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Asymptotic formulas for the coefficients of certain automorphic functions. (English)

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Summary: We derive asymptotic formulas for the coefficients of certain classes of weakly holomorphic Jacobi forms and weakly holomorphic modular forms (not necessarily of integral weight) without using the circle method. Then two applications of these formulas are given. Namely, we estimate the growth of the Fourier coefficients of two important weak Jacobi forms of index 1 and non-positive weights and obtain an asymptotic formula for the Fourier coefficients of the modular functions θ^k/η^l for all integers $k, l \geq 1$, where θ is the weight $1/2$ modular form and η is the Dedekind eta function.

MSC:

11F30 Fourier coefficients of automorphic forms

11F50 Jacobi forms

11F03 Modular and automorphic functions

Keywords:

asymptotic formula; Fourier coefficients; weakly holomorphic modular forms; Jacobi-Eisenstein series; weak Jacobi forms; weakly holomorphic Jacobi forms

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