



Probability Seminar

Title: Transition between characters of classical groups, decomposition of Gelfand-Tsetlin patterns

last passage percolation

Speaker: Elia Bisi (UCD)

Date: Wed 2nd October 2019 at 2:00PM

Location: Seminar Room SCN 1.25

Abstract: We produce a family of symmetric polynomials that interpolate between irreducible characters of symplectic and orthogonal groups, perturbing their expressions as generating functions of Gelfand-Tsetlin patterns. Such a family can be viewed as a one-parameter specialization of Koornwinder polynomials, for which we thus provide a novel combinatorial structure. We next develop a method of Gelfand-Tsetlin pattern decomposition to establish identities between all characters of classical groups, as well as the aforementioned interpolating polynomials. From the probabilistic viewpoint, these identities are all linked to last passage percolation models with various symmetries. Taking the scaling limit, we provide an explanation of why the Tracy-Widom GOE and GSE distributions from random matrix theory admit formulations in terms of both Fredholm determinants and Fredholm Pfaffians. Based on joint work with Nikos Zygouras.

<mailto:neil.oconnell@ucd.ie>