

**Institut für Zoologie der Universität Bonn
Poppelsdorfer Schloß**

Zoologisches Kolloquium

Mittwoch, 25. Januar 2012

12 Uhr c.t., Hörsaal, Institut für Zoologie

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„The neuroethology of communication signals in the wave-type weakly-electric fish *Apteronotus leptorhynchus*“

Weakly-electric fish emit an electric organ discharge (EOD) for electrolocation as well as for communication. In the wave-type Brown Ghost Knife fish, *Apteronotus leptorhynchus*, several communication signals have been identified. Chirps, transient increases in their otherwise very stable EOD frequency, have been of particular interest, since they can readily be evoked by stimulating a fish with artificial signals mimicking conspecifics. When two fish interact, both their quasi-sinusoidal EODs superimpose to a beat, an amplitude modulation of the frequency difference between the two EODs. Although chirps are highly stereotyped signals that can be described, classified and simulated easily, the resulting stimulus for the fish is the superposition of a chirp on the underlying beat. The shape of this combined amplitude modulation of chirp and beat is different depending on a number of context parameters, such as the beat phase at which the chirp is emitted, the underlying beat frequency as well as the contrast of both. Amplitude modulations, thus both chirps and beats, are encoded in p-unit electroreceptors. P-units are synchronized by chirps occurring on some beats, while they desynchronize to chirps at other beats. In my talk, I will introduce the different signals that can result from a chirp at different contexts, summarize behavioral findings about the production of chirps and show responses of p-units to chirps at different contexts.