

Abstract Submitted
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Photoconductivity of Nanotapes Self-assembled from meso-Tri(4-sulfonatophenyl)monophenylporphine A. L. YEATS, B. MASSARE, W. F. SMITH, Haverford College, A. D. SCHWAB, Applachian State U., J. C. DE PAULA, Lewis and Clark College, D. E. JOHNSTON, A. T. JOHNSON, U. of Pennsylvania — We have shown¹ that meso-Tetra(4-sulfonatophenyl)porphine (TPPS₄) forms well-defined nanorods in acidic solution. Experiments on related molecules provide insight into the mechanisms for self-assembly and photoconduction. Meso-Tri(4-sulfonatophenyl)monophenylporphine (TPPS₃) has one fewer sulfonate group than TPPS₄, but is otherwise identical. Previous work² has shown that, when deposited onto substrates by rotary evaporation, it forms folded nano-ribbons. We have found that, when deposited via immersion and spin-drying, it forms tape-like aggregates of two distinct heights. The larger width of these nanotapes (compared to TPPS₄ nanorods) is expected from the smaller in-solution charge of the monomer. The TPPS₃ aggregates exhibit photoconductive properties very similar to those of TPPS₄. The aggregates ordinarily form in solution, but can also be surface-catalyzed. ¹ A.D. Schwab *et al.*, Nano Letters 4, 1261 (2004). ² J. Crusats *et al.*, Chem Commun. 1588 (2003).

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