

ALGEBRA AND NUMBER THEORY
SEMINAR

Zeros of Period polynomials for symmetric power L -functions

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Abstract: Suppose that k and N are positive integers. Let f be a normalized cuspidal Hecke eigenform on $\Gamma_0(N)$ of weight k with L -function $L_f(s)$. Previous works have studied the zeros of the period polynomial $r_f(z)$, which is a generating function for the critical values of $L_f(s)$ and has a functional equation relating z and $-1/Nz$. In particular, $r_f(z)$ satisfies a version of the Riemann hypothesis: all of its zeros are on the circle $\{z \in \mathbb{C} : |z| = 1/\sqrt{N}\}$.

In this paper, we define a natural analogue of period polynomials for the symmetric power L -functions of f and prove the corresponding Riemann hypothesis when k is large enough.

This is joint work with Hui Xue.

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