

HECKE OPERATORS ON SIEGEL EISENSTEIN SERIES OF ARBITRARY DEGREE

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ABSTRACT. Without knowledge of the Fourier coefficients of Siegel Eisenstein series, we evaluate the action of the Hecke operators on these Eisenstein series (these are “pure” Eisenstein series, not Klingen lifts of cusp forms). For square-free level, we show there is a basis of simultaneous eigenforms for all the Hecke operators, and we compute the eigenvalues. For level not divisible by 4, we compute the action of the Hecke operators for primes not dividing the level; we diagonalise the space with respect to these operators, and compute the eigenvalues.