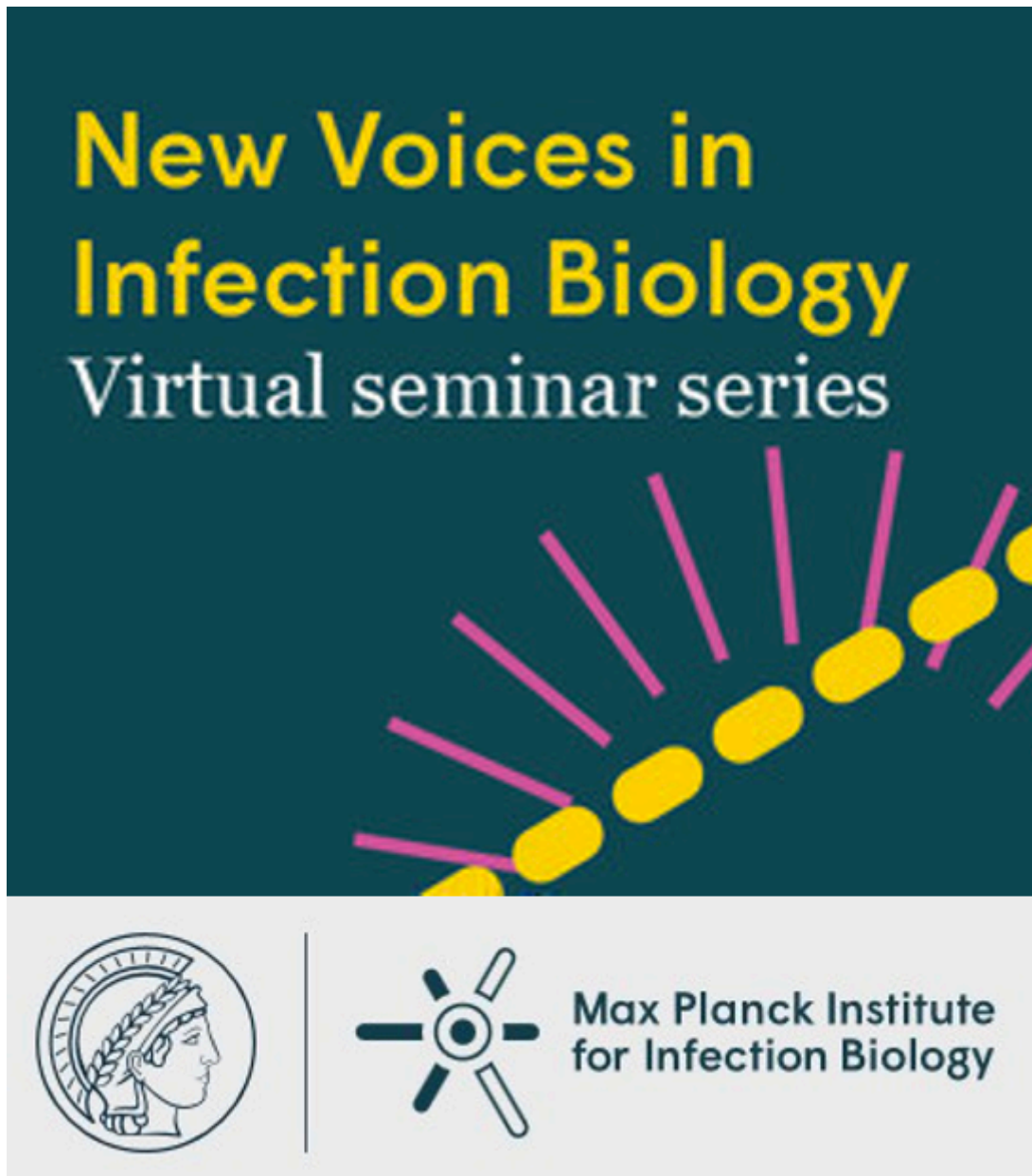


What makes individuals different facing infections? An insight on microevolution of host-parasite interactions | New Voices in Infection Biology **Conférence**



Wednesday, October 14, 2020 4 pm Berlin

Why do individuals differ when facing infection? Taking an evolutionary biology perspective and using statistical and functional genetics tools, my research aims to understand the role for genetics, phenotypic plasticity, stochasticity, host sexual dimorphism, and the environment on the outcome of infections.

Parasitism is one of the most common organismal lifestyles, and antagonistic interactions between hosts and parasites are a key structuring force in natural populations of all organisms, including humans. Yet, it is often not clear why some individuals suffer strongly from an infection, while others do not. Part of the answer resides in the variability in the

success of the parasite passing through a sequence of steps, starting with encountering the host, and ending with transmission.

We show that different consecutive steps of the infection process can impose specific selection pressures on pathogens and make different contributions to shaping host-parasite interactions, including coevolution.

Using several invertebrate host species, we focus on the step in which bacterial pathogens proliferate within the host. For example, we have characterized key infection parameters of resistance and disease tolerance even in organisms which need to be sacrificed to quantify their infection. This approach highlights the role of stochasticity and phenotypic plasticity on infection outcome. After describing the mechanisms underpinning sexual dimorphisms in immunity in *Drosophila melanogaster*, I will show how host sexual dimorphism is an important factor for parasite evolution. Through my work on various aspects of host-pathogen interactions, I hope to advance the idea that part of the answer to “why do individuals differ when facing infection?” arises from the parasite’s response to the host.

Talk by David Duneau

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