1067-A0-2432 **Lisa Fauci***, Department of Mathematics, Tulane University, New Orleans, 70118. *The biofluiddynamics of swimming and pumping: Recent insights.*

In many biological processes, elastic boundaries move through a fluid or move the fluid itself. These elastic boundaries may be passive or actuated, and may interact with a Newtonian fluid or one that exhibits more complex constitutive properties. In this talk, I will discuss successes and challenges in modeling swimming of flagellated microorganisms, pumping and mixing of complex fluids, and an integrative model of lamprey locomotion. (Received October 16, 2010)