1145-76-1406 **Sarah Elizabeth Ritchey Patterson*** (ser39@duke.edu), 120 Science Drive, Durham, NC 27710. *Extensions of the Immersed Interface Method to Open Interfaces and Hemodynamic Models.*

The Immersed Interface Method (IIM) can be used to numerically solve fluid-structure interaction problems where an infinitely thin boundary or interface is immersed in a fluid. Deviating the interface from its resting position generates a boundary force that is singularly supported on the interface. Due to this singular force, the pressure and the velocity gradient may not be continuous across the interface. The IIM incorporates these jumps in pressure and velocity into the finite difference approximations of the spatial derivatives in the discretized Navier Stokes equation.

The IIM was designed for closed interfaces. Therefore, when creating hemodynamic models, the blood vessel are often represented as a tube with capped ends. Flow is created by adding a fluid source and sink to opposing ends of the tube. This closed-tube model is not ideal since around the source and sink, the fluid does not behave like fluid flowing in a vessel. This talk will discuss novel extensions of the IIM to open interfaces which can provide a more natural fluid profile. (Received September 21, 2018)