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*The convergence problem in Kudla's modularity conjectures*

Kudla's modularity conjectures generalize the classical Gross–Kohnen–Zagier theorem for modular curves and Heegner points to Shimura varieties for orthogonal and unitary groups and special cycles of arbitrary codimensions. These conjectures were confirmed by Yuan–Zhang–Zhang and Liu assuming convergence of the generating series of special cycles over totally real fields and CM fields. To fill this gap of convergence, in a joint work in progress with Qiao He, we prove an algebraicity result of these generating series which is a crucial step in our approach towards the convergence problem.