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TEM study of Pt nanoparticles on gamma Al_2O_3/NiAl support[1]
ZHONGFAN ZHANG, LONG LI, JUDITH YANG, UNIVERSITY OF PITTSBURGH TEAM — Pt gamma Al_2O_3 as one of the most important catalysts has attracted much attention in research. Moving beyond the current phenomenological understanding of the nanoparticle support interaction necessitates the examination of the Pt/ γ-Al2O3 interface at the atomic level. To produce the model interface, NiAl(110) single crystal was oxidized at 1223K in order to fabricate gamma Al_2O_3(440). The crystallinity and uniformity of the oxide film was characterized by X-ray diffraction (XRD), Atomic Force Microscopy (AFM) and Scanning Electron Microscopy (SEM). Nanometer sized Pt particles were deposited through vapor deposition method onto the film. Cross sectional TEM samples were prepared using a Focused Ion Beam (FIB). The Pt gamma Al_2O_3 interface will be examined by cross-sectional transmission electron microscopy (TEM) methods to elucidate the atomic, defect and electronic structure of the interface.

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