

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Gold Nanorod translocations and charge measurement through solid-state nano pores REBECCA ENGELKE, MEHDI ZANJANI, KIM VENTA, XINGCHEN YE, GOPINATH DANDA, CHRISTOPHER MURRAY, JENNIFER LUKES, MARIJA DRNDIC, Univ of Pennsylvania — We study translocations of gold nanorods through silicon nitride nanopores and present a method for determining the surface charge of nanorods from the magnitude of the ionic current change as nanorods pass through the pore. Positively-charged nanorods with average diameters 10 nm and average nanorod lengths between 44 and 65 nm were translocated through 40 nm thick nanopores with diameters between 19 and 27 nm in 1, 10, or 100 mM KCl solutions. The presented method based on comparing simulations with experiments predicts a surface charge of 26 mC/m² for 44 nm long gold nanorods and 18 mC/m² for 65 nm long gold nanorods.

Rebecca Engelke
Univ of Pennsylvania

Date submitted: 14 Nov 2014

Electronic form version 1.4