

Abstract Submitted
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An Integrative Model of Hyperactivated Sperm Motility SARAH OLSON, Tulane University, SUSAN SUAREZ, Cornell University, LISA FAUCI, Tulane University — Calcium (Ca^{2+}) dynamics in mammalian sperm are directly linked to motility. These dynamics depend on diffusion, nonlinear fluxes, Ca^{2+} channels specific to the sperm flagellum, and other signaling molecules. The goal of this work is to couple Ca^{2+} dynamics to a mechanical model of a motile sperm within a viscous, incompressible fluid. An immersed boundary formulation of regularized Stokeslets is used to investigate the hydrodynamics and emergent waveforms and velocities. We will present recent progress on elements of this integrative model.

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