POWER SUMS OF HECKE EIGENVALUES OF MAASS CUSP FORMS

WU JIE
(CNRS, UNIVERSITÉ DE LORRAINE, FRANCE)

ABSTRACT. Let f be a primitive holomorphic cusp form of even weight k and of level N or a primitive Maass cusp form for the Hecke congruence subgroup $\Gamma_0(N)$ with Laplace eigenvalue $\frac{1}{4} + t_f^2$. Denote by $\lambda_f(n)$ its nth normalized Fourier coefficient such that $\lambda_f(1) = 1$. The real positive power sum of Hecke's eigenvalues of primitive holomorphic cusp form

$$(0.1) \qquad S_f(x; r) := \sum_{n \leqslant x} |\lambda_f(n)|^{2r}$$

was firstly studied by Rankin (1983, 1985). In this talk, we shall treat the Maass cusp forms case. We can establish lower and upper bounds for $S_f(x; r)$. In particular, we improve a recent result of Holowinsky (2009).

This is joint work with Xu Zhao.