

Department of Mathematical Sciences welcomes

Alfredo Deaño
University of Kent, United Kingdom



August 30, 2019

Hosted by:
Prof. Pavel Bleher

Tea begins at 3:00
in LD 259

Research Topic
begins at 3:30
in LD 229

**Painlevé equations and non-Hermitian
random matrix ensembles**

ABSTRACT:

In this talk we present recent results on the connection between Painlevé equations and $N \times N$ non-Hermitian ensembles of random matrices, in particular those models arising from classical cases with the addition of charges in the complex plane. The link between Painlevé transcendents and Hermitian random matrix models is well known after the work of Tracy and Widom, but it is less explored for non-Hermitian models, and it can be established both for finite N and as the size of the matrices N tends to infinity, involving different families of solutions in each case. As examples we consider the lemniscate ensemble, related to complex Ginibre, and truncations of unitary matrices.

This is joint work with Nick Simm (University of Sussex, United Kingdom).

ABOUT THE SPEAKER:

Alfredo Deaño graduated in Music (flute) from the Royal Conservatory in Madrid (Spain) in 1999, and then in Mathematics from Universidad Autónoma de Madrid (Spain) in 2001. He got his PhD degree from Universidad Carlos III de Madrid in 2006, and he is currently a Lecturer in Mathematics in the School of Mathematics, Statistics and Actuarial Science at the University of Kent (United Kingdom), after holding postdoctoral positions in Cambridge (UK), Leuven (Belgium) and Madrid. His research interests include orthogonal polynomials and special functions, random matrix theory and numerical and asymptotic analysis, and he is a coauthor, together with Daan Huybrechs and Arieh Iserles, of the monograph *Computation of Highly Oscillatory Integrals*, published by SIAM in 2017.

