Algebra
Seminar

Congruences from quaternion algebras

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Abstract: Studying congruences between modular forms is a prosperous avenue in number theory. One approach to obtaining congruences involves computations on the Jacobian (Mazur, Ribet, ...). For instance, Mazur uses the Jacobian to determine when there is a weight 2 cusp form of prime level congruent to an Eisenstein series, which has various applications. We will explore another approach to obtaining congruences of modular forms using the arithmetic of quaternion algebras and the Jacquet-Langlands correspondence. This will lead to (1) generalizations work of Mazur and Ribet on weight 2 Eisenstein congruences, and (2) a phenomenon of many mod 2 congruences between weight k cusp forms.

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Mathematics and Science Center: W306

Mathematics and Computer Science
Emory University