

Abstract Submitted  
for the DFD14 Meeting of  
The American Physical Society

**Rapid Electrokinetic Patterning of Metal Nanoparticles and Nanowires** AVANISH MISHRA, Purdue Univ, STUART WILLIAMS, University of Louisville, STEVEN WERELEY, Purdue Univ — Rapid Electrokinetic Patterning (REP) combines electric field and laser induced heating for particle trapping on an electrode surface. This technique utilizes two planar transparent indium tin oxide (ITO) electrodes separated by a colloidal solution of suitable thickness. When an infrared (1064 nm) laser beam is projected on the electrode surface, due to interaction between AC electric field and laser induced heating, a toroidal electrothermal (ET) vortex is generated. It traps particles and brings them closer to the electrode surface where particles are captured by particle-electrode interactions. In this work, we demonstrate trapping of metal nanoparticles and discuss its application in Surface Enhanced Raman Scattering for trace analyte detection.

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Date submitted: 01 Aug 2014

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