PARIS LODRON UNIVERSITÄT SALZBURG

Psy-Talks

Department of Psychology & Salzburger Gesellschaft für Psychologie

Talk on Thursday, 30. October 2025
Start: 14:15 till 15.30 Uhr
in HS 424
The talk will be presented in English

Rhythms of collective action

Prof. Dr. Tzvetan Popov

Universität Zürich

Neurons form a coalition to drive a change in the behavior of downstream peers or to initiate movement in the host body. Individual neurons' behavior is shaped by an emergent rhythm termed neuronal oscillation, in turn enabling action - the enabler of perception. According to this premise, individuals (or individual neurons) generate a rhythm that once established, enables a collective message (decision) that is communicated to a downstream receipt. In this talk, I will propose a means of collective communication and action with a remarkable application span, from groups of neurons to groups of slugs, insects, fish, fowl, mammals and plants, that facilitates collective action at all behavioral scales. At the center of this mechanism are propagating oscillations both generated by and guiding, managing, and constraining the behavior of those groups. Based on identical operational principles such as excitation, inhibition and synchrony (neurons), attraction,repulsion and alignment (swarms) or approach, avoidance and trust (society), active control of sensors is a primordial necessity for all mobile organisms. Across taxa, movement entails collective action governed by rhythm, in turn reducing the individuals' degrees of freedom in acting against the collective decision. The emergence of electromagnetic rhythms is preserved in states that require simultaneous action, facilitating interaction with the environment. This, in turn, guides the decisions of the host organism in the pursuit of survival.

Siehe: www.plus.ac.at/psychologie/fachbereich/sgp/vortragsreihe/