

Conférence publique – Lundi 16 octobre 2017 – 14h00  
Salle E 206 - UFR LSHS  
UNIVERSITE PARIS 13 Sorbonne Paris Cité

## The emergence of navigational behaviour in insects. *Antoine Wystrach*

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Navigating in the world is a challenge shared by most animals. Typically, navigation requires the coordination between different type of behavioural actions (e.g., choosing a direction, going forward etc...) and the control mechanisms that 'triggers' these actions is often characterised as decision making. But given the continuous nature of the sensory world, one can wonder how 'distinct' actions are generated. How can quantities become qualities? In the first part of this talk, we will see that distinct actions can spontaneously emerge from simple, continuous processes without the need to 'trigger' or 'select' actions. Such processes can provide a generalist solution to various navigational tasks from simple taxis behaviour as observed in fruit fly larva to complex visual route following as observed in ants. In the second part of this talk, we will see that ants construct additional, more sophisticated representations. These enable the higher behavioural flexibility required to solve more challenging navigational tasks, such as being displaced by wind, or needing to drag a heavy cookie backward. Overall, this research exemplifies how naturalistic observations and bottom-up research can help us understand how simple mechanisms can underlie the apparent complexity of behaviour.