

Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

Remote control of self-assembled microswimmers NICOLAS VANDEWALLE, GALIEN GROSJEAN, ALEXIS DARRAS, GUILLAUME LAGUBEAU, MAXIME HUBERT, GEOFFROY LUMAY, GRASP, Institute Physics B5a, Sart Tilman, University of Liege, B4000 Liege, Belgium — Physics governing the locomotion of microorganisms and other microsystems is dominated by viscous damping. An effective swimming strategy involves the non-reciprocal and periodic deformations of the considered body. Herein, we show that a magnetocapillary-driven self-assembly, composed of three soft-ferromagnetic beads, is able to swim along a liquid-air interface when driven by an external magnetic field. Moreover, the system can be fully controlled, opening ways to explore low Reynolds number swimming and to create micromanipulators in various applications.

Nicolas Vandewalle
GRASP, Institute Physics B5a, Sart Tilman,
University of Liege, B4000 Liege, Belgium

Date submitted: 28 Jul 2014

Electronic form version 1.4