



## Neural Prosthesis Seminar

September 26, 2008

8:30 AM to 9:30 AM

Biomedical Research Building (BRB-105)  
Case Western Reserve University

### “The Importance of Neuromechanical Limb Models in the Design of Leg Prostheses and Orthoses”

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**Abstract:**

A long-standing goal in rehabilitation science is to apply neuromechanical principles of human movement to the development of highly functional prostheses and orthoses. Critical to this effort is the development of actuator technologies that behave like muscle, device architectures that resemble the body's own musculoskeletal design, and control methodologies that exploit principles of biological movement. In this lecture, I discuss how agonist-antagonist actuation, polyarticular limb architecture, and reflex behaviors can result in quiet, stable, and economical legged mechanisms for walking and running. Neuromechanical models are presented to examine the importance of limb morphology and neural control on locomotory performance. These models are then used to motivate design strategies for prosthetic and orthotic mechanisms.



*Hugh Herr, Ph.D.*

**Hosted by:**

**Hunter Peckham, Ph.D.**

Donnell Professor of Biomedical Engineering and Orthopaedics  
Case Western Reserve University  
Director, Functional Electrical Stimulation Center  
Louis Stokes Veterans Affairs Medical Center  
MetroHealth Medical Center

*This seminar is sponsored by the FES and the APT Centers - For more information, please contact Cathy Walker at 216-231-3257*

*The Cleveland FES Center is a consortium in Functional Electrical Stimulation technology including the Louis Stokes Cleveland VAMC, Case Western Reserve University, and the MetroHealth Medical Center*

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