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Comparing Hecke eigenvalues of automorphic representations for $GL(2)$

In this talk, we will discuss the strong multiplicity one theorem for $GL(2)$, which basically states that if the local components of two cuspidal unitary automorphic representations are isomorphic for all but finitely many places, then they are globally equivalent. Ramakrishnan improved the result by showing that if two representations agree at places of Dirichlet density $7/8$, then they are globally equivalent. We will then discuss questions of similar flavour – comparing Hecke eigenvalues of two non-twist-equivalent cuspidal unitary automorphic representations.