COLLOQUIUM

UNIVERSITY OF PITTSBURGH
THURSDAY, JANUARY 17, 2013

704 THACKERAY HALL

3:00 P.M.

HAO XU

DEPARTMENT OF MATHEMATICS

HARVARD UNIVERSITY

INTERSECTION THEORY & TAUTOLOGICAL RINGS OF MODULI SPACES OF CURVES

ABSTRACT: Mumford initiated a systematic study of intersection theory in the tautological ring moduli spaces of curves. The subject has its origin in enumerative geometry and has been revolutionized by the celebrated Witten-Kontsevich theorem connecting intersection theory to KdV integrable hierarchy. In the 1990s, Faber proposed a series of remarkable conjectures about the structure of the tautological ring, which has been a major driving force in our understanding of moduli spaces of curves. I will talk about our work (joint with Prof. K. Liu) on recursion formulas of intersection numbers and their applications to Faber's conjecture. I will also briefly introduce the recent influential work of Eynard and Orantin in random matrix theory, which gives a unifying recursion formalism for many problems in intersection theory.

**Refreshments served at 2:30 p.m.
in the Math Dept. COMMON ROOM, Thackeray 705**

*The speaker is a candidate for a position in the Department.