DY 31: Invited Talk: Mehran Kardar (Boston)

Time: Tuesday 15:40–16:10 Location: DYb

Invited Talk DY 31.1 Tue 15:40 DYb

Fixation and ancestry of competing species growing on a rugged front — •Mehran Kardar — Physics Department, MIT, Cambridge, MA 02139, USA

When competing species expand into new territory the population is dominated by descendants of a few successful ancestors at the expansion front. Successful ancestry is stochastic, but biased by fitness of the individual, as well as favorable geographic location. We consider a simple model of range expansion of competing bacteria, in which reproduction and competition only take place at the growing front. Based on symmetry considerations we construct a pair of nonlinear stochastic partial differential equations that describe the coevolution of the profile of the growing surface and the composition of the bacterial species on the front. Macroscopic manifestations (phenomenology) of these equations on growth patterns and genealogical tracks of range expansion will be presented.