PVA TEPLA ANALYTICAL SYSTEMS GMBH**

Deutschordenstrasse, 38
 D-73463 Westhausen, GERMANY
 website: www.pva-analyticalsystems.com
 e-mail: sales@assing.it

PVA TePla Analytical Systems develops, produces and delivers scanning acoustic microscopes (whose unique characteristic is the ability to non-destructively examine the interior of opaque materials with resolution comparable to optical light microscopy) providing innovative, advanced solutions for non-destructive imaging.



RIBER

31 Rue Casimir Périer
 95870 Bezons, FRANCE
 website: www.riber.com
 e-mail: sales@assing.it

Riber is the world's leading provider of molecular beam epitaxy (MBE) equipment, the most versatile and precise tool to deposit precise amounts of material onto substrates and which are used to design and create the newest semiconductor structures for manufacturing many novel devices. It is also a leading supplier of high-quality material evaporation sources.



RIGAKU CORPORATION

4-14-4, Sendagaya, Shibuya-ku
 Tokyo 151-0051, JAPAN
 website: www.rigaku.com/en
 e-mail: sales@assing.it

Rigaku Corporation is an international leader in manufacturing and distribution of analytical instruments for X-ray diffraction (XRD), X-ray crystallography (SC-XRD) and X-ray fluorescence (XRF) for research and industrial applications.

Rigaku is based in Tokyo (Japan) with additional production and laboratory facilities in both Japan and the United States.

European facilities are located in United Kingdom, Germany, Czech Republic and Poland.

Rigaku products are worldwide well known for the top.level design, the high performance and the unequalled reliability.

BOOTH 12

**TESCAN**

Libušina tř. 21
623 00 Brno – Kohoutovice,
ČESKÁ REPUBLIKA
tel. +420 530 353 411
fax +420 530 353 415
website: www.tescan.com
e-mail: sales@assing.it

TESCAN is a global suppliers of scientific instruments. The company is building its reputation and brand name in the field of designing and manufacturing scanning electron microscopes and system solutions for different applications.

The company is focused on research, development and manufacturing of scientific instruments and laboratory equipment such as:

- scanning electron microscopes
- dual beam
- supplementary accessories for SEMs
- light optical microscopy accessories and image processing
- special vacuum chambers and custom systems
- detection systems
- scientific hardware and software development

BOOTH 12

**XWINSYS**

Ramat Gabriel Industrial Zone, 6
Hatikshoret St. Migdal Haemek 2307049, ISRAEL
website: www.xwinsys.com
e-mail: sales@assing.it

XwinSys is dedicated to designing, manufacturing and marketing novel metrology solutions based on enhanced X-Ray technology combined with automated optical 3D and 2D technologies, for the semiconductor and related industries.

**BRUKER ITALIA**

Viale V. Lancetti, 43
20158 Milano (MI), ITALIA
tel. + 39 02 70636370
fax +39 02 2361294
website: www.bruker.com
contact person: **Cristian VAILATI**
e-mail: bruker.italy@bruker.com

Bruker enables scientists to make breakthrough discoveries and develop new applications that improve the quality of human life. Bruker's high-performance scientific instruments and high-value analytical and diagnostic solutions enable scientists to explore life and materials at molecular, cellular and microscopic levels. In close cooperation with our customers, Bruker is enabling innovation, productivity and customer success in life science molecular research, in applied and pharma applications, and in microscopy, nano-analysis and industrial applications. In recent years, Bruker has also become a provider of high-performance systems for cell biology, preclinical imaging, clinical phenomics and proteomics research, clinical microbiology, and for molecular pathology research.

Today, worldwide more than 6,000 employees are working on this permanent challenge at over 90 locations on all continents. Bruker continues to build upon its extensive range of products and solutions, its broad base of installed systems and a strong reputation among its customers. Being one of the world's leading analytical instrumentation companies, Bruker is strongly committed to further fully meet its customers' needs as well as to continue to develop state-of-the-art technologies and innovative solutions for today's analytical questions.

Bruker's unique range of analytical tools for SEM includes EDS, WDS, EBSD and Micro-XRF.

**CNR NANOTEC**

c/o Campus Ecotekne – Università del Salento
Via Monteroni
73100 Lecce (LE), ITALIA
website: www.nanotec.cnr.it
Contact person: **Luca LEUZZI**
e-mail luca.leuzzi@cnr.it

The National Research Council Institute **CNR-NANOTEC** operates through its four research divisions located in Lecce, Bari, Roma and Rende (CS). CNR-NANOTEC mission is the development and prototyping of innovative materials and devices obtained using bottom-up approaches (self-assembling, molecular engineering of polymers, biological and organic molecules) as well as top-down approaches (nanotechnology/last generation lithographic techniques applied to semiconductor materials).

Further core activities are the study and the manipulation of soft matter and biomaterials and the study of the basics of plasma chemistry and physics and the development of new plasma methodologies for application in many fields such as environment, energy and life sciences, aerospace and cultural heritage.

