Large-scale spatial trends in cortical organization

Organizer:
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Mapping the cerebral cortex has predominantly focused on the delineation of discrete areas and networks. However, this assumption of discrete modularity has long been debated. With the recent landmark advances in cortical parcellation, our symposium on large-scale trends aims to introduce the OHBM community to this alternative view of brain organization.

We explore this topic through four areas of research: cortical microstructure, individual-level network organization, spatial distribution of cognitive function, and multimodal organization of the frontal lobes. This symposium is organized around four experts in the field developing complementary approaches. The four lectures will show that (1) common trends in intracortical myelin and connectivity as assessed with submillimeter resolution 7T MRI data, (2) fractionation of individual-level networks occur along consistent group-level gradients, (3) the default-mode network is located along a continuous structural and functional axis from other large-scale systems, and (4) clear anatomical signatures support the cognitive model of antero-posterior organization of the frontal lobes. Together these results demonstrate that the brain is organized in large-scale structural/functional gradients.

Symposia Schedule:

8:00-8:15
Multimodal trends in frontal lobe organization
Michel Thiebaut de Schotten, Brain Connectivity and Behaviour Group, Paris, France

8:15-8:30
A topological perspective on the functions of the default mode network
Jonathan Smallwood, *The University of York, York, United Kingdom*

8:30-8:45
A systematic relationship between cortical microstructure and connectivity gradients
Julia Huntenburg, *Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany*

8:45-9:00
Characterization of distributed network architectures within the individual
Rodrigo Braga, *Harvard University, Cambridge, MA, United States*

9:00-9:15
Questions and Answers