



## OptoDBS2024: re inventing neuromodulation

>>> Meeting with course option for  
LNDS candidates

**Date:** June 12-14, 2024

**Place:** [Campus Biotech, Chemin des Mines 9, 1202 Genève](#)

### **1.5 ECTS (incl. assessment task)**

Pathological circuit function is at the origin of many symptoms of neurological and psychiatric disorders. Over the last years, the optogenetic toolbox applied to animal models of behavioral diseases has led to decisive progress yielding blueprints for novel treatments. The challenge is to implement such approaches with current circuit interventions approved for human use such as deep brain stimulation. Optogenetic circuit investigations in rodent models may thus inspire novel rational treatments for diseases without cure.

OptoDBS 2024 will discuss the state of the art of current therapies for DBS and ask how a better understanding of neural circuit dysfunction in pathology could inspire novel protocols. A particular emphasis will be on novel DBS indications such as obsessive-compulsive disorders (OCD), depression or addiction. Cutting-edge optogenetic presentations will interleave with clinical studies from leading experts. Details of the meeting program can be found [here](#).

*For LNDS candidates, the participation to local symposia or national conferences usually warrants entries on a "seminar sheet" (12 entries = 1 ECTS) as these events do not provide the possibility to assess students' learning achievements.*

The meeting organizers yet provide LNDS students with the opportunity to participate in a "course version" of the event where 1.5 ECTS can be obtained when doing the following:

- Participating to a **meeting primer** introducing PhD candidates to the background of the research field and general hypotheses and working principles. This priming session will take place from 10-12h on June 12 @ CMU Geneva (room tbd). Participants will have to prepare by reading the 3 introductory papers provided.
- Participating in the OptoDBS from June 12-14 (for free).
- Provide a post-meeting 1-page term paper sketching a potential future project in OptoDBS research (before August 1, 2024); to be submitted to [ln ds@unil.ch](mailto:ln ds@unil.ch) (papers will be collectively forwarded to the course organizers for evaluation). If you present a poster or give a talk ... no need to do the term paper ...

**To register for the meeting (for free) incl. the 1.5 ECTS credit option, please fill the [LNDS REGISTRATION FORM](#) before May 1 (these registrations will be forwarded to the conference organizers; do not register on the OptoDBS website in parallel!!!!)**

### **Papers to be read for the priming session**

Refining deep brain stimulation to emulate optogenetic treatment of synaptic pathology

Creed, M.C., Pascoli, V., Lüscher, C., 2015. Refining deep brain stimulation to emulate optogenetic treatment of synaptic pathology. *Science*. doi:10.1126/science.aaa0196

Deep Brain Stimulation for Treatment-Resistant Depression

Mayberg, H.S., Lozano, A.M., Voon, V., McNeely, H.E., Seminowicz, D., Hamani, C., Schwab, J.M., Kennedy, S.H., 2005. Deep Brain Stimulation for Treatment-Resistant Depression. *Neuron* 45, 651–660. doi:10.1016/j.neuron.2005.02.014

Manipulating fear associations via optogenetic modulation of amygdala inputs to prefrontal cortex

Klavir, O., Prigge, M., Sarel, A., Paz, R., Yizhar, O., 2017. Manipulating fear associations via optogenetic modulation of amygdala inputs to prefrontal cortex. *Nat. Neurosci.* 20, 836–844. doi:10.1038/nn.4523