

RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITÄT BONN
Fachgruppe Biologie

Zoologisches Forschungsmuseum Alexander Koenig

Biologisches Kolloquium

Wintersemester 2017/2018

Montag, den 13. 11. 2017, 17 Uhr c.t.

im Hörsaal Zoologie, Poppelsdorfer Schloss

Prof. Dr. Rüdiger Krahe

Humboldt-Universität zu Berlin

“The real-life challenges of acquiring sensory information: the electrosensory world of weakly electric fish“

Einladung: Prof. Dr. G. von der Emde (Institut für Zoologie)

Abstract:

Most research on mechanisms of sensory processing is done in lab environments using standardized sets of stimuli to probe the nervous system. This contrasts with the fact that we know remarkably little about the complexities and challenges under which sensory systems have to function under natural conditions, in the respective animals' natural habitats. I will present several approaches we have been using to characterize the real-life tasks and challenges one such system has to deal with, the active electrosensory system of weakly electric fish. These fish generate weak electric fields and sense perturbations of the field resulting from nearby objects in the water or from the electric fields produced by conspecifics. This active electric sense allows the fish to forage and communicate at night and in turbid water. I will present data on the roles of biotic and abiotic factors that shape the acquisition of electrosensory information and on the natural sensory stimuli encountered by electric fish in their tropical rainforest habitat. One surprising insight of this work has been that important natural stimuli (reproduction-related) are far outside of the best tuning of the electrosensory system and that their sensory processing has not been addressed by previous neurophysiological research.