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Kudla-Rapoport conjecture at a ramified prime

This is a joint work with Qiao He and Yousheng Shi. One important part of the Kudla program is the so-called Arithmetic Siegel-Weil formula, which reveals some deep relation between the Fourier coefficients of some incoherent Eisenstein series and arithmetic Heigh pairing on a Shimura variety (of unitary type (n,1) or orthogonal (n, 2)). To prove it for non-singular coefficients, it amounts to prove a local identiy—the so-called Kudla-Rapoport conjecture or local arithmetic SIegel-Weil formula— and a global counting identity (Siegel-Weil formula). Chao Li and Wei Zhang found a beautiful proof of the Kudla-Rapoport conjecture at unramified primes. In this talk, we will discuss its analogue at ramified primes when n=1, where some modification is needed. If time permits, we might describe possible generalization of this work for general n.