"There are five elementary arithmetical operations: addition, subtraction, multiplication, division, and... modular forms."

-Martin Eichler

The Trivial Notions Seminar
Proudly Announces

L-functions, Selmer Groups and Modular Forms

A talk by

Tom Lovering

Abstract

Since Kummer's striking discovery in 1850 of a relationship between primes dividing Bernoulli numbers and the existence of nontrivial ideal classes in cyclotomic fields, the mysterious relationship between special values of L-functions and Selmer groups has been at the heart of algebraic number theory.
In this talk we will review the classical work of Ribet on the "Converse to Herbrand's Theorem", which uses congruences between modular forms and their Galois representations to give a (relatively) explicit construction Kummer's ideal classes. If we have time we then hope to talk a little about Iwasawa's more refined "main conjecture" (which became a theorem of Mazur-Wiles), and perhaps hint at some of the exciting current work of Skinner-Urban relating more general L-functions and Selmer groups.

Thursday September 12$^{\text{th}}$, at 1:00 pm
Science Center 507