Probability Seminar

Title: Symmetries in the sandpile model and the shuffle conjecture

Speaker: Mark Dukes (UCD)

Date: Wed 29th October 2025 at 2:00PM

Location: E0.32 (beside Pi restaurant)

Abstract: In this talk we will present an overview of a collection of results from the last decade that concern unusual and unexpected symmetries in the Abelian sandpile model. Along the way we will meet several classes of bivariate polynomials, a new class of polyominos that we call sawtooth polyominos, and a new family of graphs termed clique-independent graphs. We will see how this work provides a combinatorial interpretation of some conjectured, and subsequently proven, results from algebraic combinatorics known as the shuffle conjecture.