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Special Issue Reprint

Electron Diffraction and Structural Imaging

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This Reprint highlights the resurgence of electron diffraction (ED) and structural imaging as key tools for modern structural science. Advances in TEM technology, including Cs correctors, direct detection cameras, and automation, along with methods such as cryo-EM, beam precession, 3D electron diffraction, 4DSTEM, and ptychography, now enable atomic-scale studies of materials inaccessible to conventional X-ray techniques. The first volume gathers 10 contributions spanning lithium-ion cathodes, complex metallic alloys, steels, intermetallics, oxides, MOFs, and thin films. Featured studies address cation disorder in energy materials, symmetry in alloys, hidden retained austenite in steels, and structural evolution in nickelates. Methodological studies include low-dose diffraction tomography, precession-assisted phase and orientation mapping, and global optimization for incomplete 3DED datasets.



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