

Sample Preparation for Materials Scientists

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There are many methods of preparing samples to go into the TEM [1-6] or SEM [7]. Every preparation method has advantages and disadvantages [8-11]. It is important to choose the appropriate preparation technique for the experiment. This tutorial will provide an overview of general sample requirements for analysis and the methods necessary to prepare samples. Samples may begin either as large bulk pieces or as nanoparticles or anything in between. The challenge is to be able to answer questions about the original material. While many questions can be answered using samples prepared by standard techniques, these samples are often not of sufficient quality for atomic resolution STEM imaging. [12, 13]

References

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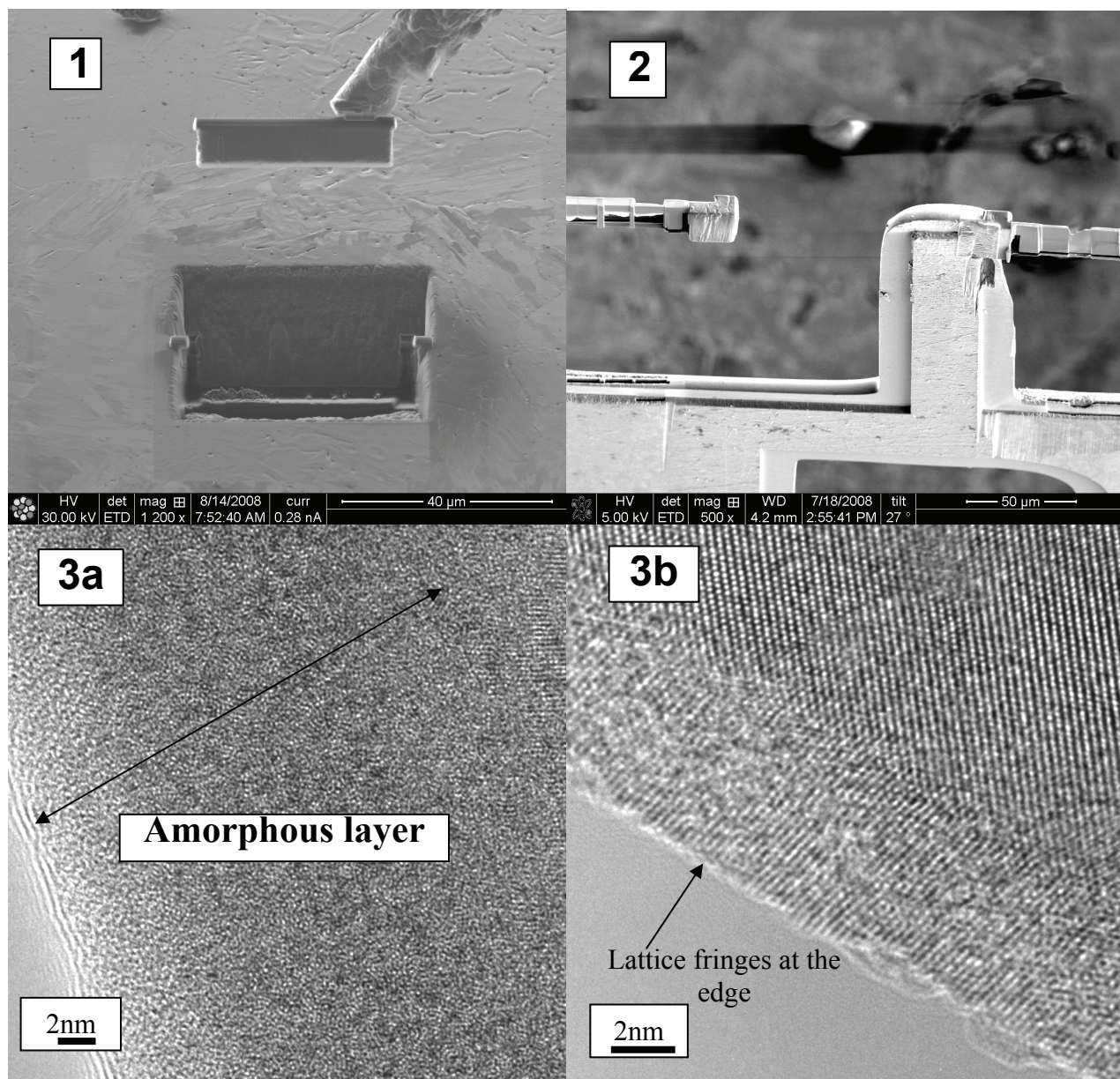


FIG. 1. In-situ FIB liftout showing sample attached to the probe by Pt/C deposition.

FIG. 2. In-situ liftout samples attached to support posts on special Cu TEM grid.

FIG. 3. High resolution STEM image showing residual amorphous layer at edge of FIBbed sample (a) before and (b) after low energy Ar ion milling. [12]