

JOINT LECTURE SERIES

CLINICAL RESEARCH ON INNOVATIVE HEALTHCARE

Tuesday 18 October - 16:00-17:30, Hybrid Meeting

Centre Hospitalier du Luxembourg (CHL) - Amphitheater

& WebEx: <https://tinyurl.com/innovhealth3>

[access code: 2733 901 4904

password: Whpmmp8xZ36 (94766789 from phones)]

ADVANCES IN TARGETED MOTOR CIRCUIT INTERVENTIONS FOR MOVEMENT DISORDERS



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Impaired mobility and abnormal movements are a major source of disability in neurological diseases. Neuromodulation that applies therapeutic electric currents or magnetic fields to the brain has demonstrated the ability to restore motor deficits in movement disorder patients, as best exemplified by deep brain stimulation in Parkinson's disease (PD), which can reverse the motor symptoms of PD.

In recent years, the clinical phenomenology of many brain disorders has been reinterpreted as dysfunction of task-specific brain circuits or "circuitopathies". This paradigm shift from local effects to distributed brain networks allows a unifying pathophysiological classification of neurological or psychiatric symptoms and the development of circuit-specific neuromodulation therapies. In this framework, synchronized oscillatory activity is the basic principle for communication between local and distant brain areas. Disruption of network activity, irrespective of the underlying cause, leads to functional impairment through common effector pathways.

This lecture will summarize our current physiological understanding of neuromodulation effects and discuss clinical used cases. Moreover, technological advances and clinical and translational research opportunities for next generation neuromodulation therapies will be introduced.

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