

MIT Department of Mathematics Number Theory Seminar

HEEGNER DIVISORS, L-FUNCTIONS, AND MAASS FORMS

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Abstract: Famous works of Waldspurger, Kohnen and Zagier establish formulas for the central critical values of the quadratic twists of weight 2 modular L-functions in terms of the coefficients of half-integral weight modular forms. The celebrated Gross-Zagier formula establishes formulas for suitable central derivatives of such quadratic twists in terms of heights of Heegner points on modular curves. Here I will describe joint work with Jan Bruinier which uniformizes these results using harmonic Maass forms. We define Maass-Heegner divisors and we construct their canonical differentials of the third kind. This is achieved by extending the theory of Borcherds theta-lifts to the harmonic Maass setting. The connections to L-values and derivatives is obtained using works of Scholl, Waldschmidt, Waldspurger, and Gross-Zagier.

THURSDAY, October 18

4:00 p.m.
Room 2-143