Three-Dimensional Microanalysis of advanced materials using FIB-SEM Instrumentation

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An alternative method to serial sectioning and electron tomography are presented by utilizing FIB-SEM technologies to generate images that can be assembled into a three-dimensional reconstructed data cube. The Mill and Monitor function is a fully automated process that uses a high-energy Ga+ ion beam to section a sample along with a conventional electron beam to capture an image of the milled surface. The ability to acquire segmented data without mechanically tilting the stage are demonstrated through fine pitch segmented slices which are applied to specific materials often analyzed or processed by a transmission electron microscope.