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Ricardo Ortiz* (ricardo.ortiz@tulane.edu), Tulane University, Center for Computational Science, 416 Stanley Thomas Hall, New Orleans, LA 70118, and **Ricardo Cortez**. *Simulation of flagellar motion near a rigid surface.*

We present a computational model for the simulation of Stokes flows generated by forces and torques close to a rigid plane and apply it to the study of the swimming motion of flagellated organisms near a rigid surface. The model is based on an extension of the method of regularized Stokeslets in which a regularization parameter provides the support of each force and torque exerted on the fluid by the organism, and eliminates the singularity of the velocity expressions. Forces exerted on the fluid by the organism are created from an elasticity model and the torques represent the effect of the rotary motor of the flagellum. We show two examples in which the flagellar bundle rotates with helical motion and another where the flagellum moves resembling a sine wave. (Received September 22, 2009)