Amongst the many research activities, we here cite:

1) design and synthesis of colloidal nanoparticles for many applications such as catalysis, drug-delivery, third generation photovoltaics, next generation OLED lighting; 2) design and synthesis of 2D materials such as graphene and MoS for applications in electronics as well as optoelectronics; 3) development of new generation ultrafast quantum computers and data transmission systems through spintronics and polaritonics; 4) fabrication of lab-on-a-chip systems (LOCs) for diagnostics and point-of-care therapies; 5) synthetic biology and bioreactors for the development of new biocompatible materials and systems with predetermined functions; 6) plasmas for energy and space applications (electric propulsion for microsatellites and plasma assisted combustion).

CNR-NANOTEC mission is to attract and involve the best Italian and foreign researchers working abroad through an open-access management of the facilities.

BOOTH 13



FONDAZIONE
BRUNO KESSLER

FONDAZIONE BRUNO KESSLER

Via Santa Croce, 77
38122 Trento (TN), ITALIA

tel. +39 0461 314200

website: www.fbk.eu

contact person: **Massimo BERSANI**

e-mail: bersani@fbk.eu

Fondazione Bruno Kessler was created on 1 March 2007. FBK inherits the activities of the Istituto Trentino di Cultura, which was based on the ideas of Bruno Kessler, a long-time member of the local government and founder of the University of Trento. Established by a law of the Autonomous Province of Trento, FBK operates as private entity. The Foundation is charged with keeping the province of Trento in the mainstream of European and international research. It does so by attracting women, men and resources at the forefront of technological development and humanities studies. The Foundation is also involved in bringing together natural and human sciences, a sign of recognition of the challenges faced by the knowledge society.

Fondazione Bruno Kessler promotes: •cultural activities, scientific research, technological development, with the aim of both the advancement of knowledge and service to the local community, •the exploration of innovative frontiers of knowledge with particular emphasis on interdisciplinary approaches and on the applications area, •the opening of the Trentino Region to the international scene, through collaborations and exchange activities with national and international research organizations, •a widespread innovation ability, involving the community and the local economy, •the transfer of research results: support for new entrepreneurship, for the growth of brand-new professional skills and for the improvement of public administration structures. The main FBK research fields are in the areas of Information Technology, Materials and microsystems. Centre Materials and Microsystems (CMM) is focused on key areas of Materials, Microdevices and Microsystems, employing more than 120 people. CMM combines scientific excellence with the ability to exploit research outcomes and results within national and international network, aiming at optimizing experience through open innovation.

BOOTH 11



GAMBETTI KENOLOGIA SRL

Via A. Volta, 27
20082 Binasco (MI), ITALIA

tel. +39 02 90093082

fax +39 02 952778

website: www.gambetti.it

contact person: **Stefania FABBRI**

e-mail sales@gambetti.it

Gambetti Kenologia has chosen again Nanoinnovation to promote together with Park Systems and KLA the newest technical solutions in Atomic Force Microscopy as well as in Nanoindentation, Stylus and Optical profilometry.

Gambetti Kenologia, on the Italian market since early 70s, provides solutions for Academia and Industries in the following fields of activities:

- Surface Characterization
- Process Systems for Plasma Thin Films
- Process control for Vacuum
- UHV
- Gas Analysis and few others

Our brand includes also bench top plasma systems fully developed and produced at Gambetti Kenologia.

For more info: www.gambetti.it – www.plasmi.eu



KLA-TENCOR

One Technology Drive
 Milpitas, California 95035, U.S.A.
 tel.: +1-408-875-3000
 website: www.kla.com/profilers -
www.kla.com/nanoindenters
 e-mail: info@kla.com

Key Products: Stylus and Optical profilers and Nanoindenters

At KLA-Tencor’s Instruments group, our market segments span semiconductor and data storage manufacturing, MEMS, optoelectronics, hard coating, thin film, material science and general scientific research—a range of industries that measure surface topography to control their process. Instruments Group’s products range from benchtop stylus and optical profilers and nanoindenters used in research and industrial environments to automated high resolution profilers and nanoindenters for advanced IC production fabs and QA/QC lab.



PARK SYSTEMS

KANC 4F, Gwanggyo-ro 109
 Suwon 16229, SOUTH KOREA
 tel: +82-31-546-6800
 fax: +82-31-546-6805
 website: www.parkafm.com
 e-mail psc@parkAFM.com

Park Systems is a world-leading manufacturer of Atomic Force Microscopy (AFM) systems with a complete range of products for researchers and industry engineers in chemistry, materials, physics, life sciences, and semiconductor and data storage industries.

Park’s products are used by over a thousand of institutions and corporations worldwide. Our comprehensive line of AFMs, with revolutionary features like **True Non-Contact™** mode or **Park SmartScan OS**, offers users unparalleled accuracy and ease of use.

With AFMs designed specifically to be used in materials and life science, electronics, nanotechnology, and other areas of research and industry, our tools are trusted to deliver ultra-high resolution with extremely precise measurements quickly and easily.

An NX10 will be available at our booth and during satellite events with real demos.

