

# 脳科学クラスターコアセミナー 開催のご案内

この度 脳科学クラスターコアセミナーを開催することとなりました。  
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謹白

記

日時 : 2020年 2月28日 (金) 17:00~18:30  
場所 : 徳島大学 基礎第一講義室 (医学基礎B棟1階)

座長: 徳島大学大学院医歯薬学研究部 脳神経外科学分野  
森垣 龍馬

講演 17:00~18:30

## 「Multi-Modal Interfaces for Probing Chemical and Electrical Neural Activity Long-Term」

McGovern Institute for Brain Research  
Koch Institute for Integrative Cancer Research  
Massachusetts Institute of Technology

**Helen N. Schwerdt**

**Abstract:** Dopamine neurochemicals govern key behaviors including movement and motivation. Dopamine dysregulation is linked to most forms of mood disorders, Parkinson's disease, and many other neurological and neuropsychiatric disorders. In Parkinson's disease, there is a massive loss of dopamine and an abnormal elevation of beta-band electrical signaling throughout the brain, and these are highly correlated with the debilitating loss of normal motor and mood functions. Techniques that allow long-term tracking of these neurochemical and electrical neural signals are needed to identify and intervene at the sources of these diseases.

I will present on my work focused on addressing key unmet needs in neurochemical interfacing: long-term stability, multi-site monitoring, and synchronous measures of electrical and chemical forms of neural activity. I will describe recent advances in chronic monitoring of dopamine in rodents and primates, where we were able to record these chemical signals over the longest periods following implantation (> 1 year). We recently created multi-modal interfaces to record, for the first time, both chemical and electrical neural activity concurrently. These systems were employed to investigate directly the link between dopamine and beta-band oscillations, prevalent biomarkers of Parkinson's disease, in behaving primates (rhesus monkeys). We further explored the link between these chemical and electrical neural signals and the control of mood and movement behavioral variables that are compromised in Parkinson's. Finally, I will describe my goals of leveraging these new tools to build systems to improve diagnosis and treatment of human disorders.

\* 本講演会は、大学院医科学教育部、栄養生命科学教育部、口腔科学教育部の大学院特別講義ならびに、クラスターコアセミナー(脳科学クラスター)を兼ねています。

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