

A Split Version of the Mixing Conjecture and Applications

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The mixing conjecture was proposed by Venkatesh and myself 20 years ago and postulates that pair of CM-points multiplicatively connected equidistribute on products of locally homogeneous space associated to forms of PGL_2 .

It was established by Khayutin, for sequences of fundamental discriminant splitting two given primes and under the assumption that there is no Landau-siegel zero, using measure classification results of Einsiedler-Lindenstrauss. There are currently promising efforts by Blomer, Brumley and Radziwiłł to remove the splitting conditions and weaken the Landau-Siegel zero assumption using purely methods from analytic number theory.

The split version (for the split quadratic algebra) concerns the distribution of multiplicatively pairs of Hecke points of large modulus.

It has now been established unconditionally by Blomer and myself in the prime modulus case and by Assing in general.

In this lecture, I will discuss the proof of (of the split version of) the mixing conjecture as well as some recent application of the methods involved to the generation of Hecke fields by algebraic L-values (joint work with Blomer, Burungale and Min).

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Classification de Session: Morning Chair: Chris Daw