future ocean
KIEL MARINE SCIENCES
INTEGRATED SCHOOL OF OCEAN SCIENCES

‘The BIG Questions‘

Making sense of ocean biota: How evolution and biodiversity of land organisms differ from that of the plankton

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The oceans cover 70% of the planet’s surface, and their planktonic inhabitants generate about half the global primary production, thereby playing a key role in modulating planetary climate via the carbon cycle. Because of the fundamental differences in the physical environment, pelagic ecosystems function differently from the familiar terrestrial ecosystems of which we are a part. Natural selection creates biodiversity but understanding how this operates in the oceans – which traits are selected for under what circumstances and by which environmental factors, whether bottom-up or top-down – is currently a major challenge This lecture is dedicated to the poorly understood tribes of planktonic protists (unicellular eukaryotes) that feed the ocean’s animals and continue to run the elemental cycles of our planet. It is an attempt at developing a conceptually coherent framework to understand the course of evolution by natural selection in the plankton and contrast it with the better-known terrestrial realm. I argue that organism interactions, in particular co-evolution between predators and prey (the arms race), play a central role in driving evolution in the pelagic realm.
Understanding the evolutionary forces shaping ocean biota is a prerequisite for harnessing plankton for human purposes and also for protecting the oceanic ecosystems currently under severe stress from anthropogenic pressures.

Venue: GEOMAR westshore building, large conference room (großer Konferenzraum)

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