NANO MICRO small

Supporting Information

for *Small*, DOI: 10.1002/smll.201100213

Hybrid Nanomotor: A Catalytically/Magnetically Powered Adaptive Nanowire Swimmer

*Wei Gao , Kalayil Manian Manesh , Joe Hua , Sirilak Sattayasamitsathit , and Joseph Wang **

NANO MICRO small

Supporting Information

Hybrid Nanomotor: Catalytically/Magnetically Powered Adaptive Nanowire Swimmer

*Wei Gao, Kalayil Manian Manesh, Joe Hua, Sirilak Sattayasamitsathit and Joseph Wang**
Department of Nanoengineering, University of California, San Diego, La Jolla, California 92093
*E-mail: josephwang@ucsd.edu

SI VIDEO CAPTIONS

SI Video 1. Comparison of the catalytic-driven and magnetic-driven movements of the same hybrid nanomotor along with the motion of the motor without fuel or magnetic field.

SI Video 2. Top: Comparison of the motion of conventional catalytic Au-Pt nanomotor with that of a fuel-driven hybrid flexible nanomotor. Bottom: Comparison of the magnetically-driven motion of conventional flexible nanowire swimmer with that of the hybrid flexible swimmer (with a Pt segment).

SI Video 3. Switching between the catalytic and magnetic propulsion modes: Dual mode motion of the hybrid nanomotor.

SI Video 4. Directional magnetic navigation of the hybrid nanomotor operated in the catalytic and magnetic modes.

SI Video 5. Switching to the magnetic mode in response to depletion of the fuel. The video show the diminished fuel-driven motion of the hybrid nanomotor upon depletion of the fuel over a prolonged 20 min period, followed by restoring the movement upon applying the rotating magnetic field.

SI Video 6. Switching to the magnetic mode in response to increased salt content. The videos show the decrease of the catalytic propulsion of the hybrid nanomotor after adding the salt, followed by restoring the motion by applying the magnetic field.