Transmission electron microscopy sample preparation for atomic resolution analysis using laser ablation and broad ion beam milling workflow

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New generation of aberration corrected analytical transmission electron microscopes (TEM) opens possibilities for atomic scale analysis and in-situ experiments on advanced functional materials. However, this also introduces new challenges where traditional TEM sample preparation techniques are no longer adequate or requires significant skill and time commitments on manual operator techniques (e.g. FIB-SEM). A new simplified approach using a combination of benchtop laser ablation and broad ion beam milling can help relieve these constraints and automate most of the workflows to improve throughput and consistency of sample quality. Elimination of conventional manual steps such as manipulator lift-out and gluing also reduces the risk of introducing contamination and mechanical deformation.

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