Electron Microscopy: from Qualitative to Quantitative

Gustaaf VAN TANDELOO University of Antwerp, Belgium

Electron microscopy is an excellent technique for correlating structural/chemical information with the mechanical/chemical/electrical properties of materials. However, most publications on electron microscopy only show two dimensional images and these “images” are meant to visualize reality… One should however, not forget that these images result of an interaction with an high energy electron beam and they can suffer from aberrations, defocus, incorrect orientation of the sample… On top of that the electron beam can destroy or alter the structure of the material; this is particularly the case for soft matter such as e.g. organic perovskites, zeolites an even more for biomaterials.

We will present ways to measure atom positions, with picometer precision, not only in 2D, but also in 3D.