

IGSN - COLLOQUIUM

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Place cell firing and goal-directed behavior

Spatial navigation involves a widespread neural network, which includes head direction and entorhinal grid cell systems, as well as brain structures important for the emergence of goal-directed behaviour, such as prefrontal cortex and striatum. At the core of this network lies the hippocampus and its place cells, discovered more than 40 years ago. When recording from a rat performing spatial navigation, these cells have remarkable functional properties that I will summarize.

The stability of place fields is an essential feature of place cells. Nevertheless, place cell discharge can also be extremely variable, a property deemed necessary for ensuring the network flexibility required for efficient coding of spatial information. Furthermore, the discharge of place cells can be time-locked to particular phases of the navigation task (e.g., at goal locations). The firing properties of place cells during goal-directed spatial behaviours help understand the fundamental role of the hippocampus in spatial navigation.

Host:

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Guests are welcome.

