

**Center for Communication Research, La Jolla CA, and
Department of Mathematics, University of California, San Diego**

Math 295 - Mathematics Colloquium

Prof. Hendrik W. Lenstra Jr.

Searching for good *abc*-triples

Abstract:

An *abc*-triple is a triple of pairwise coprime positive integers a, b, c with $a + b = c$. The *radical* r of such a triple is the product of the distinct prime numbers dividing abc , and the *quality* q is defined by $q = (\log c) / \log r$. For example, the triple given by $a = 5, b = 27, c = 32$ has $r = 30$ and $q = (\log 32) / \log 30 = 1.018975235\dots$. The *abc*-conjecture asserts that for any real number $Q > 1$, the number of *abc*-triples with quality greater than Q is finite. It is known that there do exist infinitely many *abc*-triples with quality greater than 1. The main subject of the lecture is an algorithm for listing, given a large integer N , all *abc*-triples with c at most N and quality greater than 1. As a byproduct, the algorithm yields an upper bound for the number of such triples, as a function of N .

Host: J. Buhler

Thursday, January 19, 2006

4:00 pm

AP&M 7421
