

**Invitation to a Guest Lecture  
at the joint colloquium of the Institute of Biology and Environmental Sciences and the  
Department of Neuroscience**

**Module bio890: Current topics in biology**

**Yifan Pei**

(Leibniz-Institut zur Analyse des Biodiversitätswandels)

**Large inversions and the odd germline-restricted chromosome in  
songbirds**

Songbirds are one of the most species-rich groups of land vertebrates and harbor two intriguing genomic features: (i) many large chromosomal inversions and (ii) a germline-restricted chromosome (GRC), which is only present in germline cells but absent from all somatic tissues. Chromosomal inversions are chromosome segments that have been flipped. They are frequently found to be ecologically and evolutionarily important in plants and animals, and mostly studied in species where they have large phenotypic effects. In contrast, much less is known about inversions that do not cause dramatic changes in phenotypes. I will present our comprehensive study on the detection and the evolution of (nearly) all chromosomal inversions in the zebra finch. I will also discuss the implication that weak net heterosis may be the most parsimonious mechanism maintaining the majority of large inversion polymorphisms that lack large phenotypic effects. Despite the extensive research interest and the wealth of genomic resources in songbirds, it was only recently discovered that all songbirds process a GRC. I will provide an update on current knowledge of its inheritance patterns and within-species genetic diversity, and speculate on its possible evolutionary significance.

**18.11.2025, 16:00 Uhr, W04 1-162 / hybrid**

Host: Matthias H. Weissensteiner (Institute of Avian Research, Ifv)

Members of all institutes are cordially invited to join the lecture.