ZMT LEIBNIZ-ZENTRUM für Marine Tropenforschung

The Leibniz Centre for Tropical Marine Research GmbH (www.leibniz-zmt.de) is an independent research and teaching institute that provides scientific knowledge for the protection and sustainable use of tropical coastal ecosystems. To this end, we work in an inter- and transdisciplinary manner with our partners in the tropics. The ZMT is a member of the Leibniz Association.

The Systems Ecology Group at ZMT, in cooperation with the Marine Ecology Group at University of Bremen, which offers a companion PhD position on experimental ecology and ecophysiology, is seeking (subject to release of funds) to fill an opening for a

# Doctoral candidate (gn)

(Reference: 29-Symchange)

**Coral acclimation to global warming: Uncovering the mechanisms of coral-symbiont dynamics and symbiont change**

Hard corals form the foundation of coral reefs. Their success is the result of an endosymbiotic association with photoautotrophic algae (symbiont hereafter). High water temperatures induce corals to expel their symbionts, a phenomenon called bleaching, the most prominent threat to corals. Since some symbionts are more thermally tolerant than others, symbiont change (i.e., a shift of the symbiont community within corals) may act as an acclimation mechanism of the coral-algae complex under global warming. The physiological mechanisms underpinning symbiont change, however, are poorly understood. In this project, we plan to integrate experimental ecology and ecophysiology (the primary task of the Marine Ecology Group at the University of Bremen) with mathematical modelling (the primary task of this position) to identify mechanisms and environmental conditions that drive symbiont change. Mathematical modelling will integrate the relevant information gained from laboratory experiments into a broad and flexible simulative context. Through numerical experiments, the candidate will explore different coral acclimation hypotheses related to symbiont change and their effects in the context of varying environmental conditions. This project will shed new light on the capacity of corals to respond to environmental perturbations and will contribute to the development of innovative strategies to support the functioning of coral reefs under the influence of ocean warming.

**Your tasks:**

- Develop scientific competences on the coral-algae symbiotic relationship
- Develop mathematical models to study the coral-algae symbiotic relationship
- Integrate data from literature and our own laboratory experiments into the models
- Run computer simulations and analyse the results on the light of existing data
- Work closely with our project partner at the University of Bremen
- Produce results publishable into peer-reviewed international journals
- Produce and defend a PhD thesis

**Requirements:**
Applicants must hold a Master degree in one of the following disciplines: marine biology, ecology, biogeochemistry, oceanography, environmental sciences, theoretical ecology, mathematics, physics, computational sciences, or in similar quantitative or numerical disciplines. Candidates should either possess programming skills or have a keen interest in acquiring them in order to develop a research career focused on the mathematical modelling of environmental problems. We are looking for highly motivated students with good communication and scientific writing competences. The working language is English. This PhD project is part of a cooperation between the Systems Ecology Group and the Marine Ecology Group at the University of Bremen.

**Further information:**
For questions please contact Prof. Dr. Agostino Merico, email: agostino.merico@leibniz-zmt.de

**Details of position:**
Salary will be paid according to the German TV-L (EG 13). The position is available for part-time (75 % of a full-time position) employment starting 1st March 2025 with a duration until 29th February 2028. ZMT is an equal opportunity employer. Applicants with a migration background are welcome. Persons with severe disabilities are given special consideration if they have the same professional and personal qualifications. The ZMT values its diverse workforce and pursues the goal of providing equal opportunity, which incorporates gender neutrality (gn). We will be happy to accept your documents without a photo.

**We offer:**
- A challenging and varied job in an international, dynamic and interdisciplinary research environment
- A motivated and committed team from different countries and cultures
- An open and cooperative working atmosphere
- Opportunities for personal and professional development
- Interesting, varied and challenging tasks and family-friendly working conditions
- Company pension plan (VBL)
- Company health promotion and the opportunity to participate in company fitness with EGYM Wellpass

**Submission of application:**
Please submit your CV, a brief statement of motivation and research interests, and the names and contact information of two referees **by 20.01.2025 as a single pdf file** with the reference number "**29-Symchange**" to Ms. Carina Seemann, email: bewerbung@leibniz-zmt.de.

Leibniz Centre for Tropical Marine Research, Fahrenheitstraße 6, D-28359 Bremen.

Leibniz Gemeinschaft

Zertifikat seit 2018
audit berufundfamilie