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The Gross–Kohnen–Zagier theorem via p -adic uniformization

Let S be a set of rational places of odd cardinality containing infinity and a rational prime p . We can associate to S a Shimura curve X defined over \mathbb{Q} . The Gross–Kohnen–Zagier theorem states that certain generating series of Heegner points of X are modular forms of weight $3/2$ valued in the Jacobian of X . We will state this theorem and outline a new approach to prove it using the theory of p -adic uniformization and p -adic families of modular forms of half-integral weight. This is joint work in progress with Lea Beneish, Henri Darmon and Lennart Gehrmann.