

AEROSPACE & MECHANICAL ENGINEERING



**2012 COLLOQUIUM 2013
SEMINARS ARE OPEN TO THE PUBLIC**

UNIVERSITY OF NOTRE DAME, NOTRE DAME, INDIANA 46556

SPEAKER: Dr. Jonathan W. Song
Department of Radiation Oncology
Massachusetts General Hospital & Harvard Medical School
Boston, Massachusetts

**TOPIC: BIOMECHANICAL REGULATION OF BLOOD VESSEL
FORMATION: INSIGHTS USING MICROSCALE TECHNOLOGY**

DATE: Thursday, February 28, 2013

TIME: 3:30 p.m.

PLACE: Lower Level Auditorium, Geddes Hall

RECEPTION: 3:00 – 3:30 p.m. – Coffee House, Geddes Hall

ABSTRACT

Blood vessels support tissue growth in development, physiology, and disease. Our understanding of how new blood vessels form is incomplete due in large part to the lack of appropriate systems for studying vessel guidance cues under well-controlled yet physiologically relevant conditions. Microscale technology has emerged as a means of delivering mechanical and biochemical stimuli to cellular microenvironments at unprecedented levels of precision. Here I will present my work in leveraging this technology to investigate the role of fluid mechanical forces, such as intravascular shear stress and transvascular flow, in guiding new vessel formation. More specifically, I will discuss new insights on how endothelial cells sense fluid forces during sprouting, morphogenesis, and lumenized network formation *in vitro*. Furthermore, this presentation will highlight the versatility of microscale technology as it pertains to vascular physiology to enable further exploration of the key physical, cellular, and molecular determinants that coordinate vessel growth.

NOTE: *If you are interested in meeting individually with Dr. Song, please contact Linda at 631-5431*