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MATHEMATICS COLLOQUIUM SERIES
UNIVERSITY OF CENTRAL FLORIDA



Counting Rational Curves in K3 Surfaces
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Let N_d be the number of rational curves in K3 surfaces X that represent a homology class $A \in H_2(X, \mathbb{Z})$ of self-intersection $A^2 = 2d - 2$. About 10 years ago Yau and Zaslow, building on some work in string theory, conjectured that the generating function for N_d is given by a certain quasi-modular form:

$$\sum_{d \geq 0} N_d t^d = \prod_{d \geq 1} \left(\frac{1}{1 - t^d} \right)^{24}.$$

We show that counting holomorphic maps (family Gromov-Witten invariants) verifies this Yau-Zaslow formula for primitive homology classes A .

DATE: Monday, January 29, 2007
TIME: 3:30pm – 4:30pm
PLACE: Math and Physics Building, Room 318

Refreshments served at 3:00 pm in Room 318.