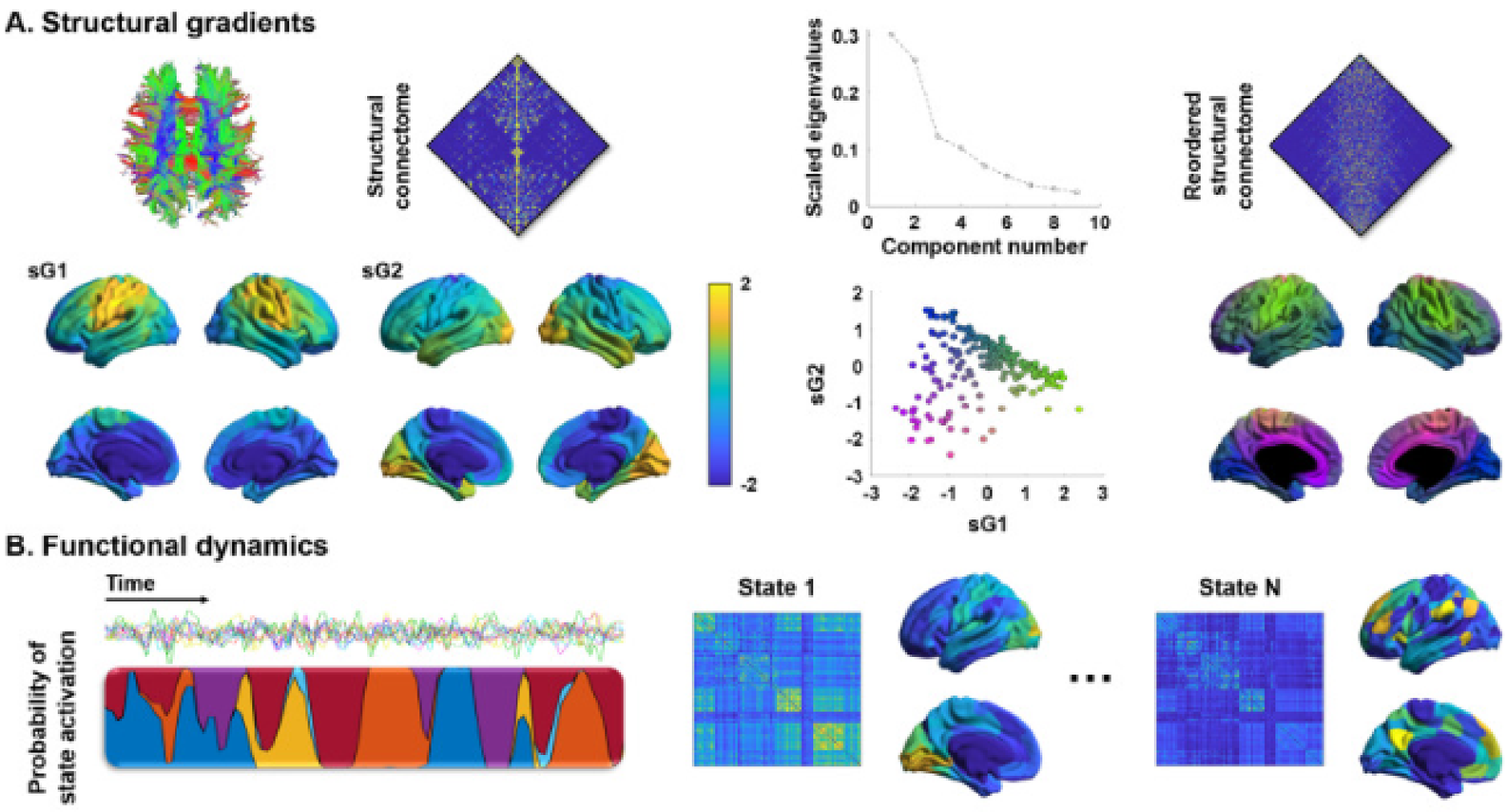
PADOVA neuroscience CENTER

1 FEBRUARY 2024, 3:00 PM
SALA SEMINARI VIMM

PNC DISTINGUISHED LECTURES

A talk by Daniel Margulies
(Centre national de la recherche scientifique (CNRS), University of Paris)

CORTICAL GRADIENTS OF FUNCTIONAL INTEGRATION



Understanding how the cerebral cortex transforms distinct sources of information into cohesive experiences requires knowledge of how functional integration emerges from cortical structure. Insights into functional processing streams indicate that cortical areas are arranged stepwise, representing functional gradients along the cortical surface. Having been largely restricted to describing processing within specific sensory modalities, how do these principles generalize and extend to the surrounding association cortex? Building on recent work characterizing a principal axis of cortical organization, I will present a line of research that investigates the role of cortical geometry in enabling convergence across distinct modalities. By describing how the spatial layout of the cerebral cortex shapes its function, this line of research proposes a framework for understanding structural constraints that contribute to the integrated nature of cognition.

Daniel Margulies is CNRS Research Director, UMR 8002, Integrative Neuroscience & Cognition Center, University of Paris.

His research investigates the organization of large-scale brain networks, primarily through the analysis of intrinsic activity as measured with functional magnetic resonance imaging (fMRI). He has developed approaches to define subregions within complex cortical areas, conducted cross-species comparative neuroanato-mical studies, and related variation in these networks to phenotypic differences across individuals.

His current research addresses the emergence of network topography and its relationship to cortical structure.