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Talk: Selberg-Dyson integral and aspects of quantum geometry

Friday 10 February 2023 16:10 (55 minutes)

The talk is based on the recent paper with Anton Zabrodin where we discussed an ensemble of particles with logarithmic repulsive interaction on a closed plane contour, a geometric deformation of the Dyson-Selberg integral Z_N(\Gamma)=\oint_\Gamma \prod_{i>j=1}^N|z_i-z_j|^{2\beta} d z_1\dots dz_N. In the limit of a large number of variables, the integral converges to the spectral determinant of the Neumann jump operator of the domain of integration, a curve \Gamma, or equivalently to the Fredholm determinant of the Neumann–Poincare operator, objects of quantum field theories and quantum geometry. These results suggest that the Dyson-Selberg integral utilizes the finite-dimensional approximation of the complex geometry and boundary conformal field theory.

Presenter: Prof. WIEGMANN, Pavel (University of Chicago)