

# TEMPLE UNIVERSITY MATHEMATICS COLLOQUIUM

**Karl Mahlburg**

University of Wisconsin

will speak on

## **The Andrews-Garvan-Dyson crank and partition congruences**

ABSTRACT: In 1944, Freeman Dyson conjectured the existence of a "crank" function that would provide a combinatorial proof of Ramanujan's three congruences for the partition function  $p(n)$ . Forty years later, Andrews and Garvan found such a statistic and proved the celebrated result that the crank simultaneously "explains" each of the Ramanujan congruences by grouping the partitions into classes of equal size.

However, there are many more congruences for the partition function, as Ono recently showed that there are infinite families for each prime modulus. He conjectured that the crank would also be fundamentally related to these new congruences as well. In fact, an even stronger version of his conjecture is true, and the elusive crank universally satisfies exactly the same types of general congruences as the partition function.

MONDAY, JANUARY 23, 2006

LECTURE AT 4:00 PM (#)

COFFEE, TEA, AND REFRESHMENTS FROM 3-5 PM.

ROOM 617, WACHMAN BUILDING  
DEPARTMENT OF MATHEMATICS