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**Practical electron tomography guide: recent progress and future opportunities**

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**Highlights**

- Practical guide to electron tomography.
- Summary of recent advances in materials science electron tomography.
- Quantitative measurements by electron tomography in materials science.
- Metrology at nanoscale in three dimensions

**Abstract**

We present a review of the recent progress in electron tomography applicable to materials science samples. We focus on practical high accuracy tomographic measurements and their applications. We follow the steps leading to a reconstructed 3D volume and discuss the effect of the individual steps on the suitability of the resulting 3D volume for quantitative measurements. Both the progress in applications and new opportunities in electron tomography in materials science are reviewed.

**Keywords:** Electron tomography, sample preparation, radiation damage, missing wedge, high accuracy alignment, tilt angle measurement, volume reconstruction, image segmentation, volume projection.

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