

1125-11-986

Jesse Thorner* (jthorner@stanford.edu). *Averages of twisted $GL(2)$ L -functions.*

Let K be a number field, and let π be a cuspidal automorphic representation of $GL(2)$ over K . Rohrlich proved that for any fixed complex number s_0 , there exist infinitely many ray class characters χ of K for which L -function $L(s_0, \pi \otimes \chi, K) \neq 0$. Using mean value theorems for $L(s, \pi \otimes \chi, K)$ arising from the theory of multiple Dirichlet series and large sieve inequalities for ray class characters due to Blomer, Goldmakher, and Louvel, we make Rohrlich's result quantitative when $L(s, \pi, K)$ satisfies the generalized Ramanujan conjecture. We also obtain non-vanishing results for $L'(1/2, \pi, K)$, and we nontrivially bound the average analytic rank of $L(s, \pi, K)$ in families of quadratic twists. (Received September 13, 2016)