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Title: Atomic-scale Imaging of Supported Metal Nanocluster Catalysts in their Working State.

Recent developments in *in situ* high resolution transmission electron microscopy (HR-TEM) have opened up the possibility to image with atomic resolution most transition metal catalysts during exposure to reactive gases and elevated temperatures. This provides unprecedented insight about the structure, morphology and gas-induced dynamics of complex supported metal nanocluster catalysts with many different surfaces and interfaces.
Here we present recent work that exploits the capability of *in situ* HR-TEM to elucidate the nature of the exposed surfaces in supported metal nanocluster catalysts. The work shows that information about i.e. the distribution of different types of surface sites, location of promoter atoms and gas-induced surface dynamics can be obtained and play an essential role for understanding the role of gas-surface interactions on working catalysts.