

**Center for Fluid Mechanics, Division of Applied Mathematics
Fluids and Thermal Systems, School of Engineering
Joint Seminar Series**

TUESDAY – NOVEMBER 27, 2012

3:00pm

Barus & Holley, Room 190

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ViscoElastic Cell Adhesion Model (VECAM)

The adhesion of circulating cells to the internal lining of blood vessels (vascular endothelium) and their shear-induced deformation play a key role in maintaining body homeostasis, including protection of the body against invading pathogens and plugging vascular wounds by blood clots. However, the circulating cell-endothelium interactions can be harmful to the body and cause dangerous pathophysiological conditions if they become excessive or occur inappropriately. In the talk, I will present the ViscoElastic Cell Adhesion Model (VECAM), a novel computational algorithm for fully three-dimensional simulation of the deformation and receptor-mediated adhesion of circulating cells. The application of VECAM to leukocyte-endothelial cell adhesion and inertial microfluidics will be discussed. This presentation will also summarize the results of our recent static and microfluidic experiments on interactions of circulating cells with activated vascular endothelium.

Host: George Karniadakis