BOOTH 28

**GENANO ITALIA**

Corso V. Emanuele II, 14
10123 Torino (TO), ITALIA
Tel. +33 51283040
website: www.genano.com
e-mail italy@genano.com

Genano OY - Established in Finland 1999, we currently operate in over 30 countries worldwide. With our Headquarters located near Helsinki, we have other offices in Belgium, Sweden, Italy, China, Taiwan and Canada. Addition to our own offices, we have a global network of distributors. **Genano-Italia** (CSA srl) is the official importer for Genano units in Italy and together with its distributors aims to become leader in indoor air decontamination, same as the Group is doing worldwide with over 5000 Units installed. We operate in a wide range of business areas, ensuring that manufacturing processes are secured in laboratories, clinics, and cleanrooms and in other manufacturing facilities. We provide clean air as a service ensuring that the indoor air quality in public buildings, such as schools, nurseries and other public buildings is health and safe to breath. Our unique, patented cold-plasma technology is based on a powerful electronic filter less air purification. The main benefits of our technology are:

- Constant air flow, that does not get disrupted because of clogged filters;
- Constantly high performance thanks to our automatic washing unit;
- No use of any filtration media, our units don't offer a substrate for microbes to grow;
- Complete killing and removal of all living microbes; such as viruses and bacteria.

Our technology brings another remarkable benefit for users: the ability to remove airborne impurities of all sizes – down to nanometer size. It is not only the matter of how many percentages of all particles the purification technology filters, but the importance is also the size of the particles the system collects.

Co-operation with universities and research institutes. We work with different research institutes and universities worldwide, to constantly improve and develop our technologies, as well as to ensure our solutions are the best choice on the market, to fulfill the needs of our clients. We are willing to improve your air quality, please involve us for any difficult case where high performances are needed.

BOOTH 26

**INOCURE S.R.O.**

Politických vězňů, 935/13
110 00 Praha 1
Prague, CZECH REPUBLIC
Tel: +420 775 952 233
website: www.inocure.cz
contact person: **Matej BUZGO**
e-mail info@inocure.cz

InoCure is bionanotechnological company focused on development of practically applicable solutions using electrospinning and electrospaying. Strong RnD involvement of our company is powering technical and chemical development of industrially feasible solutions for life science, medical, cosmetic and material engineering applications.

We are offering InoSPIN - the first lab-to-industrial modular electrospinning unit delivering unprecedented flexibility, reproducibility and industrial capabilities in compact package. Nevertheless, we are delivering InoMATRIX membranes for 3D cell culture applications.

InoMATRIX redefines the way how cells are cultured and delivers more efficient and ethical cell biology research.

**INRIM**

Strada delle Cacce, 91
10135 Torino (TO), ITALIA
tel. + 39 011 39191
fax + 39 011 346384
website: www.inrim.it
contact person: **Luca BOARINO**
e-mail: inrim@inrim.it

On the 1st January 2006, the Istituto Elettrotecnico Nazionale "Galileo Ferraris" (IEN) and the Istituto di Metrologia "Gustavo Colonnetti" (IMGC) merged to establish the Istituto Nazionale di Ricerca Metrologica (I.N.R.I.M.). **INRIM** is the national public body with the task of carrying out and promoting scientific research in metrology. With the handover of the tasks of primary metrology institute previously assigned to IMGC and the IEN, INRIM has become the focus of most scientific metrology activities in Italy (except for the field of ionising radiation, where ENEA-INMRI maintains its role). Its research activities in measurement science, materials science and innovative technologies are recognized at worldwide level.

INRIM carries out studies and researches on the realization of primary standards for the basic and derived units of the International System of units (SI), assures the maintenance of such standards, their international comparison and in general provides measurements traceability to the SI. In addition to physical and engineering metrology, its main R&D areas are in fundamental physical constants, materials, metrology for chemistry, nanotechnology, innovation, quantum information and artificial vision.

**IT-FAB**

website: <http://itfab.bo.imm.cnr.it>
contact person: **Vittorio MORANDI**
e-mail: morandi@bo.imm.cnr.it

It-fab (<http://itfab.bo.imm.cnr.it/>) is the Italian network for Micro and Nano Fabrication research infrastructures, an initiative that aims to (i) establish harmonized rules, for clean room management and access policies, IP rules, external costs and reporting, (ii) harmonize and share design and simulation software, service contracts, management of professional services, (iii) define joint best practices for reciprocal support and backup, complementarities, standardization of clean room practices, interoperability and data exchange formats and (iv) define common information system for know-how, projects and equipment databases.

Members of It-fab are CNR-DSFTM (IMM and Nanotec Institutes), PoliFAB from Politecnico di Milano, FBK-CMM and Fondazione Inphotec.

It-fab is partner of the EuroNanoLab initiative (<http://euronanolab.com>)

BOOTH 17

**ITALIAN TRADE AGENCY**

Via Liszt, 21
00144 Roma (RM)
tel. 06 59921
website: www.ice.gov.it
contact person: **Salvatore ANGRISANO**
e-mail: biotech@ice.it

The Italian Trade Agency - ICE is the government organization which promotes the internationalisation of Italian companies. ICE provides information, support and advice to Italian and foreign companies.

ICE operates worldwide through a network of Trade Promotion Offices linked to Italian embassies and consulates and working closely with local authorities and businesses.

