

High efficiency SiC based converter and the nano/microgrid scenario
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Vehicle-grid integration relies on a synergistic approach in which EVs and the electrical grid play in an interlocked arena offering concomitant favourable outcomes to EV users and grid operators – thus society as a whole. From the technological viewpoint, highly efficient power systems are essential for an all-abiding coupling, hence the needs for employing silicon-carbide (SiC) in semiconductors, which represent, together with gallium-nitride (GaN) the forthcoming alternative to silicon (Si), offering higher efficiencies and power densities.

In WInSiC4AP, a 5kW bidirectional DC/DC power converter based on SiC technology will be developed and tested for EV applications, paving the way to more efficient and scalable unidirectional (V1G) and bidirectional (V2G) chargers to be used (also) in distributed generation and isolated power clusters relying on a DC bus, which offer higher efficiency, reliability and stability.