

Brain parcellations and functional territories

Half Day Afternoon Course / 13:00-16:30

Organizers:

Michel Thiebaut de Schotten

BCBlab, France

Paula Croxson

Icahn School of Medicine at Mount Sinai, United States

Over the past century and a 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 scientists (e.g. from beginner to advanced level).

Course Schedule:

13:00-13:35

Parcellate the brain using anatomical features: Histological and microstructural architecture

Paula Croxson, Icahn School of Medicine at Mount Sinai, United States

13:35-14:10

Parcellate the brain using anatomical features: Tractography based subdivision

Michel Thiebaut de Schotten, BCBlab, France

14:10-14:45

Parcellate the brain using functional features: Functional MRI coactivation parcellation

Danilo Bzdock, Research Center Julich, Germany

14:45-15:00

Break

15:00-15:35

Parcellate the brain using functional features: Resting-state functional connectivity subdivision

Lucina Uddin, Department of Psychology, University of Miami, United States

15:35-16:10

Mapping gradients in functional topographies using resting-state functional connectivity

Daniel Margulies, Max Planck Institute for Human Cognitive and Brain Sciences, Germany

16:10-16:30

Questions and Answers