Stochastic Processes In EvoLution and Ecology

BERLIN – FRANKFURT - MAINZ - WARWICK

„The effects of migration in an population model with bottlenecks“

ORGANISMS HAVING A GENEALOGY NOT WELL DESCRIBED BY THE KINGMAN COALESCENT ARE NOT RARE. ONE EXAMPLE IS THE ATLANTIC COD WHICH PRESENTS SHALLOW GENEALOGIES AND HIGH-VARIANCE OFFSPRING NUMBER THAT MIGHT RATHER BE DESCRIBED BY A MULTIPLE MERGER COALESCENT. THE AIM OF OUR WORK IS THEN TO FIND A REALISTIC INDIVIDUAL-BASED MODEL FITTING THESE DATA. WE FOCUS ON SPATIALLY STRUCTURED POPULATIONS UNDERGOING LOCALIZED, RECURRENT BOTTLENECKS, AND DESCRIBE THEIR ANCESTRAL LINES. WE START BY PRESENTING AN INDIVIDUAL BASED MODEL INTRODUCED BY GONZÁLEZ CASANOVA, MIRÓ PINA, SIRI-JÉGOUSSE (2022) WHOSE GENEALOGY IS DESCRIBED BY A XI-COALESCENT KNOWN AS THE SYMMETRIC COALESCENT. WE THEN INTRODUCE MIGRATION IN THIS SETTING: WE CONSTRUCT A MULTIPLE-ISLAND MODEL AND SEE HOW THIS STRUCTURE AFFECTS THE COALESCENT PROCESS. DEPENDING ON THE SEVERITY AND THE LENGTH OF THE BOTTLENECKS WE DERIVE AS SCALING LIMITS DIFFERENT STRUCTURED XI-COALESCENTS FEATURING SIMULTANEOUS MULTIPLE MERGERS AND MIGRATIONS. THIS TALK IS BASED ON ONGOING WORK WITH ALISON ETHERIDGE, JERE KOSKELA AND MAITE WILKE BERENGUER.

Speaker: Marta Dai Pra

Time: Monday, 28.11.22, 4 P.M. CET

The lecture will be held online, if you‘re interested, you can get the link from Prof. Blath

blath@math.uni-frankfurt.de