ICE provides tailored services to help Italian businesses expand overseas and connect with prospective partners: one-on-one business meetings, targeted partner searches, trade delegations to Italy, official participation in international trade events, forums and seminars with Italian experts.

www.ice.gov.it | www.italtrade.com | tecnologia.industriale@ice.it

BOOTH 10

**JEOL ITALIA**

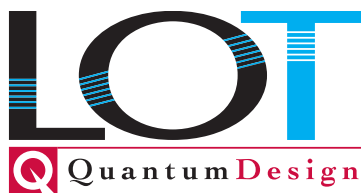
Palazzo Pacinotti - Milano 3 City
Via Ludovico il Moro, 6/A
20080 Basiglio (MI), ITALIA
tel. +39 02 9041431
fax +39 02 90414343
website: www.jeol.it
contact person: **Paolo GRIANTI**
e-mail: info@jeol.it

JEOL is a leading global supplier of scientific instruments used for research and development in the fields of nanotechnology, life sciences, optical communication, forensics, and biotechnology.

Utilizing its unique technologies, products, services, and knowledge, JEOL helps its customers make significant breakthroughs in product development and scientific research.

JEOL products range from scientific instrumentation to industrial equipment including Scanning electron microscopes (**SEM**), Transmission electron microscopes (**TEM**), Auger micro probe analyzers (**AES**), Electron probe micro analyzers (**EPMA**), Photoelectron spectrometers (**XPS**), **Mass spectrometers**, **NMR** spectrometers, Electron spin resonance (**EPR**), and semiconductor tools.

JEOL (ITALIA) S.p.A. ensure both commercial and service assistance of JEOL instruments installed on the Italian territory thanks to highly organized and specialized structure.

**LOT-QUANTUMDESIGN SRL**

Via Francesco Saponi, 27
 00143 Roma (RM), ITALIA
 tel. + 39 06 5004204
 fax +39 06 5010389
 website: www.lot-qd.it
 contact person: **Diego VITAGLIONE**
 e-mail: info@lot-qd.it

LOT-QuantumDesign for over 45 years has been one of the **leading distributors of high-tech instrumentation** for scientific, academic and industrial research: our product range comprises optics, components, and high technology systems for many different sectors as **nanotechnology, material characterization, cryotechnology, spectroscopy and imaging**, and stand out for quality and reliability. Thanks to our technical expertise and knowledge of market needs, we select the best global suppliers for product quality and level of assistance.

Among our instruments there are probe scanning (STM, AFM) and correlative Confocal/Raman microscopes, cryostats, micro- and nanoparticle analyzers and many other characterization tools, which identify LOT-QD as **a true scientific partner** for the purchase of hi-tech equipment.

We can guarantee qualified assistance both before the sale, when thanks to the technical preparation of our team we help the customer to identify the best solution for its specific application, and in post-sales: we offer constant technical-scientific assistance over time and extremely fast answers, our goal is always full customer satisfaction.

We are part of the **Quantum Design International (QDI) group**, who manufacture and distribute scientific and industrial instrumentation through an international network with subsidiaries in every major technological centre around the world.

LOT-QuantumDesign have been part of the QDI group since more than ten years and we now feel it's time to align our name closer to our parent company: the name change will take effect very soon and we will be called **Quantum Design s.r.l.**, stay tuned!

**SIGRAY**

5750 Imhoff Drive, Suite I
 Concord, CA 94520, USA
 tel. 925.446.4183
 website: www.sigray.com
 e-mail info@sigray.com

Sigray is a 35 person company located in the San Francisco East Bay founded by Dr. Wenbing Yun with the mission of developing the next generation of X-ray analytical instruments based on its patented ultrahigh brightness x-ray source and high efficiency optics technologies. It has productized three major product lines that bring unprecedented synchrotron-like capabilities to laboratory systems in XRF microscopy, x-ray absorption spectroscopy, and 3D x-ray microscopy.

Sigray's products have been installed globally and have been sold for a diverse range of applications, spanning from semiconductor metrology to 3D cellular imaging for biofuels.

The team is comprised of former synchrotron scientists and leaders, x-ray instrumentation and optics pioneers, the former CTO of a well-known x-ray source company, and Dr. Yun, who previously founded x-ray microscope company Xradia in 2000, prior to its successful acquisition by Carl Zeiss in 2013 as its x-ray microscope division.

The company holds 12 US and international patents and has received over \$17M in government grants for the development of its breakthrough technology.

BOOTH 1

**WITec GmbH**

Lise-Meitner-Str., 6
D-89081 Ulm, GERMANY
tel. +49 (0) 731 140 700
fax +49 (0) 731 140 70 200
website: www.witec.de
e-mail info@WITec.de

WITec GmbH pioneered 3D Raman imaging and correlative microscopy and continues to lead the industry with a unique product portfolio that offers speed, sensitivity and resolution without compromise.

Raman, AFM, SNOM and SEM (RISE) microscopes and select combinations thereof can be configured for specific challenges in chemical and structural characterization through a modular hardware architecture and software with built-in capacity for expansion.

Research, development and production are located at WITec headquarters in Ulm, Germany, and the WITec sales and support network has an established presence in every global region.

