

“Frontiers in Science” Seminar

Dr. Redouan Bshary

University of Neuchâtel, Switzerland

Title : Game and Strategies in a Marine Cleaning Mutualism

Date & Time : August 27, 15:00~16:30

Venue : Sci. Bldg., E211 (Sugimoto C.)



Abstract: As evolutionary theory emphasizes competition, any forms of helping has attracted considerable attention. While altruistic helping can be readily explained with kin selection, a variety of concepts is needed to explain cooperation within and mutualism between species. Borrowing from economics, these concepts are typically illustrated with simple games, of which the iterated prisoner's dilemma is the most famous example. My aim is to share my current thoughts about why we need to get beyond such simple games to integrate evolutionary game theory and empirical research. I will illustrate my points with our research on marine cleaning mutualism, where cleaner fish *Labroides dimidiatus* remove ectoparasites from 'client' fish. Various conflicts of interest exist, mostly because cleaners prefer to eat the protective client mucus but also because clients may compete over priority of access. Consequently, this mutualism yields a great variety of different cooperation games.



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“Frontiers in Science” Seminar

Dr. Zegni Triki

University of Neuchâtel, Switzerland

Title : Empirical Evidence from Fishes on the Relationship Between Ecology, Cognition and the Brain

Date & Time : August 28, 15:00~16:30

Venue : Sci. Bldg., E211 (Sugimoto C.)



Abstract: The topic of animal “intelligence” is currently a subject of extensive research. Animals, including invertebrates, demonstrate remarkable cognitive abilities, ranging from simple associative learning to complex strategies. Understanding the variations in brain complexity, including morphology and functionality, and how they contribute to cognitive abilities is crucial for comprehending cognitive development and evolution in animals. Fish, with their highly plastic brains, are an ideal clade for asking these questions. By studying different populations of various fish species, including those raised in labs and those caught in the wild, we were able to explore and experimentally test the brain-cognition link under different ecological conditions. In doing so, we employed an array of interdisciplinary methods and techniques to reach an integrative answer to such a broad question. The findings, so far, indicate that ecological pressures play a significant role in driving brain growth, organization, and cognitive abilities even at a relatively short ecological timescale. This suggests that these changes are a result of adaptation to the current ecological conditions, similar to how a species would evolve to adjust to its average ecology.



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