Joint Department of
BIOMEDICAL ENGINEERING

C o u l t e r  S e m i n a r  S e r i e s  P r e s e n t s

Rehabilitation Engineering
Tapping Into Spinal Networks to Restore Walking After Spinal Cord Injury

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Prof. Vivian K. Mushahwar received her B.Sc. degree in electrical engineering from Brigham Young University, Provo, UT, USA in 1991 and a Ph.D. degree in bioengineering from the University of Utah, Salt Lake City, USA in 1996. She received postdoctoral training at Emory University, Atlanta, GA, USA in rehabilitation medicine and the University of Alberta, Edmonton, AB, Canada in neuroscience. She is currently a professor in the Department of Medicine, Division of Physical Medicine and Rehabilitation at the University of Alberta, a Canada Research Chair (Tier 1) in Functional Restoration, and a Killam Professor. She is also the director of the Sensory Motor Adaptive Rehabilitation Technology (SMART) Network at the University of Alberta. Her research interests include identification of spinal-cord systems involved in locomotion, development of spinal-cord-based neural prostheses for restoring mobility after spinal cord injury, identification of rehabilitation interventions coupled with neuromodulation for enhancing mobility, and the use of active intelligent wearable devices for preventing secondary complications associated with neurological conditions including spasticity, pressure injuries, and deep vein thrombosis.

ABSTRACT
Spinal cord injury leads to devastating losses of function, most prominent of which is the loss of the ability to stand and walk. Our lab has been investigating ways to tap into spinal networks below the level of injury to restore standing and walking. In this talk, I will describe our efforts to date, explaining our approach and presenting results from the micro-implant we have developed for restoring standing and walking after severe spinal cord injury. The outcomes to date have been very promising, compelling us to begin developing the micro-implant for first-in-human testing.

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Seminar will be presented virtually via Zoom:
https://go.unc.edu/j5W3E