BOOTH 21

**MERCURY SRL**

Via Marco Biagi, 27
20080 Carpiano (MI), ITALIA
tel. +39 02 98855743
website: www.mercurysemiconductor.com
contact person: **Nicola RICCI**
e-mail: info@mercurysemiconductor.com

Mercury supplies materials and services for semiconductor and pharmaceutical industries. Our natural territory is the south of Europe. Mercury has been established in 2000 and offers several products by prestigious and selected companies. We offer materials and equipment with specific value and innovation. Some of our products are specifically related to microelectronics industry and some are dedicated to pharma application. We are focused on materials in the BEOL and FEOL areas. We have been working for many years with various prestigious suppliers, establishing first class contacts with major customers. Our principals are leaders in the process chemistry, Post CMP Cleaning, Heating of ultrapure chemicals and D.I. water, quartz, diffusion furnaces, pumps for liquid, particle counters, bonding and debonding equipment, cooling systems. Our primary function is understanding the new technology frontier in this competitive scenario. We always work in this in direction, becoming a profitable resource for our valuable customers and principals. Here is a quick summary of some content of our principals: • LEVITRONIX is the worldwide leader in magnetically levitated Bearingless Motor technology, specializing in ultra-pure fluid handling devices for Microelectronics, Life Science and Industrial applications, • EV Group (EVG) targets advanced packaging, compound semiconductor and silicon-based power devices, MEMS, nanotechnology and SOI markets with its industry-leading wafer-bonding, lithography/nanoimprint lithography (NIL), metrology, photoresist coating, cleaning and inspection equipment, • EKC Technology products provide best-in-class process solutions for wafer cleaning, surface preparations, liquid and dry film resist removal, post CMP cleaning, selective etching and post-etch residue removal. DuPont's specialized formulations allow you to achieve higher productivity and improved yields on designs with finer line width and spacing.

**MICROLEASE SRL**

Centro Direzionale Villa Fiorita
Via Piero Gobetti, 2/C
20063 Cernusco sul Naviglio (MI) – ITALIA
tel. +39 02 9239 2801
fax +39 02 9239 2810
website: www.microlease.com
contact person: **Luca SIMONETTI**
e-mail: infoitaly@microlease.com

Microlease is the total solutions provider for electronic test equipment. We help customers deploy equipment when and where they need it, in the most cost-effective way.

We minimise the cost of acquiring the right equipment at the right time, with applications advice and flexible financial solutions including rental, rent-to-buy, leasing, finance and purchase.

We help optimise equipment with asset management services and maximise return after use with trade-in and disposal options. This saves our customers time and money at every stage of the equipment's lifecycle, ensuring they use their test equipment efficiently while maintaining the flexibility to respond to the needs of their market. As part of the Electro Rent Corporation we are the largest, most comprehensive test equipment service provider, supporting market-leading customers around the world. Our combined technical, finance, and asset management expertise helps our customers solve their toughest technical and financial test equipment challenges.

Markets & Applications

Whatever your needs, our experts will help you find the right test and measurement equipment solution:
Aerospace & Defence | Telecoms | Automotive & Rail | Digital & Computer Interfaces | Wireless Connectivity
RF & Microwave | Education | Semiconductor | 5G

Our Solutions

Our experts will work with you to understand your needs and explore all the options to find the best test and measurement equipment solution for you:
Rent | Buy New | Buy Used | Asset Optimisation | Financial Solutions

**MPI CORPORATION**

AST Advanced Semiconductors Test Division
155, Chung-Ho St.
Chu-Pei – Hsinchu, TAIWAN
Tel: +39 345 3979219
website: www.mpi-corporation.com/ast/
contact person: **Fabrizio CAGNIN**
e-mail: ast-europe@mpi-corporation.com

MPI Corporation was founded in July, 1995 and it has four main products divisions: state of the art Probe Cards, Production LED Equipment, Advanced Semiconductor Test Equipment and Eco-minded Thermal Products.

The industries MPI serves include, but are not limited to Semiconductor, Materials Research, Aerospace, Automotive, Fiber Optic, Electronic Components, and more.

The AST division has 3 main targets: reduce cost of test offering highest value for the price without compromise on quality; keep a relentless innovation process with ability to understand customer and market requirements; became a valued partner for Device Modeling & WLR, RF and mmW and High Power applications.

MPI-AST Division portfolio include manual, semiautomatic and fully automatic probe stations with exclusive software, DC and RF probes, calibration substrates and software, state of the art thermo-chucks in cooperation with ERS, high end microscopes and cameras to fit any optical requirements, exclusive lasers for failure analysis.

BOOTH 14

**NANOSCRIBE GmbH**

Hermann-von-Helmholtz-Platz, 1
76344 Eggenstein-Leopoldshafen, GERMANY
tel. +49 721 981 980 0
fax +49 721 981 980 130
website: www.nanoscribe.com
contact person: **Rameez AHMAD**
e-mail ahmad@nanoscribe.com

Nanoscribe's 3D printers are the world's highest resolution systems for 3D nano- and microfabrication. They combine the technology of two-photon polymerization with a regular 3D printing workflow for additive manufacturing and maskless lithography. The Photonic Professional GT2 offers enormous 3D design freedom.

