

HIGH-QUALITY SURFACE PREPARATION OF MATERIAL SAMPLES USING A COMBINATION OF MECHANICAL AND ION BEAM MILLING METHODS

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Abstract

Lot of material applications in electron microscopy are surface techniques, where we receive information about the sample from the first tens of nanometers its surface. Therefore, it is necessary to prepare sample surface very carefully. By combining special mechanical preparation and ion beam milling from Leica Microsystems can be achieved excellent results and significant reduction preparation time of the sample. Workshop is about combination these two methods. We will introduce a pair of devices:

Leica EM TXP: universal mechanical preparation allowing to skip traditional way of metallographic sample preparation. The instrument allows milling, cutting and polishing the sample under a stereomicroscope. Precision tools can serve as a final sample preparation or as advance preparation for ion polishing.

Leica EM TIC3X: specialized ion beam milling machine with triple ion gun source. This allowed the ion beam surface polishing or ion beam slope cutting technique of solid materials. The concept of interchangeable tables with sample holders allows you to configure the device for whole range of applications, including sample cooling.

The workshop will start with short lecture followed by practical demonstration of the work with the Leica EM TXP and introducing of the Leica EM TIC3X.

Keywords: Electron microscopy, sample preparation, mechanical sample preparation, ion beam sample preparation, ion beam slope cutting

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