COGNITIVE SCIENCE COLLOQUIUM

Friday, April 14, 2017
12:00 – 1:30 p.m.
Speech, Language, and Hearing Sciences Building, Room 205

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TITLE: Repetitive Transcranial Magnetic Stimulation and Functional Connectivity Mapping in Clinical and Psychological Research

ABSTRACT: Repetitive transcranial magnetic stimulation (rTMS) is a non-invasive neuromodulation technique that has been closely examined as a possible treatment for a number of diseases. Although accumulating evidence suggests that rTMS can be utilized to enhance motor or cognitive function in clinical populations, little is known about how the rTMS modulates brain activities and how these changes correlate with improvement of function.

Functional connectivity measured by resting-state fMRI has played an essential role in understanding brain functional networks in healthy individuals and clinical populations. Resting-state functional connectivity is defined as the temporal co-activation level of spontaneous fMRI signals between spatially distinct brain regions when participants are not required to perform a perceptual or behavioral task.

In this talk, Dr. Ying-hui Chou will first present an overview of rTMS and resting-state connectivity separately. Then she will talk about her research that combines both rTMS and resting-state connectivity to investigate the therapeutic rTMS effects on brain connectivity. The long-term goal of Dr. Chou’s lab is to adopt a multi-modal approach that combines rTMS and resting-state functional connectivity in conjunction with other brain imaging techniques to leverage the applications of rTMS and resting-state functional connectivity in the study of both normal and pathological conditions.