



Seewiesen Colloquia

Speaker invited by Dept. Manfred Gahr

Thursday, April 04, 2013, 13h, House 4, Lecture Room

Temporal patterning of vocalizations – a lesson from vocalizing fish

Boris Chagnaud

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Vocalizations require perfect neuronal control to be executed in a meaningful way. While we have a basic understanding of the way vocalizations are patterned in higher brain centers, we almost entirely lack information about the final patterning of vocalizations that occurs in the hindbrain. This is mainly due to respiratory influence on vocalizations and the difficult accessibility of hindbrain structures in birds and mammals. Using vocalizing fish, that share an evolutionary ancient and conserved hindbrain compartment in all vocalizing vertebrates, we have elucidated the neuronal elements that contribute to the patterning of vocalizations in singing fish. Our results show that separate hindbrain compartments code for vocalization frequency and duration respectively.

Who is Boris Chagnaud?

- 2011 to present Scientific assistant at the Division of Neurobiology of the Ludwig-Maximilians-University Munich, Germany. Laboratory of Prof Dr. Hans Straka.
- 2007 to 2011 Postdoctoral research associate. Department of Neurobiology and Behavior, Cornell University, USA. Laboratory of Andrew H. Bass, Ph.D.
- 2007 Postdoctoral research associate. Center for Neurodynamics, University of Missouri - St. Louis, USA. Laboratory of Lon A. Wilkens, Ph.D.
- 2003 to 2006 PhD Department of Comparative Neurophysiology, University of Bonn, Germany. Laboratory of Prof. Dr. Horst Bleckmann.

Selected publications:

- Bass A. H, Chagnaud B. P. (2012) Shared developmental and evolutionary origins for neural basis of vocal-acoustic and pectoral-gestural signaling. *Proceedings of the National Academy of Sciences USA* 109: 10677–10684
- Chagnaud B. P. Zee M. C., Baker R. and Bass A. H. (2012) Innovations in motoneuron synchrony drive rapid temporal modulations in vertebrate acoustic signaling. *Journal of Neurophysiology* 107: 3528–3542.
- Chagnaud B. P., Baker R., Bass A. H. (2011) Vocalization frequency and duration are coded in separate hindbrain nuclei. *Nature Communications* 2:346. DOI: 10.1038/ncomms1349