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**Chemotaxis of catalytically-driven nanorods** YOUNG-MOO BYUN, PAUL LAMMERT, VINCENT CRESPI, Department of Physics, Penn State University, YIYING HONG, AYUSMAN SEN, Department of Chemistry, Penn State University — Chemotaxis, a kind of taxis, is the directed motion of nanoscale organisms such as bacteria along the gradient of chemical concentration. Chemists have created non-biological nanorods, made of gold at one end and platinum at the other, which move autonomously through a solution of hydrogen peroxide due to a catalytic reaction,1 and showed that those metallic nanorods mimic chemotaxis by moving towards regions in a solution with a high concentration of hydrogen peroxide.2 In this talk, we present a theoretical model for chemotaxis and a way of how to analyze the motion of nanorods, and then compare our theory to the experimental data. 1. Paxton et al, J. Am. Chem. Soc., 126, 13424-13431 (2004) 2. Hong et al, Phys. Rev. Lett. 99, 178103 (2007)

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