

“I was then very ignorant; every day I seated myself at my work table, stayed an hour or two, tried a great number of combinations and reached no results. One evening, contrary to my custom, I drank black coffee and could not sleep. Ideas rose in crowds; I felt them collide until pairs interlocked, so to speak, making a stable combination.”

-H. Poincaré

The Trivial Notions Seminar Proudly Announces

Congruences of modular forms and Galois representations

A talk by
George Boxer

Abstract

The study of congruences for the Fourier coefficients of modular forms is a classical subject. For example, in 1916 Ramanujan proved his famous congruence

$$\tau(p) \equiv 1 + p^{11} \pmod{691}$$

where p is any prime number and τ is the Ramanujan τ function defined by

$$\Delta = q \prod_{n=1}^{\infty} (1 - q^n)^{24} = \sum_{n=1}^{\infty} \tau(n)q^n.$$

In the late 1960's, Serre had the wonderful idea that there should be certain Galois representations “attached to” the modular form Δ and he explained how they could be used to understand and classify congruences like the one above. In this talk I will introduce this circle of ideas.

Thursday October 17th, at 1:00 pm
Science Center 507