

# Electron Tomography for 3D Characterization of Porous Catalysts

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Electron tomography (sometimes referred to as 3D-TEM) provides 3D imaging with nanometer resolution of complex materials with a non-periodic structure [1]. First we introduce the technical aspects of electron tomography. Second we present an overview of the rapidly emerging field of electron tomography for the study of heterogeneous catalysts and related nanostructured materials. More specifically we address electron tomography studies of the following materials.

- Mesoporous zeolites; revealing details of mesopore size, shape and connectivity with exceptional clarity [2].
- Ordered mesoporous materials; pore wall corrugation, connection between mesopores in SBA-15; nanorods and nanoparticles inside and outside mesopores [3-5].
- Ruthenium metal particles inside and outside carbon nanotubes [6].
- NiMoS<sub>2</sub>/γ-Al<sub>2</sub>O<sub>3</sub> catalysts with 3D imaging of MoS<sub>2</sub> nanocrystallites revealing individual lattice planes [7].

## References

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