

# IEM SEMINAR SERIES

TUESDAY  
MARCH 22<sup>nd</sup>, 2016

## Technology meets Psychiatry: Transcranial Magnetic Stimulation (TMS) Therapy for Neuropsychiatric Disorders



Institute for  
Engineering in Medicine

UNIVERSITY OF MINNESOTA  
**Driven to Discover**<sup>SM</sup>

### DR. LINDA CARPENTER

Professor of Psychiatry and Human Behavior  
Brown University



FREE event, no registration  
required.

Pizza and drinks will be  
provided at 12:00pm.

**12:15PM - 1:15PM**

**Nils Hasselmo Hall  
Room 2-101**

For additional information on  
Dr. Carpenter's presentation,  
please contact:  
**scot0353@umn.edu**

The Institute for Engineering in Medicine (IEM) is pleased to announce the IEM Seminar by Dr. Linda Carpenter, "Technology meets Psychiatry: Transcranial Magnetic Stimulation (TMS) Therapy for Neuropsychiatric Disorders."

Various novel neuromodulation and neurostimulation devices have been investigated in the past decade, with some making it to market in recent years, and one - Transcranial Magnetic Stimulation (TMS) - emerging as a psychiatric standard of care for treatment of depression that does not get better with antidepressant medications. In 2008 the FDA approved the first device for delivery of TMS therapy to adults with Major Depressive Disorder (MDD) and now there are four (for depression), with several others in clinical trials investigating efficacy and safety of TMS for other therapeutic indications. Advances in neuromodulation research suggest there are ways to customize and further enhance the antidepressant effects of TMS, as well as to expand the portfolio of noninvasive neuromodulators with greater device portability and suitability for long-term use. Maintaining antidepressant benefits over time, customizing stimulation for the individual brain pathology of each patient, and making neuromodulatory devices portable and safe for home use are research goals. We will contrast TMS to emerging treatments for psychiatric disorders such as Deep Brain Stimulation (DBS) and Vagus Nerve Stimulation (VNS). In this presentation we will introduce and review the growing evidence base arising from neurotherapeutic technologies, addressing practical questions about patient selection and implementation of these novel therapies in modern psychiatry practice as the standard of care.

Dr. Carpenter completed her undergraduate degree in honors psychology at the University of Michigan, then worked in the Mood Disorders Research Program at the Western Psychiatric Institute in Pittsburgh, concurrently completing post-baccalaureate premedical coursework at the University of Pittsburgh. She obtained her M.D. from the University of Pennsylvania and went on to complete an internship in internal medicine, a residency program in psychiatry, and a clinical neuroscience research fellowship at Yale University.

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