



**Engineering
& Computing**

FLORIDA INTERNATIONAL UNIVERSITY

**Biomedical Engineering
Wallace H. Coulter Foundation
Seminar Series**

“Development of Polymeric Heart Valve Prostheses”

SPEAKER:

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VENUE:

**FRIDAY, OCTOBER 21, 2011
9:00AM—10:00AM
ENGINEERING CENTER
ROOM EC 2300
10555 WEST FLAGLER STREET
MIAMI, FL 33174**

Abstract: The number of heart valve replacements continues to grow—it has recently reached about 100,000 per year—as the outcomes of these operations improve and congenital heart disease patients grow into adulthood. The development of new fabrication technologies for prosthetic valves has become even more highly desired. The prosthetic heart valve must be functionally comparable to native heart valves while not requiring anti-thrombotic therapy or inducing reactions to the valve material in the host. Currently available options include mechanical valves (cage-ball valves, tilting disk valves, etc.) and bioprosthetic valves (porcine and bovine valves). Without exhibiting the complications associated with bioprosthetic valves, polymeric valves have the potential for improved haemodynamic performance over mechanical valves. In addition, polymeric valves can be mass-produced, resulting in cost-effective devices. However, structural failure as a result of biodegradation and calcification remains a major drawback that impairs the valve longevity. To overcome the current situation, a new polymeric valve design concept was proposed, and the valve fabrication process has been developed to achieve the unique concept. This presentation will introduce the new valve design concept and the progress in the valve fabrication process. The fundamentals and applications of magnetic abrasive finishing (MAF)—a key technology for decreasing blood-cell adhesion on leaflet surfaces—will be also discussed.

Biography: Hitomi Yamaguchi Greenslet has been an Associate Professor in the University of Florida’s Department of Mechanical and Aerospace Engineering since October 2007. Previously, she was an Associate Professor at Utsunomiya University, a Research Associate at the University of Tokyo (both in Japan), and a Research Engineer at Extrude Hone Corporation (Irwin, PA). She has also worked as a Researcher Abroad (sponsored by the Japan Ministry of Education, Culture, Sports, Science and Technology) at NASA Glenn Research Center (Cleveland, OH). Her research topics include Precision machining processes, especially Magnetic field assisted finishing (MAF) processes. She has received several awards, including the Best Paper Award at the 2006 International Conference on Manufacturing Science and Engineering (sponsored by ASME) and the John T. Parsons Outstanding Young Manufacturing Engineer Award (SME) in 2000. Documenting her work with MAF, she has published over 60 refereed journal papers and over 150 proceedings at both domestic and international conferences.

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