

Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Locomotion of helical swimmers in Newtonian and complex fluids F.A. GODINEZ, R. ZENIT, Universidad Nacional Autonoma de Mexico, E. LAUGA, University of California - San Diego — A biomimetic swimming device was built using a magnetic head and a rigid helical tail to investigate experimentally the effects of viscoelasticity on creeping flow locomotion. The millimeter-size swimmer is controlled and actuated wirelessly using a rotating magnetic field. Two fluids with similar viscosities were used for experiments, one Newtonian and one viscoelastic Boger fluid. Preliminary results from both fluids show a linear relationship between the frequency of the applied field and the translational velocity. The objective of this investigation is to determine if the viscoelasticity of the fluids enhances or not the swimming performance for this device.

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Date submitted: 04 Aug 2011

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