



# ICECA

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## IRRATIONAL ENUMERATION: ANALYTIC COMBINATORICS FOR OBJECTS OF IRRATIONAL SIZE

DAVID BEVAN

Department of Mathematics and Statistics, University of Strathclyde, Glasgow, Scotland,  
United Kingdom

We extend the scope of analytic combinatorics to classes containing objects that have irrational sizes. The generating function for such a class is a power series that admits irrational exponents. A transformation then yields a generalised Dirichlet series from which the asymptotics of the coefficients can be extracted by singularity analysis. In practice, the asymptotics can often be determined directly from the original generating function. We illustrate the technique with a variety of applications, and explore phase transitions in the asymptotics of families of irrational combinatorial classes.

This is joint work with Julien Condé and Andrew Elvey Price of l'Université de Tours.