BiophysTO Lunchtime Seminar Series

Date

March 25, 2021
12:00 – 1:00 pm

Prof. Andreas Mayer

Lewis-Siegler Institute,Princeton University

A Langevin approach to dynamics of the human immune system

Advances in sequencing enable studying dynamics of populations with a very large number of distinct species in complex environments. Statistical physics provides a framework to adapt ecological theory to this new setting: to tame the combinatorical explosion of parameters describing all interactions we attempt a simplification using effective stochastic forces. In my talk, I will present initial results applying this Langevin approach to immune repertoire dynamics. I will propose a theory for the emergence and maintenance of the empirically observed power-law scaling of clone sizes. Remarkably, our theory predicts that exposures in infancy leave a lifelong imprint on our immune defenses with implications for pathogen defense and autoimmunity.

Host: Sidhartha Goyal

Zoom Link:

https://us02web.zoom.us/j/84689518553?pwd=amxXaVgwd25iM3hNdmlTZzVMVmRoQT09

Meeting ID: 846 8951 8553
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