

**Center for
Bioengineering Innovation**
— 2017 Lecture Series —

**The Effects of Amputation and
Walking Surface on the
Regulation of Dynamic Balance**

Dr. Anne K. Silverman

Assistant Professor of Mechanical Engineering
Colorado School of Mines

**Friday, April 21, 2017
2:30-3:30 p.m.
Biology (Building 21), room 265**

Dr. Silverman's Functional Biomechanics Laboratory uses experimental and computational approaches to identify the underlying muscular actions that result in pathological movement patterns. The long-term goal of this work is to develop and evaluate subject-specific interventions that maximize functional mobility.



In this seminar, Dr. Silverman will present her research results, including:

- Quantifying dynamic balance when walking at a variety of speeds, on uphill and downhill slopes, and on stairs using whole-body angular momentum.
- Determining how regulation of dynamic balance changes in people with a lower-limb amputation who have reduced muscle control, but still negotiate stairs and slopes in their daily activities.
- Identifying the key points during the gait cycle when falls are most likely to occur, what conditions result in the greatest fall risk, and how this changes with the use of passive and powered prostheses.

Dr. Anne K. Silverman is an Assistant Professor in the Department of Mechanical Engineering at the Colorado School of Mines. She earned her BSE from Arizona State University and MSE and PhD from The University of Texas at Austin. Her research

program in musculoskeletal biomechanics centers on understanding muscle function to develop effective treatment and device interventions.

As director of the Functional Biomechanics Laboratory, she uses experimental movement analysis and computational whole-body modeling techniques to identify functional roles of individual muscles in pathological movement. These tools are applied to various motions and populations with the ultimate goal of improving mobility for people with disabilities.

**For more information,
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