

Abstract Submitted  
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**Non-Newtonian rotational swimming: experiments** S. GOMEZ, F.A. GODINEZ, R. ZENIT, Universidad Nacional Autónoma de México, E. LAUGA, University of Cambridge — Recently Pak et al. (PoF, 2012) showed that a device composed of two unequal spheres (snowman) could swim in a viscoelastic fluid under a rotational actuation. By symmetry such device isn't able to move in a Newtonian fluid but because of its geometrical asymmetry is able to generate asymmetric elastic response and generate a purely viscoelastic thrust. We implemented this swimmer experimentally using a magnetic snowman driven by an external rotating magnetic field. We demonstrate that the snowman swims solely as a result of fluid elasticity. We conduct tests in Newtonian and Boger fluids, varying the sphere size ratio and rotation speed. We also conducted measurements in a confined environment, which showed an improved swimming performance.

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