

OVERCONVERGENT QUATERNIONIC FORMS AND ANTICYCLOTOMIC p -ADIC L -FUNCTIONS

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Abstract: We reinterpret the explicit construction of Gross points given by Chida–Hsieh as a non-Archimedean analogue of the standard geodesic cycle $(i\infty) - (0)$ on the Poincaré upper half plane. This analogy allows us to consider certain distributions, which can be regarded as anticyclotomic p -adic L -functions for modular forms of non-critical slope following the overconvergent strategy à la Stevens. We also give a geometric interpretation of their Gross points for the case of weight two forms. Our construction generalizes those of Bertolini–Darmon, Bertolini–Darmon–Iovita–Spiess, and Chida–Hsieh and shows a certain integrality of the interpolation formula even for non-ordinary forms.

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Key words: Iwasawa theory, p -adic L -functions, Gross points, quaternion algebras, automorphic forms.