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ON NORMALISATION OF HALF-INTEGRAL WEIGHT MODULAR FORMS

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Abstract: In this paper, we derive the algebraic nature of the Fourier coefficients of the Hecke eigenform f of weight $k + 1/2$ for $\Gamma_0(4N)$, where $k \geq 2$ and N is an odd and square-free integer.

Keywords and Phrases: Modular forms, Hecke eigenforms, Operators.

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1. Introduction

Let $k \geq 2$ be an integer. Let N be an odd and square - free integer. Let f be a cusp form in Kohnen plus space of weight $k + 1/2$ for $\Gamma_0(4N)$ as defined in [3], [4] so that $a_f(n) = 0$ whenever, $(-1)^k n \equiv 2,\ 3\ (mod\ 4)$. Let F be a cusp form and a normalized newform of weight $2k$, level N. Then it is known that the Fourier coefficients $a_f(n)$ can be taken as real and algebraic numbers whenever f is an Hecke eigenform which corresponds to F via Shimura - Kohnen lifts. In this note, we present a proof of this fact and also derive the same fact for a Hecke eigenform f which is in the old classes under the assumption that f is an eigenform under all