Averages of characteristic polynomials of random matrices from compact symmetric spaces

Sho Matsumoto (Kyushu University)

We deal with random matrix ensembles associated with classical compact groups and compact symmetric spaces. Let G/K be a classical compact symmetric space, where G is a compact subgroup of $\mathrm{GL}(n,\mathbb{C})$ and K is its closed subgroup. This space can be realized as a subset S of G: $S \simeq G/K$. The set S equips with the probability measure dM induced from the Haar measure of G. We call the probability space (S, dM) the random matrix ensemble associated with G/K. Our purpose is to calculate the average of the product of characteristic polynomials $\det(I + xM)$. We will express the average as a Jack polynomial, or as Heckman and Opdam's Jacobi polynomial.
Reference: arXiv:math/0608751.