Minerva Research Foundation Lectures

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Exchangeable Coalescents

Exchangeable coalescents form an important class of stochastic processes with values in spaces of partitions that were introduced by Pitman, Möhle and Sagitov. They appear in the study of the genealogy of certain random population models. The best known example is the celebrated coalescent of Kingman which is related to the model of Wright-Fisher. Our purpose in this series of lectures is to present some of their fundamental aspects (Poissonian construction, look-down construction, characterization, relation with stochastic flows, duality with generalized Fleming-Viot processes, ...) and to discuss properties of key examples (Kingman coalescent, Bolthausen-Sznitman coalescent, Beta-coalescents).

September 9-30
Wednesdays, 10 a.m.-Noon in Mathematics 622
Fridays, 10 a.m.-Noon in Mathematics 507
2990 Broadway at 117th Street
New York City

Course Plan:

1. Random partitions
2. Kingman's coalescent
3. Exchangeable coalescents
4. Flows of bridges
5. Bolthausen-Sznitman coalescent
6. Beta-coalescents