

3D electron diffraction on hard and soft matter

Mauro Gemmi

Center for Nanotechnology Innovation@NEST, Istituto Italiano di Tecnologia Pisa, Italy

It is nowadays possible to collect 3D electron diffraction data on nanocrystals and have a 3D reconstruction of their reciprocal space. There several methods of how to perform a 3D electron diffraction experiment, but all of that have in common the possibility of obtaining quasi-kinematical intensities suitable for structure solution and refinement. The most recent advances in the field will be presented and the limits of the method will be discussed. A particular attention will be focused on the possibility of extending 3D electron diffraction to samples usually not investigated by electron diffraction because very beam sensitive. Examples of structure solution of metallorganic and organic compounds will be presented. Thanks to the combination of novel methods of data collection and the introduction of single electron detection cameras for diffraction the possibility of getting valuable structural information from nanocrystals of proteins will be demonstrated.