The 3D printers have been designed with solution-oriented processes that are based on the combination of tailor-made resins, objectives and software settings. With a powerful, user-friendly software, the systems are ideal for printing polymer objects directly from CAD models and offer highest degree of automation.

Nanoscribe systems are drivers of innovation for numerous key technologies. More than 1,000 users worldwide in top universities and pioneer companies benefit from the versatile and easy-to-use 3D printers. The award-winning systems set new standards in diverse applications, e.g., in the fields of micro-optics, integrated photonics, diffractive optical elements (DOE), plasmonics, photonics, optical interconnects or biomedical engineering.

The German company was founded in 2007 as a spin-off of the Karlsruhe Institute of Technology (KIT). Within a few years Nanoscribe has managed to turn to a medium-sized company and established itself as global market and technology leader in 3D microfabrication.

BOOTH 4

PLATINUM
research & innovation

**PLATINUM "Aziende&Protagonisti"**

Publiscoop Più Srl
Piazza della Serenissima, 40/A
31033 Castelfranco Veneto (TV), ITALIA
tel. +39 0423 425411 - fax +39 0423 425402
website: www.platinum-online.com
contact person: **Gaetano FERRETTI**
e-mail: gaetano.ferretti@platinum-online.com

PLATINUM "Aziende&Protagonisti" è la rivista a colori diretta da "Gruppo 24 ORE" che illustra il panorama economico italiano, con un target imprenditoriale (grandi imprese e PMI), istituzionale ed economico-finanziario nonché dei liberi professionisti.

PLATINUM "Aziende & Protagonisti" è distribuita in Italia in edicola e direct mailing con "Il Sole 24 ORE", in Europa, in lingua inglese, in sei paesi della CE a maggior capitalizzazione, tramite le C.C.I.E. La tiratura è di circa 140.000 copie senza reso distribuite in Italia ed in EUROPA.

Distribuzione mirata in tutte le Università Italiane, nei maggiori Centri di Ricerca Nazionali, Commissione Europea - D.G.Ricerca&Innovazione, Parlamento Europeo - Presidenza, C.E. Centro Comune di Ricerca (JRC), Commissione Europea in Italia Roma e Milano, fiere e convegni nazionali ed internazionali.

Inoltre, è interamente fruibile al sito **www.platinum-online.com**, in modalità "**Open Access**", in italiano ed in inglese, con condivisione dei contenuti nei maggiori social network (galleria fotografica, video-intervista e link al sito progetto) con possibilità di effettuare il download della pubblicazione in formato pdf.

Rubrica **RICERCA&INNOVAZIONE**, importante appuntamento editoriale su PLATINUM completamente dedicato alla divulgazione scientifica di grandi progetti Nazionali ed Europei, con contributi redazionali a cura delle maggiori Istituzioni Nazionali ed Europee, nonché, una presenza costante della Commissione Europea CCR-Ispra (Joint Research Centre, JRC) **<http://www.platinum-online.com/rubrica-ricerca-innovazione/>**

La rubrica **RICERCA&INNOVAZIONE** è costruita intorno alle Istituzioni Nazionali ed Estere, Università, Centri di Ricerca, Piattaforme e Distretti Tecnologici e alle Imprese che si distinguono per eccellenza ed innovazione, in un connubio perfetto e unico che evidenzia un quadro globale nazionale ed internazionale.

PRISMA

PRISMA Project

website: www.rri-prisma.eu

contact person: **Andrea PORCARI**

e-mail: info@nanotec.it

The goal of the **PRISMA** project is to help companies implement Responsible Research and Innovation (RRI) in their innovation and social responsibility strategies, in order to gain trust from society and build resilience, thus strengthening their position on the market.

In the PRISMA project we conducted pilot studies with 8 companies, active in the following domains:

- Nanotechnologies
 - Colorobbia Consulting (IT): Advanced theranostics therapies
 - Laboratori Archa (IT): Innovative organic-based dermo-cosmetics
- Synthetic and Industrial biotech
 - Evolva (CH): Sustainable formulations for healthcare and nutrition
 - Bisigodos (UK): Algae feedstocks production for consumer and industrial sectors
- Internet of Things and autonomous vehicles
 - Spectro (NL): Smart cleaning dispensers for public health and hygiene
 - Aerialtronics (NL): Drones for emergency and security applications
 - RDM (UK): Self-driving public cars for smart cities

Based on the experience with these pilots, PRISMA developed a practical guideline for companies aiming to strengthen consideration of ethical, legal and social impacts aspects in their technology and product development roadmaps.

At the PRISMA stand, delegates will have the opportunity to learn about the experience of the PRISMA company pilots and on the use of the RRI roadmap to innovate responsibility developed by the project.

Project funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement Nr. 710059.



PRODOTTI GIANNI SRL

Via Quintiliano, 30

20138 Milano (MI), ITALIA

tel: +39 02 5097 220

fax: +39 02 5097276

website: www.ricerca.it

contact person: **Claudia ALBANI**

e-mail: ricerca.assistenza@prodottigianni.com

Prodotti Gianni Srl is a well-established Italian Company that since 1948 distributes raw materials, reagents & products for research to the following fields: Cosmetic, Farmaceutical/Nutritional, Food, Life and Materials Science.

