# Algebra
# Seminar

## *Reductions of CM j-invariants modulo p*

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**Abstract:** The moduli space of elliptic curves contains infinitely many algebraic points that correspond to curves with complex multiplication. In 1985, Gross and Zagier proved that the $\mathfrak{p}$-adic valuation of the difference of two CM j-invariants is exactly half the sum (over n) of the number of isomorphisms between the corresponding elliptic curves modulo $\mathfrak{p}^n$. Using this relation, Gross and Zagier proved an elegant formula for the factorization of the norm of differences of CM j-invariants, assuming that the CM orders are maximal and have relatively prime discriminants. We generalize their result to the case where one order has squarefree discriminant and the other order is arbitrary. This is joint work with Kristin Lauter.

Wednesday, March 27, 2013, 3:00 pm

Mathematics and Science Center: W306

## Mathematics and Computer Science
## Emory University