

# Nonvanishing productx of twisted $L$ functions

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The nonvanishing of Dirichlet series at the central point is of primordial interest in analytic number theory. As a pretext to introduce classical tools, from approximate functional equation to Voronoï summation formula, we will prove the following theorem by Soumya Das and Rizwanur Khan :

**Theorem 0.1.** *Let  $f$  be a Hecke-Maass form on  $SL(2, \mathbb{Z})$ . Then, for any prime  $q$  large enough, there exists a primitive dirichlet character  $\chi$  modulo  $q$  such that*

$$L\left(\frac{1}{2}, f \otimes \chi\right) L\left(\frac{1}{2}, \chi\right) \neq 0.$$