# Decomposition of methanol on Rh nanoclusters on $Al_2O_3$/NiAl(100) studied with APXPS

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## Abstract

Catalyzed decomposition of methanol has been widely studied because this reaction is applicable in direct methanol fuel cells (DMFCs) and also serves as a source of hydrogen. As the performance of DMFCs or the production of hydrogen is governed largely by the catalyzed reaction, the knowledge of a correlation between reactivity and structure of the catalysts are desirable. This poster reports an experimental study on a realistic model-system to explore the structure-reactivity correlation. We have studied decomposition of methanol on Rh nanoclusters supported on thin film $Al_2O_3$ under near-ambient pressure with XPS, which overcomes both the material and pressure gaps between real-world catalysts and model systems. The results are compared to those obtained under ultrahigh vacuum conditions and with varied surface probe techniques.

***Keywords – methanol decomposition, rhodium, APXPS***