



Radolfzell Colloquia

Speaker invited by: Dept. Wikelski, Radolfzell

Thursday, März 5, 2015, 13:00 h, **RADOLFZELL**
(VIDEOCONFERENCE in Seewiesen, **house 5, seminarroom 0.23!**)

A Metropolis run by Mini-Brains: The Life of Leaf-Cutting Ants

Prof. Christoph Kleineidam

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My work aims to better understand the neuronal basis of behavior and its consequences for social organization in insects. What are the proximate (neuronal) mechanisms for individual behavior, and how does individual behavior impact social decision-making? To approach this question, I work on two different sensory systems: odor recognition and temperature perception. More specifically, my group and I investigate the mechanisms of odor pattern recognition, especially trail following behavior in leaf-cutting ants and nestmate recognition in carpenter ants. Beside behavioral and neurophysiological investigations, we dissect the genetic basis of odor-guided behavior by identifying the differential expression of olfactory receptor coding genes. We also address the question how temperature is perceived, and how the sensory system gathers information that allows highly sensitive and fine-tuned temperature-guided behavior in social insects. In both systems, I am interested in inter-individual variability, its consequences for task-allocation and the emergence of division of labor.

Selected publications:

- -Kirschner, S. and Kleineidam, C. J. and Zube, C. and Rybak, J. and Grunewald, B. and Rossler, W. (2006). Dual olfactory pathway in the honeybee, *Apis mellifera*. *Journal of Comparative Neurology*. **499** (6), 933–952.
- -Kleineidam, C. and Roces, F. (2000). Carbon dioxide concentrations and nest ventilation in nests of the leaf-cutting ant *Atta vollenweideri*. *Insectes Sociaux*. **47** (3), 241–248.
- -Zube, C. and Kleineidam, C. J. and Kirschner, S. and Neef, J. and Rossler, W. (2008). Organization of the olfactory pathway and odor processing in the antennal lobe of the ant *Camponotus floridanus*. *Journal of Comparative Neurology*. **506** (3), 425–441.
- -Kleineidam, C. and Ernst, R. and Roces, F. (2001). Wind-induced ventilation of the giant nests of the leaf-cutting ant *Atta vollenweideri*. *Naturwissenschaften*. **88** (7), 301–305.