Bulk synthesis of silver-head colloidal rodlike micromotors

Yongxiang Gao,^{a*} Roel. P. A. Dullens^b and Dirk G. A. L. Aarts^b

^a Institute for Advanced Study, Shenzhen University, Nanshan District, Shenzhen, Guangzhou, China 518060

^b Department of Chemistry, Physical and Theoretical Chemistry Laboratory, University of Oxford, South Parks Road, Oxford, OX1 3OZ, UK



Supplementary information

Fig. S1 Schematics on a negatively-charged Ag-SiO₂ Janus rod driven to move in H_2O_2 by electrolyte self-diffusiophoresis (not drawn to scale). The silver reacts with H_2O_2 , which releases Ag⁺ and OOH⁻ asymmetrically around the particle. The Ag⁺ ions diffuse faster than the OOH⁻ ions, which generates a local electric field that points to the silver head. The electric field will drive the negatively-charged rod in the direction of its silver head.

Movie S1 Particle tracking for colloidal Janus rods at H_2O_2 concentration of (a) 0 w% and (b) 0.1 w%. The red dots mark the starting points, with trajectories shown as blue lines. The field of view is $187 \times 187 \ \mu m^2$.