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**Robert Dillon\*** (dillon@math.wsu.edu) and **Lisa Fauci** (fauci@tulane.edu). *Effects of dynein activation and viscosity on the emergent waveform of an elastic, internally-actuated, model flagellum.*

We describe a fluid-mechanical model of an individual sperm which incorporates discrete representations of the dynein arms, the passive elastic structure of the axoneme including the microtubules and nexin links. This model couples the internal force generation of the molecular motors through the passive elastic structure with the external fluid mechanics governed by the Navier-Stokes equations. The explicit representation of the dynein motors gives us the flexibility to incorporate various dynein activation theories. Here we use a simple activation mechanism based on local curvature with a time delay. The flagellar beat is not preset and is an emergent property of the interacting components of the coupled fluid-axoneme system. (Received February 05, 2018)