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## Phylogeography, Behavioral Evolution and Genomics of Birds



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**Time: 2020. 01. 08 Wed. 15:00**

**Venue: Auditorium, 1st Floor**

**Interdisciplinary Research Building**

**跨領域科技研究大樓1樓演講廳**

**Host: Dr. John Wang 王忠信副研究員**



## Abstract

How species evolve and come to occupy diverse morphological, ecological and behavioral niches in nature are outstanding questions in evolution. Birds are a taxonomic group characterized by their great diversity of morphological and behavioral traits and habitat types, making them a good system for approaching these questions. My lab has studied phylogeography, ecological adaptation and behavioral evolution of birds to explore the topics. In this talk, I will present our works that center around avian evolution and extend to niche-associated divergence or functional trait evolution.

Our phylogeographic work presents an extensive picture of avian lineage divergence in Eurasia. We also address several critical elements in the processes that determined phylogeographic patterns such as the interactions between ecological niches and species or community evolution. We found that climatic niche evolution affected the distributions of avian lineages in different ways across latitude. We revealed that subtropical species have different demographic histories compared with temperate ones in Eurasia because climate change during the last glacial period had little impact on the former. In addition, my group studies the evolution of avian phenotypic traits, such as nests, and the genomic constraints of convergent phenotypes in birds. One major advantage of studying birds in the genomic era is that their genome size is the smallest and most consistent among tetrapods, and thus it is more efficient to conduct genomic studies in birds than most other vertebrates. Over the past few years, my group has been developing projects to examine avian evolution questions, such as genomic divergence responding to altitudinal differences and the genetic mechanism of avian breeding behavior. In the aspect of conservation, we apply population genomics to explore the causes of species endangerment. These research findings have improved our understanding of avian fauna evolution in Eurasia, challenged conventional views of species extinction, and revealed the genomic bases of avian behavioral and adaptive evolution.