

# SFB 680

## MOLECULAR BASIS OF EVOLUTIONARY INNOVATIONS

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#### **Traveling wave of asexual evolution: no longer solitary**

Modern evolution theory is focussed on interference (linkage) of adaptive mutations emerging at different DNA locations. Interference effects emerge even in the absence of biochemical interaction of proteins at different sites ("epistasis", "complex fitness landscape") and are a simple consequence of competition of emerging lineages for space in population. Mathematical description of these effects proved to be not so simple. Interference is strong in populations in which recombination between genomes, such as occurs due to sexual reproduction, is rare or absent. The examples include bacteria, viruses, yeast, Y-chromosome, mitochondrial DNA, as well any genomic segment in any organism with densely located evolving sites. I will compare two historical models of interference: one where pairs of beneficial mutations differ in fitness effect, and another where genomes carry multiple mutations of similar effect but variable in number.

**November 24, 2011, 4 pm**

**Institute for Genetics, Zùlpicher Str. 47a, Lecture Hall, ground floor**

Host: Michael Lässig

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