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Life at high Deborah number ERIC LAUGA, University of California, San Diego, THIBAUD NORMAND, Ecole Polytechnique, France — Many biologically-relevant situations in cell locomotion involve non-Newtonian fluids. Important examples include the motion of spermatozoa in cervical mucus, or the movement of bacteria in biofilms. In this work, we present quantitative models of cell locomotion in polymeric solutions by deriving integral theorems which allow a general determination of the swimming kinematics of a small-amplitude swimmer for arbitrarily large Deborah numbers.

Eric Lauga
University of California, San Diego

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