1056-35-1523   **S. Minerva Venuti*** (`swelling@gmu.edu`) and **Padmanabhan Seshaiyer** (`pseshaiy@gmu.edu`).
Modeling, Analysis and Computation of Fluid Structure Interaction Models for Biological Systems.

This undergraduate research presents mathematical models for the interaction of blood flow through arterial walls which are surrounded by cerebral spinal fluid. The blood pressure on the inner arterial wall is modeled using a Fourier Series approach. The outer part of the arterial wall and the surrounding cerebral spinal fluid will be coupled using appropriate partial differential equations. The fully coupled system will be analyzed using both analytical (Laplace Transforms) and computational (finite difference methods) tools. Both linear as well as nonlinear (geometric and material) models will be considered in this study. Applications of the model studied to intracranial saccular aneurysms will be presented. (Received September 22, 2009)