Institut für Diskrete Mathematik

Combinatorics Seminar

Friday 1st October 14:15

Online meeting (Webex)

Asymptotic Enumeration and Limit Laws for Multisets

Konstantinos Panagiotou

(LMU München)

For a given combinatorial class $\mathcal{C}$ we study the class $\mathcal{G} = \textit{Mset}(\mathcal{C})$ satisfying the multiset construction, that is, any object in $\mathcal{G}$ is uniquely determined by a set of $\mathcal{C}$-objects paired with their multiplicities. For example, $\textit{Mset}(\mathbb{N})$ is (isomorphic to) the class of number partitions of positive integers, a prominent and well-studied case. The multiset construction appears naturally in the study of unlabeled objects, for example graphs or various structures related to number partitions. We perform a thorough analysis of the set $\mathcal{G}_{n,N}$ that contains all multisets in $\mathcal{G}$ having size n and being comprised of N objects from $\mathcal{C}$ when the counting sequence of $\mathcal{C}$ is governed by subexponential growth. In particular, we determine the asymptotic growth of $\mathcal{G}_{n,N}$ and we describe the typical limiting shape of these objects as n *and* $1 \ll N \leq n$.

This is joint work with L. Ramzews.

Meeting link:

https://tugraz.webex.com/tugraz/j.php?MTID=ma70275cd258e7748417214793956c7bf

Meeting number: 188 980 7021

Password: ahMZ84fJYQ2

Joshua Erde, Mihyun Kang