Number Theory Seminar

Wednesday, November 9, 2022

4:00 pm on Zoom

email argafni@olemiss.edu for the link

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Distribution of Values of Logarithmic Derivatives of L-functions

ABSTRACT

I will review the history of value-distribution problems for the Riemann zeta functions and other L-functions, and I survey some recent results on this topic. I will also discuss the methods used in studying the value-distribution of the logarithmic derivatives of a family of quadratic twist L-functions with the goal of describing an upper bound on the discrepancy in the convergence of this family to its limiting distribution. In particular, I discuss joint work with Amir Akbary in which we obtain discrepancy bounds for the family $L'/L(1+it, \pi \otimes \chi_D)$ of logarithmic derivatives of quadratic twists of a fixed automorphic L-function at a point on the edge of the critical strip. This result can be considered as an automorphic analogue of a recent result of Lamzouri, Lester and Radziwill for the logarithm of the Riemann zeta function. We also give an application of our result related to the small values of $|L'/L(1, \pi \otimes \chi_D)|$ as D varies over fundamental discriminants.