

Asymptotic Distribution of Parameters in Trivalent Maps and Linear Lambda Terms (in person)

Wednesday, December 1, 2021 2:00 PM (50 minutes)

Structural properties of large random maps and lambda-terms may be gleaned by studying the limit distributions of various parameters of interest. In our work we focus on restricted classes of maps and their counterparts in the lambda-calculus, building on recent bijective connections between these two domains. In such cases, parameters in maps naturally correspond to parameters in lambda-terms and vice versa. By an interplay between lambda-terms and maps, we obtain various combinatorial specifications which allow us to access the distributions of pairs of related parameters such as: the number of bridges in rooted trivalent maps and of subterms in closed linear lambda-terms, the number of vertices of degree 1 in (1,3)-valent maps and of free variables in open linear lambda-terms etc. To analyse asymptotically these distributions, we introduce appropriate tools: a moment-pumping schema for differential equations and a composition schema inspired by Bender's theorem.

Joint work with Olivier Bodini and Noam Zeilberger.

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