Asymptotic enumeration of lonesum matrices

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(joint work with Jessica Khera and Stephen Melczer)

We provide asymptotics for the poly-Bernoulli numbers, a combinatorial array that enumerates lonesum matrices (matrices of zeros and ones that are uniquely reconstructible from their row and column sums). These numbers have surprising connections to other enumerative problems in graph theory and permutation theory, and they have appeared in applications in Computational Biology and Algebraic Statistics. After discussing their enumerative properties, we present (bivariate) asymptotics which we obtain as an application of ACSV (Analytic Combinatorics in Several Variables).

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