

# ACMS Applied Math Seminar



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**Thursday, September 16, 2021**

**154 Hurley Hall**

**3:30 PM – 4:30 PM**

## **Modeling and Numerical Analysis of Fluid-Structure Interactions Arising in Hemodynamics**

Fluid-structure interaction (FSI) problems describe the dynamics of multi-physics systems that involve fluid and solid components. These are everyday phenomena in nature, and arise in various applications ranging from biomedicine to engineering. Mathematically, FSI problems are typically non-linear systems of partial differential equations (PDEs) of mixed hyperbolic-parabolic type, defined on time-changing domains (i.e., moving boundaries).

In this talk, I will formulate an FSI problem describing blood flow through a compliant vessel treated with biomedical device called a stent. I will illustrate the main features of the FSI problem, as well as main challenges arising in the numerical analysis of such FSI problems, I will also describe several numerical methods for FSI problems together with the corresponding stability and convergence analysis.

The Department of Applied and Computational  
Mathematics and Statistics

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