1067-74-2286 **James Christopher Halsall*** (jchalsall@yahoo.com), 747 Peekskill Street, Elmont, NY 11003-4905. *Analysis of Spherical Inflation Models for Intracranial Saccular Aneurysm Elastodynamics.* Preliminary report.

The motivation behind this research was to gain further insight as to the elastodynamics of the aneurismal wall and its long-term effects with regards to stability. Using calculus methods,reduction of order techniques,Runge-Kutta,and various ODE solvers,we obtained graphical data for the stretch ratio and the stretch rate of the aneurismal wall. The modeling of the cerebral aneurysm was specifically taken after spherical sac-like lesions. Both models only considered spherically symmetric geometries,which led to simplification of the pressure model of the cerebral spinal fluid when using the Navier-Stokes equation of motion in spherical coordinates. The model for the blood pressure was taken as being periodic,and a discrete Fourier Series and mean pressure element were used to model its behavior. Only a geometrically linear relationship between the strain and displacement of the aneurismal wall was considered. Following the same assumptions,we modified our stress function to take on alternative representations based upon specific strain functions. This work has been completed as a part of the 2010 REU Program at George Mason University funded by the NSF REU and DOD ASSURE Programs. (Received September 22, 2010)