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Andrew N Samuelson* (asamuels@gmu.edu), 8711 Chippendale Court, Annandale, VA 22003,
and **Padmanabhan Seshaiyer**. *Analytical and Computational Methods for Fluid-Structure
Interaction Applications to Aneurysms*. Preliminary report.

Despite major advances in this area, there is still a need for more sophisticated models which provide better insight into understanding the biomechanics of aneurysms. In this talk, we present the development of analytical and computational models for understanding the soft tissue mechanics, fluid dynamics, and their interaction. In particular, we will present the development of a hyperelastic membrane model which incorporates fluid-structure interaction for a cylindrical geometry undergoing radial inflation. The proposed models that will be presented in this work will be studied for a variety of biomechanical factors including viscoelasticity, anisotropy, and growth and remodeling. A stability analysis and numerical results for benchmark problems will be presented. (Received July 23, 2010)