Faculdade de Ciências da Universidade de Lisboa

SEMINÁRIO DO GRUPO DE FÍSICA MATEMÁTICA

25 de Julho (terça-feira), às 11h00, sala 6.2.33

Toeplitz minors for Szegö and Fisher-Hartwig symbols

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Abstract: Toeplitz matrices, or matrices which are constant along their diagonals, are intimately related with functions on the unit circle. The classical strong Szegö limit theorem describes the asymptotic behavior of the determinants of these matrices, whenever the associated function is sufficiently smooth. Only recently and after many partial results the asymptotic behavior of the determinants of Toeplitz matrices associated to functions with singularities has been fully determined.

D. Bump and P. Diaconis (J. Comb. Th. A 97, 2002) studied minors of Toeplitz matrices, obtained by striking some of the rows and columns of a Toeplitz matrix. They described the asymptotic behavior of these minors for the case of smooth functions, as in the strong Szegö limit theorem. In this talk we will show that their results also hold when the functions have singularities, and give equivalent expressions for their formulas. We will also discuss some of the applications of our results, including evaluations of generalized Selberg-Morris integrals and specializations of skew-Schur polynomials.

This talk is based on a preprint of the same name (arXiv:1706.02574), which is joint work with Miguel Tierz (Universidade de Lisboa).

Local: FCUL – Edf. C6 - Piso 2, 6.2.33