Undergraduate Math Club
Winter 2008
2nd floor Nesbitt Common Room
Thursday, January 10, 4:10-5:00pm
(free pizza and pop, as always)

Fermat's Last Theorem and elliptic curves

Prof. Brian Conrad

Abstract

When Andrew Wiles solved Fermat's Last Theorem (FLT) in 1993, he deduced it from a general theorem that he proved about a class of algebraic curves called elliptic curves. Curiously, there is an entirely different (and more elementary!) way in which elliptic curves relate to FLT, by giving a conceptual explanation for what is going on in Fermat's proof of his ``Last Theorem'' for exponent 4 (the only case he proved, by clever algebraic manipulations).

We will briefly explain what elliptic curves are (not ellipses!) and where they come from, and then use them to re-interpret some of the early mysterious proofs of special cases of FLT in more conceptual terms.