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L-functions at the edge of the critical strip

I will talk about finding upper bounds on $L(1)$ where $L(s)$ is an L -function. The value of an L -function at 1 has been an object of great historical interest. For instance, the value of the classical Dirichlet L -functions at 1 is linked to the class number of quadratic fields. With the conception of the Langland's program and the conjectures therein, there is now a much larger class of L -functions which may be studied.

Finding upper bounds for these L -functions at 1 presents new obstacles and yields many interesting applications. The main obstacle arises because we have no good control over the size of the coefficients of these L -functions. I will first describe some examples and applications to motivate the discussion and then sketch some of the main ideas behind a new upper bound. This work improves and generalizes previous results of Iwaniec, Molteni, and Brumley.