
GRETA PANOVA, University of Southern California

Unimodality and Kronecker asymptotics via random variables

Cayley conjectured, and Sylvester proved some 25 years later, that the number of integer partitions of n inside a rectangle is a unimodal sequence of n . All subsequent proofs relied on representation theory, linear algebra and combinatorics without effective tight bounds for the size of these numbers. We derive tight asymptotics for these numbers and their consecutive differences using tilted geometric random variables. As a corollary, we have exact asymptotics for a family of Kronecker coefficients of the Symmetric group.