

## DEPARTMENT OF ELECTRICAL ENGINEERING

COLLEGE OF ENGINEERING & COMPUTATIONAL SCIENCES



### Fall 2017 Colloquium Series

## Extreme-scale Wind Turbines and Distributed Optimal Control of Wind Farms

Tuesday, October 10 | 3:30—4:30 PM | Brown Hall W210

**Dr. Christopher Bay**  
Postdoctoral Researcher  
Colorado School of Mines

**Abstract** — The topics of this seminar will fall into three categories. First, I will briefly present my previous work in building energy systems, including automated energy audits and economic model predictive control applied to buildings. Second, I will present the Segmented Ultralight Morphing Rotor (SUMR) project and discuss the planned demonstrator at the National Wind Technology Center. Third, I will introduce a Distributed Model Predictive Control (DMPC) strategy that we are currently trying to apply to wind farms for the purpose of increasing operational performance through coordinated axial induction control and wake steering.

**Bio** — **Dr. Christopher J. Bay** completed his Bachelor's (2010) and Master's (2012) degrees in Mechanical Engineering at the University of Colorado Boulder, focusing in bio-mechanics and the mechanical properties of the lens in the eye. Changing directions, he attended Texas A&M University to pursue his PhD in efficiency and control of building energy systems. Finishing in the spring of 2017, Christopher is now glad to be back in his home state of Colorado as a Post-doctoral Research Fellow with a joint appointment between Colorado School of Mines and the University of Colorado Boulder. His current research efforts focus on extreme scale wind turbines and optimal wind farm control.