Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Photoconductivity of complexes of chrysotile with tetra(4-sulfonatophenyl) porphyrins created via ionic self-assembly[1] WESLEY CHU, WALTER SMITH, Haverford College, YE LU, A.T. JOHNSON, University of Pennsylvania, GIOVANNA DE LUCA, LUIGI SCOLARO, Università di Messina — Tetrakis(4-sulfonatophenyl) porphine (TPPS4) molecules form complexes with chrysotile nanotubes in a chloroform-methanol solvent; the self-assembly is driven by Coulombic attractions. The UV/vis absorption spectrum indicates J-aggregation. In AFM, the complexes appear as straight, long tubes when deposited onto oxidized silicon substrates. Preliminary experiments conducted in a dry nitrogen atmosphere (0.2% oxygen concentration) show that the aggregates are photoconductive. When illuminated for long periods at 428 nm, the photoconductivity grows slowly, and there is also a growth of persistent photoconductivity. These observations are similar to those for nanorods self-assembled from TPPS4 (without chrysotile),[2] though the current levels are much lower in the chrysotile complexes.

[1]This work is supported by NSF grant CHE-0616615.
[2]C. K. Riley et al., *J. Phys. Chem. C* **2010**, 114, 19227–19233.

Walter Smith
Haverford College

Date submitted: 30 Nov 2010 Electronic form version 1.4