

Brain parcellations and functional territories

Organizers:

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Over the past century and an half, human brain mapping consisted in pinning small functionally responsive areas within the brain. However the real extent of these areas and their eventual overlap remains unknown. The challenge now facing neuroscience is to define boundaries for functionally responsive areas at the group and the individual level. Many approaches parcellating the brain in areas with different features became recently available including post-mortem and in vivo architectonics, tractography-based connectivity, functional coactivation, and resting state functional connectivity. However, what these methods really measure and what conclusion can be drawn, are not yet fully clear to the scientific community. This course addresses this need and is intended for a large audience of research scientist (e.g. from beginner to advanced level).

Course Schedule:

8:00-8:40

PART I Parcellate the brain using anatomical features: Histological and microstructural architecture

Paula Croxson, Mount Sinai, New York, NY, United States

8:40-9:20

PART I Parcellate the brain using anatomical features: Tractography based subdivision.

Michel Thiebaut de Schotten, Brain Connectivity and Behaviour Group, Paris, France

9:20-10:00

PART II Parcellate the brain using functional features: Functional MRI coactivation parcellation

Danilo Bzdok, Research Center Julich, Julich, Germany

10:00-10:15

Break

10:15-10:55

PART II Parcellate the brain using functional features: Resting state functional connectivity.

Abraham Snyder, Department of Neurology, Washington University in St. Louis, St. Louis, MO, United States

10:55-11:35

PART III Multi-modal Parcellation of the Human Cerebral Cortex.

Matthew Glasser, Washington University in St. Louis, St. Louis, MO, United States

11:35-12:00

Questions and Answer