



Biomedical Engineering Seminar Series

2nd Semester, Academic Year 2016

Date: February 28, 2017

Time: 10.00-11.00 AM

**Room 6373, 3rd level, Building 3,
Department of Biomedical Engineering,
Faculty of Engineering;
Mahidol University**



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"UNDERSTANDING OF HUMAN BRAIN DYNAMICS BY TRANSCRANIAL MAGNETIC STIMULATION "

Transcranial Magnetic Stimulation (TMS) is the application of a brief magnetic pulse or a train of pulses to the skull, which results in an induction of local electric current in the underlying surface of the brain, thereby producing a localized axonal depolarization. As a non-invasive and effective method to make reversible lesions in the human brain, TMS has a long and successful history. Now it has become a major tool of cognitive neuroscience and a treatment method for various neurobehavioral disorders. TMS can be used to stimulate the cortex to produce visual percepts or movements. It is more suitable to provide reversible disruption of activity in the cortex with millisecond accuracy. Because TMS has high temporal and spatial resolutions, it can investigate not only the spatial localization but also the time course of mental processes.

TMS is noninvasive and less painful than direct electric stimulation through surface electrodes placed on the head. It is useful not only for measurement and diagnosis but also, for the treatment or potential cure for mental illnesses and central nervous system diseases such as depression and Parkinson's disease.

In this seminar, I will give the overview of the TMS, such as history, principle, characteristics and application to the cognitive study which performed our laboratory.

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