BayCEER Kolloquium

Lectures in Ecology and Environmental Research

summer 2026

UNIVERSITÄT BAYREUTH

Donnerstag/Thursday

30.04.2026

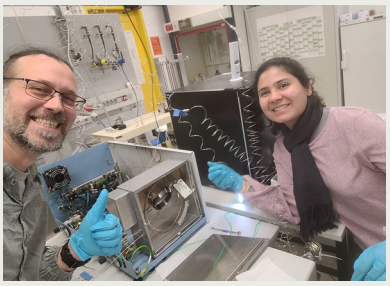
12:30 in H6, GEO

Dr. Alexander Frank

Bayreuth Center for Stable Isotope Research in Ecology and Biogeochemistry (BayCenSI), BayCEER

Stable Isotope Approaches to Aquatic Ecosystem Function: From Carbon Uptake to Oxygen Dynamics under Environmental Change

My research focuses on understanding ecosystem processes in aquatic environments and the role of microbial and biogeochemical interactions across systems. Building on a background in ocean microbiology, this talk explores how stable isotope approaches developed in marine research can be applied to lakes to quantify ecosystem metabolism under environmental change. I combine short-term ^{13}C bicarbonate incubations with stable isotopes of dissolved oxygen (^{18}O, with perspectives on triple oxygen isotopes) to quantify primary production, respiration, and metabolic balance across different temporal scales. Using examples from clear-water lakes, including in situ mesocosm experiments, I demonstrate how shifts in light climate, nutrient availability, and physical mixing, such as those associated with browning and extreme rainfall events, influence ecosystem functioning. The talk highlights how integrating carbon and oxygen isotope methods improves process-based understanding of lake responses to global change.



Bayreuth Center of Ecology and Environmental Research

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