

The complex elliptic Ginibre ensemble at weak non-Hermiticity

Monday, May 23, 2022 12:15 PM (45 minutes)

In this talk we will focus on the complex elliptic Ginibre ensemble (eGinUE) and analyze the statistical behavior of its eigenvalues in a suitable scaling limit, known as the weak nonHermiticity limit. In this limit the asymmetry parameter in the model scales with the matrix dimension and the so obtained 2D limiting point processes generalize the well-known sine and Airy processes from the Gaussian unitary ensemble. Using integro-differential Painlevé transcendents we will show how the gap functions of the 2D limiting point processes can be evaluated in closed form and how Riemann-Hilbert techniques can subsequently yield precise asymptotic information for the same functions. Based on current joint work with Alex Little.

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