UCD School of Mathematics and Statistics

Colloquium Seminar

Title: Alternating Sign Arrays and Littlewood-type identities

Speaker: Professor ILSE FISCHER (University of Vienna)

Date: Thu 12th October 2023 at 2:00PM

Location: E0.32 (beside Pi restaurant)

Abstract: Alternating Sign Matrices have been introduced in the 1980s. They are notorious for being difficult to enumerate, which is also reflected by the fact that the first proof of their counting formula was given in an 84 pages paper more than a decade after it was conjectured. Moreover, there are two classes of plane partitions that are equinumerous with alternating sign matrices, but it is a mystery that there is no satisfying explanation for these results so far, for instance in the form of transparent bijections. I will start with an account of the history and then talk about recent developments including the discovery of alternating sign triangles that are also equinumerous with alternating sign matrices. We will see that in the algebraic proof of such results a Littlewood-type identity plays an important role, which is exciting since the classical Littlewood identity has a bijective proof that is based on the famous Robinson-Schensted-Knuth (RSK) correspondence, which I will discuss as well.