



universität
wien

Fakultät für Mathematik

ANTRITTSVORLESUNG

Mathematisches Kolloquium

Mittwoch, 19. Oktober 2022

Sky Lounge

EINLADUNG

Emmanuel Schertzer

(Universität Wien)

“Surfing in population genetics”

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Abstract:

The aim of population genetics is to identify evolutionary scenarios which could explain the genetic diversity measured in extant populations. In this talk, I will present several models in population genetics sharing the common feature that the large-population limit is described in terms of a travelling front. The first model is a fitness wave defined as a variant of the Brunet-Derrida model. Here, the population is a cloud of particles moving in an abstract fitness space where individuals reproduce and are randomly selected proportionally to their fitness value at every generation. In a second model, we consider an expanding diploid population whose large-scale behaviour is described by the F-KPP equation with Allee effect. In both cases, we show (or conjecture ...) the existence of a noisy travelling wave solution and a rich phase diagram separating pushed/semi-pushed/pulled regimes. I will try to illustrate some interesting biological consequences of those results such as predicting the genetic diversity in a random sample close to the front.

15.45 Uhr: Kaffeejause

16.15 Uhr: Vortrag

Kleines Buffet im Anschluss

Radu Ioan Bot