

Transmission Electron Microscopy (TEM): a powerful imaging tool

Abstract

Transmission electron microscopy (TEM) is a powerful tool in resolving details of nanoscale objects. It is an ideal tool for investigations in the life sciences, nanomaterials, medical and biological fields. In recent years, extensions of the techniques such as cryogenic-transmission electron microscopy (cryo-TEM), 3-dimensional imaging by cryo-electron tomography and *in situ* study of solution-phase chemical processes, have made tremendous strides.

This presentation will focus on these three topics. First, the use of cryo-TEM for the imaging of biological cells and viruses will be discussed. Then this will be followed by a discussion of the use of 3-dimensional cryo-TEM to reconstruct models of viruses and nanoparticles. Finally, *in situ* studies of lithium ion batteries (LIB) will be discussed, in which TEM can give clear images with scales less than 10 nm and provide a perspective on solid electrolyte interface (SEI) formation and electrode change during charge and discharge process. For example, *in situ* TEM enabled the study of batteries cycling in real time.

Reference:

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