INTEGRALITY AND CUSPIDALITY OF PULLBACKS OF NEARLY HOLOMORPHIC SIEGEL EISENSTEIN SERIES

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Abstract: We study nearly holomorphic Siegel Eisenstein series of general levels and characters on $\mathbb{H}_{2n}$, the Siegel upper half space of degree $2n$. We prove that the Fourier coefficients of these Eisenstein series (once suitably normalized) lie in the ring of integers of $\mathbb{Q}_p$ for all sufficiently large primes p. We also prove that the pullbacks of these Eisenstein series to $\mathbb{H}_n \times \mathbb{H}_n$ are cuspidal under certain assumptions.