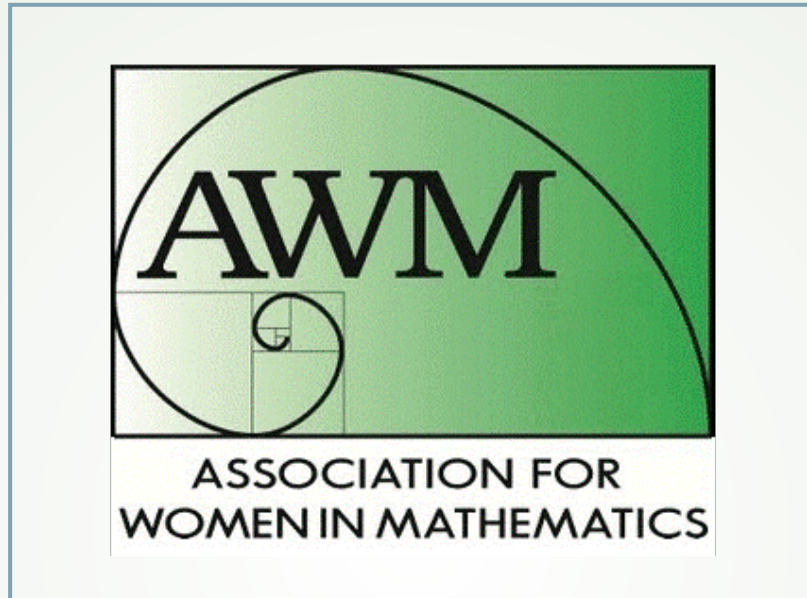


UB's AWM Lecture Series Presents:

DR. SARAH MULDOON

MONDAY NOVEMBER 7TH

AT 5:00PM



Located in Math 250.



QUANTITATIVE NETWORK NEUROSCIENCE: HOW MATHEMATICIANS CAN CONTRIBUTE TO BRAIN RESEARCH

In the past decade, the field of neuroscience has benefited from myriad experimental advances, allowing researchers to explore the brain at across multiple spatial and temporal scales with ever increasing resolution and sensitivity. Along with this wave of new information has come a need to develop novel methods and techniques for visualizing, quantifying, and comparing data across scales and modalities. Network theory – the art of mapping physical systems to mathematical graphs – provides an attractive methodology to study the brain, but also requires the development of new techniques to (i) identify network nodes and connections from large data sets and (ii) measure and interpret subtle differences in topological features of brain networks. In this talk, I'll discuss my journey from math to physics to neuroscience (and back to math!) research and how quantitative researchers are helping to drive new areas of brain science. Finally, I will highlight some of the different types of data sets that are studied in network neuroscience and describe specific projects my group is working on to extract and measure network topology from diverse modalities ranging from single neuron imaging to whole brain fMRI datasets.