

IRCIN Seminar IRCIN セミナーのご案内

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“Transitory brain dynamics behind typically/atypically developing human brains”

『ヒト脳の定型・非定型発達とその遷移的神経ダイナミクス』

Tuesday, December 11, 2018

14:00 - 15:00

IRCIN Seminar Room

13F Experimental Research Building, Faculty of Medicine, Hongo Campus

Abstract:

Theoretically, flexible but often rigid human cognition should be underpinned by dwelling and transition of a whole-brain neural activity pattern. Until recently, however, such transitory global brain dynamics were poorly understood mainly due to the difficulty in characterising spatio-temporally high dimensional neural data.

In this seminar, first, I will talk about the possibility that “energy-landscape analysis” could be a key method to address such a situation. In healthy humans, this data-driven approach successfully depicted transitory brain dynamics during fluctuating visual consciousness, and indicated a biological mechanism underlying age-related changes in cognitive skills. In autistic individuals, this method revealed that both their symptoms and unique cognitive skills are attributable to their atypically over-stable brain dynamics.

I will also present recent findings of atypicality in local brain dynamics in autistic individuals and discuss how such atypical local neural dynamics could induce the aberrant global transitory brain dynamics in autism. Finally, I will talk about how we can exploit these observations for the development of new non-invasive treatments of this prevalent neurodevelopmental disorder.

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