Monday, November 2, 4:00 pm, 306 Snow Hall

Combined Interdisciplinary Seminar & AWM Student Chapter Meeting

Guest Speaker: **Sarah Muldoon,** University at Buffalo, SUNY

Measuring and Moving Brain States

Understanding the brain as a complex network of interacting components provides useful insights into brain function, and one can use measurements of functional network connectivity to quantify brain states over time. In this talk, I'll first describe work using data-driven computational modeling of brain dynamics to test the relationship between regional controllability calculations and the ability of stimulation to impart change in functional network configurations. The second half of the talk will focus on how the detection of brain states can play a role in therapeutic interventions in disorders such as epilepsy. By quantifying brain states immediately before intervention, we can predict whether or not cognitive effort will be successful in suppressing pathological brain dynamics.

Bio:

Dr. Muldoon's initial training was in math and physics at the University of Kansas, and during her graduate studies she received a certificate in complex systems and a Ph.D. in physics from the University of Michigan. Her dissertation combined her interests in network theory and neuroscience, and she furthered her knowledge of neuroscience and epilepsy by initially working in experimental neurobiology labs as a Postdoctoral Fellow before returning to more computational and analytical work. She is currently an Assistant Professor in the Mathematics Department and Computational and Data-Enabled Sciences and Engineering Program at the University at Buffalo, SUNY, and performs research studying the relationship between structure and function in brain networks.