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# Mathematical Sciences Colloquium

# Arithmetic of Weakly Holomorphic Modular Forms


Professor

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**October 27** **16:00 - 17:15**

**Venue** Building 110, Auditorium N103

**Host**

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**Abstract**

A weakly holomorphic modular form is a meromorphic modular form, which is holomorphic on the upper half plane with possible poles at the cusps. The classical j-invariant is a typical example of a weakly holomorphic modular form of weight 0. The values of the classical j-invariant at CM points are called singular moduli. Zagier proved that the traces of singular moduli are Fourier coefficients of a weakly holomorphic modular form of weight 3/2. Using the Kudla-Millson theta lift, Bruinier and Funke generalized Zagier's result to the sums of the values at Heegner points of modular functions on modular curves of arbitrary genus. In this talk I will discuss the modularity of Galois traces of class invariants by combining Shimura's reciprocity law ans Bruinier-Funke's work. If time permits, I will also discuss the arithmetic of weakly holomorphic Hecke eigenforms.