

Nano-Scale Characterization of Catalytic Materials by High Resolution Transmission Electron Microscopy

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Catalytic materials are featured by their micro-structure, micro-morphology and chemical composition that influence the catalytic reaction. Surface termination and structure of a catalyst is specially importance for its performance. High-resolution transmission electron microscopy with its high lateral resolution is an unique technique that can provide all the information needed for characterization of a catalyst at nano meter scale. The currently commercially available aberration-corrected microscope provides exact surface structure of metal and metal oxides catalyst used for selective oxidations. Examples using electron microscopy to study the metal-support interaction, to study the surface chemistry of silver catalyst and to study the active sites of bi-metallic catalysts are presented.