
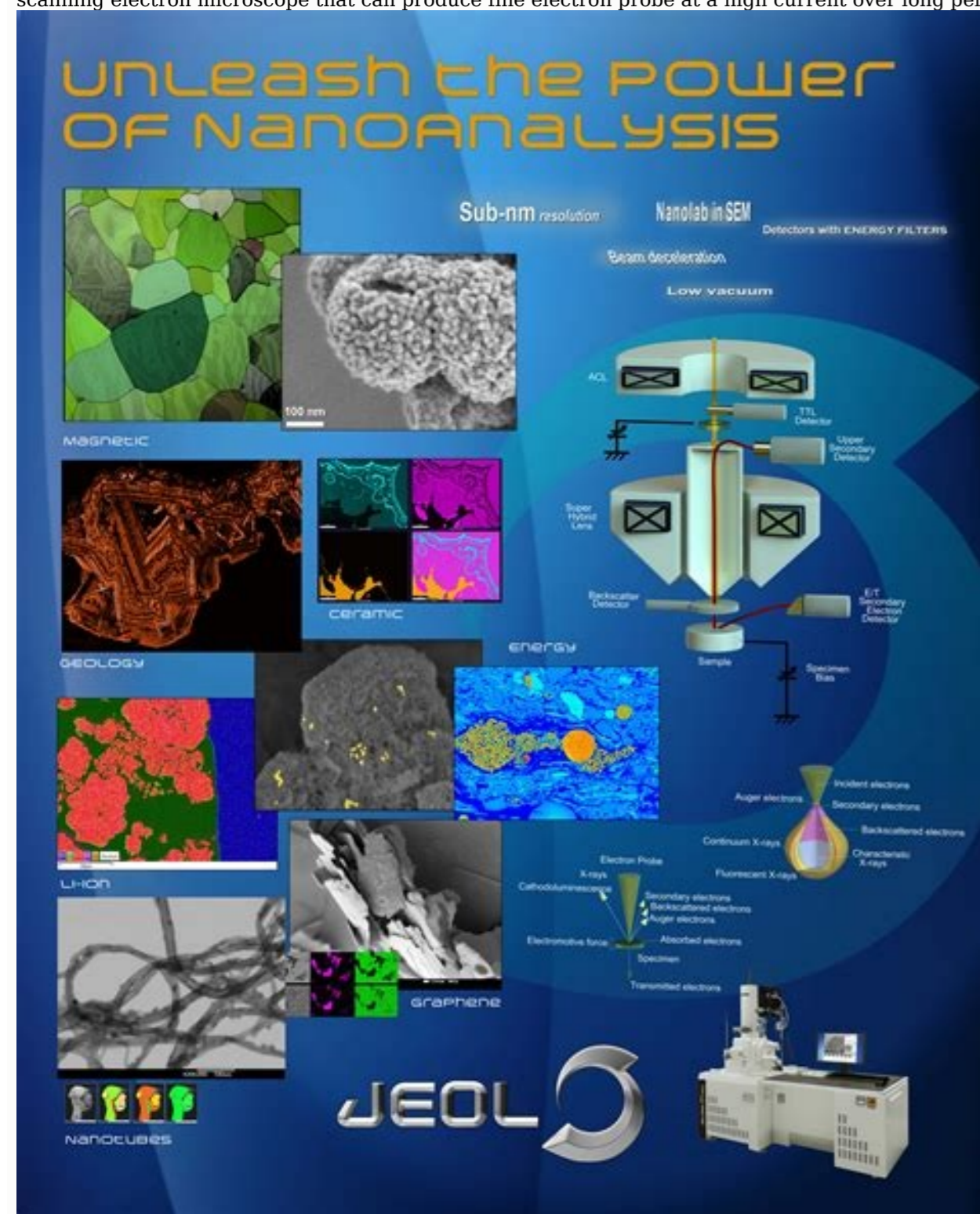


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## Jeol sem manual

Scanning electron microscopes (SEM) and its abundant attachments for surface observation and analysis are one of the most active instruments at the R&D institutes and quality test sites in the world. JEOL can offer a wide range of lineups from general purpose scanning electron microscopes(W-SEM) including a benchtop type that allows operations just to anyone without specific knowledge and techniques, to high-end models of field emission scanning electron microscopes (FE-SEM). In addition, energy-dispersive X-ray spectrometers (EDS) that are used for elemental analysis are also developed in-house. Page 2 The 3View®2XP (Gatan Inc.) is incorporated into the Schottky field emission scanning electron microscope that can produce fine electron probe at a high current over long periods of time, making it possible to automatically create cross sections of the specimen and obtain images. The 3D reconstruction of the acquired images enables detailed analysis of the fine structures in three dimensions.



**System Outline**The combination of the 3View®2XP (Gatan, Inc.) with the JSM-7200F/ 7800F allows you to obtain a large quantity of slice images over a wide range. This makes it possible to perform three-dimensional reconstruction of regions of several hundred  $\mu\text{m}$ . The 3D reconstruction reveals cell structures in the Z direction that cannot be seen with 2D images.  
**Operation** Automatically repeated slicing of the specimen and acquisition of images makes it possible to acquire a large amount of slice image data. The acquired slice images are stacked and processed with reconstruction software to generate the 3D image. Click the "replay" button in the box above, and the movie will start(for 2 minutes) Mouse brain synapse Segmentation data Yellow region : Synaptic vesicle Green region : Postsynaptic density Red region : Postsynaptic cell Sample : Courtesy of Professor Deniz Kirik and Lina Gefors, Bioimaging Center, Medical Faculty, Lund University, Sweden Easy explanation about mechanisms and applications of JEOL products