

Abstract Submitted  
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**Using nanowires to perform in-vivo measurements of elastic and viscous properties of an anisotropic fluid** CHRIS SMITH, University of Western Ontario, COLIN DENNISTON, University of Western Ontario — The immersion of a small wire within an anisotropic fluid is studied using a lattice Boltzmann algorithm. A magnetic field is used to manipulate and rotate the wire. The field and the anisotropic fluid each impose a torque on the wire. Our simulations agree well with experiments on the dynamics of high aspect ratio wires within a liquid crystal. In addition, our simulations are able to extend the range of predictive measurements to low aspect ratio wires, more suitable for use in biological environments. We are able to predict elastic and viscous properties of the anisotropic fluid environment based on the torque response of the rotating wire.

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