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Arithmetic degrees of special cycles and derivatives of Siegel Eisenstein series. (English)  

Summary: Let $V$ be a rational quadratic space of signature $(m, 2)$. A conjecture of Kudla relates the arithmetic degrees of top degree special cycles on an integral model of a Shimura variety associated with $\text{SO}(V)$ to the coefficients of the central derivative of an incoherent Siegel Eisenstein series of genus $m + 1$. We prove this conjecture for the coefficients of non-singular index $T$ when $T$ is not positive definite. We also prove it when $T$ is positive definite and the corresponding special cycle has dimension 0. To obtain these results, we establish new local arithmetic Siegel-Weil formulas at the archimedian and non-archimedian places.

MSC:  
14G35 Modular and Shimura varieties  
14G40 Arithmetic varieties and schemes; Arakelov theory; heights  
11G18 Arithmetic aspects of modular and Shimura varieties  
11F27 Theta series; Weil representation; theta correspondences

Keywords: Shimura variety; orthogonal group; Siegel-Weil formula; kudla program; Whittaker function; special cycle; Green current

Full Text: DOI

References:


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