

Exploring the Structure and Function of Neuron-Glial Attractors

Speaker

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Abstract

Healthy brain function depends on the intricate interplay between neurons and glial cells, particularly astrocytes, which are ubiquitously present in the cortex. Two fundamental open questions in the field are how neuron-astrocyte circuits are anatomically organized and how this structural framework gives rise to cognitively relevant functions. While the astrocyte connectome remains largely uncharted, the characterization of neuron-astrocyte graphs by tripartite synaptic connections—where astrocytes both sense and modulate synaptic transmission—offers a compelling theoretical foundation to define a new class of astrocyte-mediated attractors in neural dynamics. In this talk, we explore the emergence of these attractors in the context of multistable working memory tasks. Additionally, we examine some anatomical constraints that might shape their formation, aiming at providing key insights into the structural principles governing astrocyte physiology.



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