



# ÖFFENTLICHER VORTRAG

(ZWISCHENEVALUATION DER HABILITATION)

**Dienstag**

**19.6.2018**

**14:00 in H36, NWIII**



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## Reproductive immunity: an interface for sexual conflict and host-parasite interactions

Reproduction and immunity are at the heart of an exciting emerging research field in reproductive immunity. Reproduction is a highly complicated process, as it is formed by an evolutionary arms race between males and females over optimal reproductive investment. I use the bedbug model system to make a case for incorporating ecological, as well as genotypic variation, in reproductive traits in studies on sexual selection, especially the ones investigating post-copulatory processes. Sexual conflict leads to fast evolving and highly diverse reproductive traits in both sexes. A widely neglected aspect is the role of the female in controlling access of sperm to her gametes after mating. For example, sperm age changes gene expression in bedbug females. I hypothesise that females may benefit from setting up post-copulatory barriers to sperm, by ensuring that only fertile, viable or undamaged sperm are selected, or those with a compatible genetic background (“good genes”). One example for such post-copulatory barriers might be the female immune system.

Another conflict also propelling evolutionary change are host-parasite interactions. Microbes affect reproductive traits via several routes and their impact on fitness links the environment directly to evolutionary change. Host fitness costs imposed by microbes include reproductive allocation due to the activation and maintenance of the immune system as well as direct microbe toxicity. In bedbugs, genital microbes change with mating and vary between sexes and populations. Further, bedbug seminal fluid contains antimicrobial compounds, which seem to protect sperm against microbes. This suggests a role for natural selection in shaping the evolution of reproductive traits in addition to sexual selection.