Riemann-Hilbert problems in random matrix theory

TINTAYA, P. A. C.

Pontifcia Universidade Catlica do Rio de Janeiro,BR, (percy.caceres@fis.puc-rio.br)

Abstract:
In this poster we review aspects of random matrix theory with unitary symmetry. The behavior of the eigenvalues of this random matrix can be interpreted as that of a gas of particles with Coulomb interaction, commonly known as Dyson gas. Orthogonal polynomials allow to calculate the partition function of these ensembles and other quantities such as the kernel. In the following we present Riemann-Hilbert problems and their relation to orthogonal polynomials. This work describes the basic concepts used in the research of my master thesis, but does not yet include any new results.