1126-76-12 **Sara Calandrini*** (sara.calandrini@ttu.edu), Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX 79409, and **Eugenio Aulisa** (eugenio.aulisa@ttu.edu) and **Giorgio Bornia**. *Numerical Simulations and Benchmarking for Fluid-Structure Interaction Modeling of Artery Aneurysms.*

This talk addresses numerical simulations of fluid-structure interaction (FSI) problems involving artery aneurysms, which are common vascular problems with fatal implications. The physics of the problem is described using a monolithic approach and both the fluid flow and the hyperelastic material are considered to be incompressible. The deformation of the fluid domain is taken into account according to an Arbitrary Lagrangian Eulerian (ALE) scheme. In the first part of the talk, I will describe the numerical algorithm that we use to solve this FSI problem, meaning a Newton-Krylov method combined with geometric multigrid preconditioner and smoothing based on domain decomposition. Secondly, I will describe several benchmark settings that we used to test our numerical method on possible hemodymanics applications. The configurations consist of realistic artery aneurysms, both in 2 and 3 dimensions. Numerical results for the described aneurysm geometries we'll be shown. (Received October 20, 2016)