An Ultrametric Route to Berry-Keating

Abstract

A connection between the eigenvalue distribution of an ensemble of random matrices and the zeroes of the Riemann zeta-function has long been known. A matrix model whose phase space distribution corresponds to the non-trivial zeroes of the zeta function was recently proposed. We study matrix models corresponding to the local zeta-functions at each prime and speculate on a Berry-Keating-type Hamiltonian from its phase space description. We attempt to combine this to a Hamiltonian and a matrix model for the Riemann zeta function. This talk will be based on work in progress with A. Chattopadhyay, P. Dutta and S. Dutta.