NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

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SEMINAR

Thurs, 5 Feb 2026 | 4 pm | S3-05-02 Conference Room 1

Hosted by Associate Prof Ryan Chisholm

Biodiversity and Ecosystem Stability Across Scales: Integrating Theory and Data

By Shaopeng Wang

Peking University

The global biodiversity crisis has stimulated decades of research into the causes and consequences of biodiversity change. These studies have yielded key insights into species coexistence and the functional consequences of biodiversity, establishing that biodiversity is fundamental to enhancing the temporal stability of ecosystem functioning. However, these insights have largely been derived from studies conducted at small spatial scales and over short time periods. In this talk, I will address this gap by developing new theoretical frameworks to understand species coexistence and diversity-stability relationships across scales. Specifically, I will present new criteria for species coexistence derived from the joint effects of species interactions and landscape configurations, and introduce a multi-scale framework to understand ecosystem stability and its relationship with biodiversity. I will then test predictions from these frameworks using empirical data from diverse taxa. Finally, I will discuss ongoing work aimed at bridging the cause and consequences of biodiversity by integrating coexistence theory with diversity-stability research.

About the Speaker

Shaopeng Wang obtained his B.A. in mathematical statistics in 2007 and his Ph.D. in ecology in 2013, both from Peking University, China. From 2013 to 2017, he was a postdoctoral researcher at the Theoretical and Experimental Station of CNRS in France and at the German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig in Germany. Since 2017, he has held positions as assistant, associate, and full professor at the Institute of Ecology, Peking University. His research focuses on developing new theory and conducting theory-driven empirical analysis to understand the causes and consequences of biodiversity loss in spatial and multitrophic ecosystems. Recently, his work has extended diversity-stability theory across spatial and temporal scales and validated the theoretical predictions with data from diverse taxa. He serves on the editorial boards of several journals, including Ecological Monographs, Ecology Letters, etc.