

## Asymptotic of Fourier coefficients of Hecke eigenforms at integers represented by a binary quadratic form of a fixed discriminant

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**Abstract.** In this article, we establish the general asymptotic behaviour of the Fourier coefficients of the Hecke eigenforms supported at the integers represented by a primitive integral positive-definite binary quadratic form of the fixed discriminant  $D < 0$  under the assumption that the class number  $h(D) = 1$ .

As a consequence, we also obtain a quantitative result for the number of sign changes of the sequence of normalised Fourier coefficients  $\lambda_f(n)$  of Hecke eigenforms  $f$  over the indices, represented by a primitive integral positive definite binary quadratic form of the fixed discriminant  $D < 0$  when class number  $h(D) = 1$ ; in the interval  $(X, 2X]$  for sufficiently large  $X$ . Moreover, under the assumption of the Lindelöf hypothesis, the above-said sequence has at least  $X^{\frac{1}{2}-\epsilon}$  many sign changes.

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