

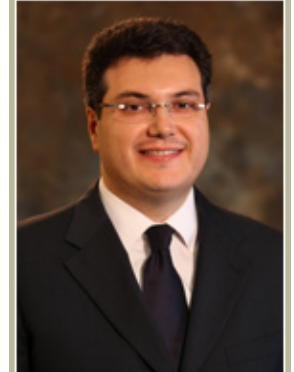


TEXAS TECH UNIVERSITY
Department of Mechanical Engineering

Presents

**Multifunctional Nanoconstructs for Biomedical Applications:
From in Silico Modeling to In Vivo Experiments**

Paolo Decuzzi, Ph.D.
Full Member
Interim Chair
Department of Translational Imaging The
Methodist Hospital Research Institute



Dr. DeCuzzi will be at Texas Tech University on Monday, April 28, 2014, and will present the following lecture:

**Seminar Title: Multifunctional Nanoconstructs for Biomedical Applications:
from in silico modeling to in vivo experiments**

Location: Old Petroleum Engineering Bldg., Room 121
Time: 2:00 p.m. – 3:00 p.m.

ABSTRACT:

Nanoconstructs are multifunctional, particle-based devices for the ‘smart’ delivery of therapeutic and imaging agents. In this lecture, first, an integrated approach will be presented for the rational design of nanoconstructs with high level of accumulation within the diseased tissue and minimal sequestration by the organs of the reticuloendothelial system (liver, spleen, kidneys, lungs). Second, two novel multifunctional nanoconstructs will be presented for the preferential targeting of the tumor vasculature and of circulating monocytes. These nanoconstructs offer superior contrast enhancement for MR and PET imaging and can deploy significant doses of heat, for local hyperthermia and thermal ablation, upon stimulation with alternating magnetic fields or near-infrared radiation. The integrated approach for the rational design of nanoconstructs combines together the in-silico mathematical/computational modeling for the vascular transport and adhesion of blood-borne nanoparticles, in-vitro microfluidic-based assays and in-vivo intravital microscopy analysis in small animals. The multifunctional nanoconstructs are based on polymeric porous nanoparticles with various size and shape combinations.

Monday, April 28, 2014
Petroleum Engineering 121 | 2:00 – 3:00 pm

Coordinator: Dr. Burak Aksak (burak.aksak@ttu.edu)

SHORT BIOGRAPHY:

Paolo Decuzzi is a Full Member Professor of Biomedical and Mechanical Engineering at Houston Methodist Research Institute, Houston (TX-USA), where he is also serving as the Chair ad Interim of the Translational Imaging Department. Dr. Decuzzi earned his M.Sc. degree in Mechanical Engineering from the Politecnico di Bari (IT) and his Ph.D. degree in Mechanical Engineering from the University of Naples – Federico II (IT). He has been a visiting fellow and faculty in several Academic and Research Institutions, including The University of Michigan – Ann Arbor (MI); the Princeton Material Institute – Princeton (NJ); the Heart and Lung Institute at the Ohio State University (OH). Dr. Decuzzi has published over 100 papers in international peer-reviewed journals, international conferences and book chapters; and holds over 5 patents in the field of nanomedicine. He is co-founder and chair of the NEMB (NanoEngineering for Medicine and Biology) committee of the American Society for Mechanical Engineers (ASME), serves on multiple NIH and NSF study sections, and his research activity is primarily supported through NIH, the DoD and the Cancer Prevention Research Institute of Texas.