"Our competence, your value" is our motto that summarizes our accuracy in choosing our Suppliers, some of the most important players from all over the world, all of great quality, and care to our Customers enquiries. Prodotti Gianni Srl is ISO 9001:2015 Certified; our company procedures, regularly and severely inspected, guarantee our excellent services to Customers.

Life and Materials Science line offers Antibodies, Elisa Kits, Accessories, Metals & Materials to academic and industrial researchers.

In particular, **Prodotti Gianni is the representative of Goodfellow in Italy**, so Prodotti Gianni can supply over 500 materials like metals, alloys, ceramics, glasses, polymers, compounds, composites for scientific research, development, prototyping and specialized manufacturing.

These materials are available as standard catalogue products and custom-made products.

The catalogue offers over 70.000 items in an extensive range of forms including sheets, foils, films, lumps, powders, rods, wires, tubes, meshes, foams, spattering targets, single crystals. They are supplied in small quantities, from a few grams to a few kilos. Most are ready for immediate shipment with no extra shipping charge. No minimum order quantity is required.

Custom made products are larger quantities or further processing of the catalogue products or products to your individual specification, including composition, form and dimensions, which fall within Goodfellow's general supply capabilities.

BOOTH 5


GOODFELLOW CAMBRIDGE LIMITED

Ermine Business Park
Huntingdon, Cambridgeshire
PE29 6WR, UK
tel: +44 (0) 1480 424800
fax + 44 (0) 1480 424900
website: www.goodfellow.com
e-mail: info@goodfellow.com

Goodfellow is a leading global supplier of metals, alloys, ceramics, glasses, polymers, compounds, composites and other materials to meet the research, development and specialist production requirements of science and industry. The company has an extensive range of 70,000 catalogue products in multiple forms available off the shelf, most subject to free delivery within 48 hours and with no minimum order quantities.

With over 6000 customers supported by a worldwide network of offices, agents and distributors Goodfellow also offers a comprehensive range of bespoke processing services, effectively operating as an extension of the production team in order to develop custom fabricated components in any quantity required. Our in-house team is comprised of fellow scientists and engineers with extensive knowledge of materials and processing – through their technical expertise and a supporting range of specification tools the company has built an unrivalled reputation for helping to find solutions to even the most challenging of research problems. All our products are also underpinned by the ISO 9001 quality accreditation.

BOOTH 23


RENISHAW

Via dei Prati, 5
10044 Pianezza (TO), ITALIA
tel. + 39 011 9661052
website: www.renishaw.it
contact person: **Riccardo TAGLIAPIETRA**
e-mail: italy@renishaw.com

Renishaw is one of the world's leading engineering and scientific technology companies, with expertise in precision measurement and healthcare. The company supplies products and services used in applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery.

It is also a world leader in the field of additive manufacturing (also referred to as metal 3D printing), where it is the only UK business that designs and makes industrial machines which 'print' parts from metal powder.

The Renishaw Group currently has more than 70 offices in 35 countries, with around 4,000 employees worldwide. Around 2,600 people are employed within the UK where the company carries out the majority of its research and development and its manufacturing.



S3 ALLIANCE

Via Rossini, 4
 21052 Busto Arsizio (VA), ITALIA
 Tel. +39 033 162 6848
 Fax +39 033 162 6848
 website: www.s3-alliance.com
 contact person: **Alessandro FERRARIO**
 e-mail: salesit@s3-alliance.com

S3 Alliance provides the network, and product portfolio that brings leading edge solutions to our customers.

Our supply and service solutions are tailored to meet our customers ever changing requirements, enabling them to be competitive in what is now a truly global marketplace.

For the semiconductor/MEMS market we source and offer quality products at the right price.

Within this market we offer solutions in the following areas: Process Equipment, Metrology and Handling, Parts & Consumables, Services.



SCHAEFER ITALY

Via Luigi Einaudi, 23/2
 45100 Rovigo (RO), ITALIA
 Tel. +39.0425.073130
 Fax +39.0425.27228
 website: www.schaefer-tec.it
 contact person: **Paolo BARIANI**
 e-mail: info@schaefer-tec.it

Schaefer Italy is the Italian branch of Schaefer-Tec group, a pan-european network of companies. Schaefer offices represent a unique collection of highly innovative small global companies developing cutting edge technologies for nano-scale characterization.

With specific regards to our Italy registered company, our strengths are:

1. Experience. Which enable us selecting the most innovative technology suppliers globally.
2. Competence. Baked by our long term partnership established with the Institute of Biophysics @ the National Research Council in Genova, where we set up our life science characterization lab.
3. Independence. We pride ourselves on being privately owned; no financial investors nor venture capital own any of our shares

Nowadays our technologies offering comprises:

- SPM microscopes for operation in air, environments or vacuum, and related accessories.
- Optical profilers and optical 3D microscopes for tabletop operation or in-line integration.
- 3D label free microscopes and manipulation tools for cell-to-cell analysis, developed specifically for the life sciences.
- Microscopy-based cell counters, also with recognition capabilities.
- Nanoparticles characterization tools: TRPS and Enhanced Dark Field Microscopy.
- Process control instrumentation (vacuum, mass flow meters, magnetic fields)

For our Italy-based customers convenience most of the above technologies are available for demonstration or contract work at either of our two offices based in Rovigo (metrology) and Genova (life sciences). Please don't hesitate to contact us for discussing your measurement needs!

