

## Neuroscience Seminar Series

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**Friday, April 15<sup>th</sup>, 2016 at 11:30**

Salle des Conférences (R229)

Centre Universitaire des Saints-Pères

45 rue des Saints-Pères, 75006 Paris

**Jean-Louis Deneubourg**

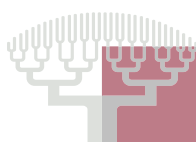
*Professor*

*Université libre de Bruxelles, Belgium*

### *Collective patterns resulting from social behavior*

*Information processing in decentralized systems is a core concept in biology and, in particular, in social and gregarious arthropods. A key question is how a collective decision emerges and how its resulting spatial pattern contributes to the information storage and processing by the group members. An essential feature of such systems is the existence of a diversity of spatial patterns and collective responses depending on a subtle interplay between individual interactions and environmental constraints. We will explore different situations where the environmental characteristics shape the decisions at the collective level. Experimental and theoretical approaches demonstrate that (1) collective choices can emerge through interactions between identical individuals without a perfect knowledge of the entire environment or in absence of leadership; and (2) individuals within a group dramatically outperform the problem solving ability of one single individual. We will also discuss how the complexity at the individual level and the subsequent functionality increase the efficiency of the collective response. Our research points towards a generic self-organized collective decision-making process shared by many group-living organisms.*

Those interested in meeting with the speaker please contact  
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*Les Sciences de l'Homme et de la Santé*