

Saints Pères Neuroscience Seminar Series

Friday, January 17th, 2020 at 11:30

Salle des Conférences (R229)

Centre Universitaire des Saints-Pères

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Dissecting Cognitive Complexity in a Miniature Brain

Honeybees possess miniature brains but exhibit a sophisticated behavioral repertoire. In the last decades, bees have emerged as useful models for the study of the neural bases of simple forms of associative learning based on their capacity to learn elemental, univocal links between olfactory or visual stimuli and appetitive sucrose reinforcement. Recent work has shown the robustness of such learning and of the memories derived from it. Moreover, experiments by our team uncovered unsuspected cognitive capabilities in these insects such as conceptual forms of learning and a sense of numerosity, which require an explanatory level beyond that of elemental learning. I will discuss some of these findings, focusing on capabilities such as attentional modulation, non-elemental pattern discrimination and concept learning, and discuss their mechanistic bases in an attempt to trace them down to specific circuitries and neuromodulatory processes in the insect brain. In doing this, I will highlight experimental challenges and suggest future directions for investigating the neurobiology of higher-order learning in insects, with the goal of uncovering basic neural architectures underlying cognitive processing.

Those interested in meeting with the speaker please contact

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