BOOTH 3

Thermo

SCIENTIFIC

A Thermo Fisher Scientific Brand

THERMO FISHER SCIENTIFIC

Piazzale Cadorna, 4
20123 Milano (MI), ITALIA
website: www.thermofisher.com
contact person: **Fabio FANTINI**
e-mail: fabio.fantini@thermofisher.com

Thermo Scientific – a commitment to analytical precision

Thermo Scientific instruments, equipment, software, services and consumables empower scientists to solve for complex analytical challenges in pharmaceutical, biotechnology, academic, government, environmental and industrial research, as well as the clinical laboratory.

Our products address a range of needs from sample, material characterization and chemical analysis to clinical diagnoses and biological-based therapeutics manufacturing.

The thermofisher.com domain is now the home for Affymetrix and eBioscience life sciences products and includes all Thermo Scientific product and purchasing information, documentation, and resources.

Product areas include lab equipment, lab plasticware, mass spectrometry, chromatography, molecular biology, protein biology, clinical and diagnostics, and more.

BOOTH 9



CARL ZEISS SPA con socio unico

Via Varesina, 162
20156 Milano (MI), ITALIA
tel. +39 02 93773.1
fax +39 02 93773.539
website: www.zeiss.it
contact person: **MarComm OFFICE**
e-mail: marketing.czi@zeiss.com

ZEISS is an internationally leading technology enterprise operating in the optics and optoelectronics industries. ZEISS develops, produces and distributes measuring technology, microscopes, medical technology, eyeglass lenses, camera and cine lenses, binoculars and semiconductor manufacturing equipment. With its solutions, the company constantly advances the world of optics and helps shape technological progress.

ZEISS is divided up into the four segments Research & Quality Technology, Medical Technology, Vision Care/Consumer Products and Semiconductor Manufacturing Technology. ZEISS is represented in over 40 countries and has more than 50 sales and service locations, upwards of 30 manufacturing sites and about 25 research and development facilities around the globe.

In fiscal year 2017/18, the company generated revenue for 5.817 billion euros with 29.309 employees. Founded in 1846 in Jena, the company is headquartered in Oberkochen, Germany. Carl Zeiss AG is the strategic management holding company that manages ZEISS. The company is wholly owned by the Carl Zeiss Stiftung (Carl Zeiss Foundation).



ZURICH INSTRUMENTS AG

Technoparkstrasse, 1
8005 Zurich, SWITZERLAND

tel. +41 44 515 0410

cell +39 375 5559842

fax +41 44 515 0419

website: www.zhinst.com

contact person: **Roberto FODDIS**

e-mail: roberto.foddis@zhinst.com

Zurich Instruments makes lock-in amplifiers, arbitrary waveform generators, impedance analyzers, quantum computing control systems, phase-locked loops and boxcar averagers. In combination with LabOne®, the Zurich Instruments control software, a new benchmark is set for instrumentation in the DC to Gigahertz range. This unique approach reduces the complexity of laboratory setups, removes sources of problems and supports new measurement strategies that enable the progress of research.

Scientists and engineers at advanced research laboratories and in leading hi-tech organizations require powerful measurement instrumentation and tools for dynamic signal analysis. Zurich Instruments equipment allows for robust and reliable setups with best-in-class performance thanks to the unique integration of the latest electronic components. This is backed up by scientific staff with detailed application know-how and a customer support organization that is also second to none.



JUNE 11 TUESDAY



A series of horizontal lines for writing, consisting of 25 evenly spaced lines extending across the page.

JUNE 12 WEDNESDAY



A series of horizontal lines for writing, consisting of 25 thin, light gray lines spaced evenly down the page.

JUNE 13 THURSDAY



A series of horizontal lines for writing, consisting of 26 evenly spaced lines that fill the majority of the page below the grey bar.

JUNE 13 THURSDAY



A series of horizontal lines for writing, consisting of 25 thin, light gray lines spaced evenly down the page.



Discovering hidden details.

ZEISS Xradia 610 and 620 Versa



// INNOVATION
MADE BY ZEISS

Your 3D X-ray microscopes for faster sub-micron imaging of intact samples

Go beyond the limits of projection-based micro- and nano-CT systems: The Resolution at a Distance (Raad) architecture enables high resolution 3D imaging of larger, denser objects including intact components and devices. Breakthrough innovations in source and optics technology provide higher X-ray flux to deliver faster tomography scans without compromising resolution and contrast. Use Xradia 610 and 620 Versa X-ray microscopes to non-destructively characterize the 3D microstructure of materials under controlled perturbations (*in situ*), and observe the evolution of structures over time (4D).

www.zeiss.com/620-versa

