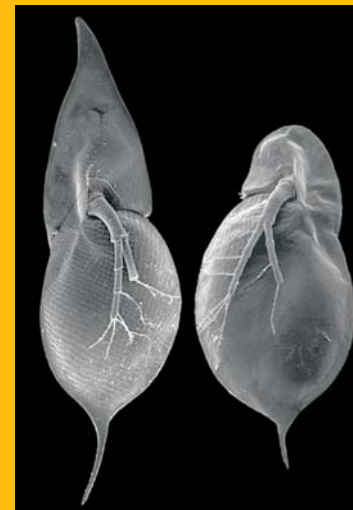


Winter School December 7, 2011

# Plasticity: Mechanisms and Evolution

In popular thinking, a complex organism's phenotype is often said to be "determined" by its genotype. The relationship between genotype and phenotype is thus treated as invariant. In reality, however, a given genotype is often the foundation for several distinct organismal phenotypes. The variant phenotypic forms, deriving ultimately from a single genotype, illustrate the phenomenon of "developmental plasticity", of which there are several different kinds. The three major types involve (1) alterations of growth and timing, to alter the different phases of the life cycle and/or of reproductive capacity, (2) dramatically different contemporaneous forms (e.g., queen vs. worker bees), and (3) sequential variant forms as part of the life cycle (e.g., animals with obligate larval forms). They are not mutually exclusive, however: organisms that exhibit type 3 also often exhibit type 1 within their life cycle. The complete set of manifestations of "developmental plasticity" raises deep questions of both proximate (developmental) and ultimate (evolutionary) causation. In this workshop, both of these sides of developmental plasticity will be explored: the mechanisms that allow alternative forms and life cycles to be produced, and the evolutionary origins and implications of these capacities.



**All of the speakers are current or former fellows of the Wissenschaftskolleg zu Berlin**

## Wednesday, December 7

9.00 **Introduction: History and Significance** - Adam Wilkins, ITB

### I. Mechanisms

Peter Hammerstein, Moderator, ITB

9:15 - 9:45 **Genetic variation in plasticity in nematodes** -

Mark Viney, University of Bristol

9:45 - 10:00 **Plasticity, robustness and adaptation in nematodes** -

Avril Coghlan, University College Cork

10:00-10:30 **The mechanisms underpinning life history evolution** -

Thomas Flatt, Veterinärmedizinische Universität Wien

10:30-10:45 **Coffee break**

10:45-12:00 **Panel discussion**

12:00 **Lunch**

### II. Evolution

Adam Wilkins, Moderator, ITB

14.00-14.20 **The evolution of reaction norms for life history traits** - Stephen C. Stearns, Yale University

14.20-14.40 **Impact of environmental covariation in growth and mortality on maturation reaction norms** -

Lise Marty, Institut Français de Recherche pour l'Exploitation de la Mer

14:40-15:00 **Reaction norms in host-parasite systems, with a focus on growth models** -

Jacob C. Koella, Imperial College London

15:00-15:20 **Plastic parasites: sophisticated strategies for survival and reproduction?** -

Sarah Reece, University of Edinburgh

15:20-15:45 **Coffee break**

15:45-17.00 **Panel discussion followed by Apéro**



Organized by:  
Peter Hammerstein  
Adam Wilkins

Location: Lecture Hall 12, Institut für Biologie, Humboldt-Universität zu Berlin, Invalidenstr. 43, 10115 Berlin-Mitte. For registration e-mail to Matthias Flor before December 2nd (m.flor@biologie.hu-berlin.de). The registration fee of 10 Euro (students 5 Euro) is to be paid on arrival.