K-Theory, Quadratic Forms and Number Theory Seminar

Title:	Gauss' Method for determining cyclotomic numbers
Speaker:	Dr. Ciaran Mac an Bhaird (NUIM)
Date:	Wed 21st November 2007 at 4:00PM
Location:	Mathematical Sciences Seminar Room

Abstract: We will discuss how Gauss' method leads to a series of functional equations. We have necessary and sufficient conditions for these equations to have integer solutions. This leads to a purely Diophantine system of equations, the number of equations is independent of the prime p, where p is congruent to 1 modulo l. The system has precisely phi(l) solutions, which correspond to the cyclotomic numbers of order l. Using this method, we will go through the cyclotomic numbers of order 3, 5 and 7 and discuss some interesting aspects of these and further orders.