



**Special Date  
Monday**

**30.10. 2017**

**11:00 s.t.**



**Prof. Dr. Debbie Lindell**

*Faculty of Biology*

*Technion - Israel Institute of Technology*

## **Cyanobacteria-Cyanophage Interactions: from Genes to Populations**

Viruses are globally abundant and extremely diverse in their genetic make-up and in the hosts they infect. They influence the abundance, diversity and evolution of their hosts as well as the biogeochemical cycling of matter in the oceans. In this seminar, I will discuss our research on the ecology, physiology and evolution of host-virus interactions using the marine cyanobacteria and cyanophages as our model system. I will begin by showing that cyanophages that encode photosynthesis genes captured from their hosts are highly abundant in the oceans, as seen from the adaptation of a solid-phase quantitative PCR method for viral ecology. I will then discuss our findings, employing an experimental evolution approach, indicating that selection for resistance in hosts and counter-resistance in viruses, impacts genome diversification and evolution of both host and virus. Lastly, I will present evidence for differences in the mechanisms of resistance employed by cyanobacteria against generalist and specialist viruses. Our findings suggest that the presence of both susceptible and resistant cyanobacteria facilitates long-term coexistence in nature. Thus, we propose that the coevolutionary process leads to a complex and dynamic network of interactions between viruses and their cyanobacterial hosts, facilitating their coexistence, despite the abundance of both antagonists in the oceans.

**Host: Stefan W. Hell**



**Ludwig Prandtl Hall, Administration Building**

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