

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Preparation dependent neutralization efficiency of Pt/TiO<sub>2</sub> nanoparticles** ALEX ARJAD, YARMOFF JORY, University of California, Riverside — Metal nanoclusters resident on an oxide surface can be produced by sputtering thin films as well as by direct deposition. We previously used the neutralization of scattered low energy alkali ions to demonstrate that Au nanoclusters formed by sputtering a thin gold film on TiO<sub>2</sub> have similar electronic properties as those formed by deposition [1]. In this work, we compare Pt nanoclusters grown on TiO<sub>2</sub> by both sputtering and deposition. It is shown that Pt nanoclusters formed by deposition are more efficient at neutralizing scattered low energy Na<sup>+</sup> ions than those formed by sputtering a thin platinum film. We attribute this difference to the strong-metal-support-interaction (SMSI) present in the Pt/TiO<sub>2</sub> system, but not with Au/TiO<sub>2</sub>.

[1] P. Karmakar, G.F. Liu, Z. Sroubek and J.A. Yarmoff, Phys. Rev. Lett. 98, 215502 (2007).

Alex Arjad  
University of California, Riverside

Date submitted: 16 Dec 2010

Electronic form version 1.4