

Mathematisch-Naturwissenschaftlichen Fakultät

Antrittsvorlesung im Rahmen des Fakultätskolloquiums

Vortragende: Prof. Dr. Inna Sokolova
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Titel: „Understanding the role of bioenergetics in stress tolerence“

Am: Donnerstag, 4. Mai, um 17:00 Uhr im Großen Hörsaal des
Instituts für Chemie
(Albert-Einstein-Straße 3a)

Zusammenfassung:

Understanding the role of bioenergetics in stress tolerence

Energy balance is central for survival and fitness of an organism, and limitations of the bioenergetic capacity (including the systems involved in energy acquisition, conversion and conservation) are critically implicated in limiting organism's tolerance and determining trade-offs among fitness related functions during stress exposures.

This presentation explores the concept of energy-limited stress tolerance that applies bioenergetic principles to analyze stress responses and tolerance limits of an organism and demonstrate how this concept can be used to understand responses to multiple stressors (including temperature, pollution and ocean acidification) from molecular to whole-organism levels in marine organisms.

The concept of energy-limited stress tolerance provides a mechanistically-based tool to assess the effects of stressors that have different nature, mechanisms of action and can interact in a non-linear fashion, and can be integrated with quantitative ecological modelling (such as individual-based models) to predict changes in populations facing global climate change, pollution and ocean acidification. This bioenergetically-based approach can help understanding the driving forces and limitations of environmental adaptation and stress tolerance in complex environments (thereby addressing one of the grand challenges of macrophysiology and global change ecology) and has practical implications for environmental risk assessment, conservation and resource management in marine ecosystems.