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**Olga Stulov\*** (olga.stulov@gmail.com) and **Xingzhou Yang**. *3D Numerical Simulation of Microscopic Flagellar Movement With Prescribed Motion at Low Reynolds Number.*

Flagellar dynamic has been attractive topics for researchers for many years. Many microorganisms use the flagellum to swim. To understand the dynamics, we build a 3D model based on the centerline of the flagellum where the flagellum is treated as an elastic structure immersed in the incompressible viscous fluid. In this construction, the flagellum is connected by many small triangular "rings" with its center on the centerline. This "ring" is perpendicular to the tangential direction of the centerline. We utilize the Regularized Stokeslet/Rotlet Method, a grid free approach to solve the fluid equations. The related ODE system is solved by the Runge-Kutta method. Numerical simulations with prescribed motions will be presented. (Received September 21, 2011)