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**Scott David Kelly\*** ([scott@kellyfish.net](mailto:scott@kellyfish.net)), 9201 University City Boulevard, Charlotte, NC 28223-0001. *Momentum-Conserving Models for Aquatic Locomotion through Discrete Vortex Shedding.*

The shedding of vorticity from solid surfaces is central to the locomotion of a variety of marine animals and aquatic vehicles. Hydrodynamic models which account for the viscous physics underpinning vortex shedding are frequently too complex to be studied analytically or to be used for model-based control design. We describe an approach to introducing thrust-producing vortex shedding to Hamiltonian models for the locomotion of deformable bodies in inviscid fluids. (Received February 09, 2009)