

*Department of Mathematics,  
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# Math 295 - Mathematics Colloquium

Dr. Thomas Fai

## The Lubricated Immersed Boundary Method

**Abstract:**

Many real-world examples of fluid-structure interaction, including the transit of red blood cells through the narrow slits in the spleen, involve the near-contact of elastic structures separated by thin layers of fluid. Motivated by such problems, we introduce an immersed boundary method that uses elements of lubrication theory to resolve thin fluid layers between immersed boundaries. We apply this method to two-dimensional flows of increasing complexity, including eccentric rotating cylinders and elastic vesicles near walls in shear flow, to show its increased accuracy compared to the classical immersed boundary method.

Host: Bo Li

**Thursday, December 7, 2017**

**2:00 PM**

**AP&M 6402**

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