Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Toward complex nanostructures: lead chalcogenide nanoparticles, nanowires, and more WEON-KYU KOH[1], DAVID K. KIM[2], CHERIE R. KAGAN[3], CHRISTOPHER B. MURRAY[4], University of Pennsylvania — Lead chalcogenides have been shown to be interesting semiconductor materials due to their small bandgaps and large Bohr radii. Based on lead chalcogenide nanoparticles as building blocks, we studied anisotropic growth of their nanowires and other structures. Growth mechanism of those structures is believed to oriented attachment which is mainly driven by dipole moment; in addition the role of surfactant is also important due to their dynamic binding on the nanoparticle surface. As-synthesized nanoparticles and nanowires were characterized using electron microscopy, X-ray diffraction, optical and electrical measurement. Our initial results open up new opportunities for photovoltaic device, sensor, and other application using those unique structures.

[1]Department of Chemistry
[2]Department of Materials Sci. & Eng.
[3]Department of Materials Sci. & Eng.
[4]Dep. of Chemistry & Dep. of Materials Sci. Eng.

Weon-kyu Koh
University of Pennsylvania

Date submitted: 03 Nov 2008 Electronic form version 1.4