University of Oregon
Department of Mathematics

2006 MOURSUND LECTURES

March 15 – March 17, 2006

Victor Ginzburg

University of Chicago

A tea will precede lectures at 3:30 p.m
A reception will follow the Wednesday lecture in 219 Fenton Hall

"Noncommutative geometry and quiver algebras"

Lecture 1:

"Symplectic resolutions, their deformations and quantizations"

4:00 p.m., Wednesday, March 15, 2006 – 106 Deady Hall

Lecture 2:

"Noncommutative symplectic geometry, quivers and matrix integrals"

4:00 p.m., Thursday, March 16, 2006 – 106 Deady Hall

Lecture 3:

"Calabi-Yau algebras"

4:00 p.m., Friday, March 17, 2006 – 110 Willamette Hall

Abstract:

I'll explain how noncommutative geometry arises naturally in Mirror symmetry (this physics terminology serves only as a motivation: no physics whatsoever will be present in the talks) and discuss Mirror symmetry for (holomorphic) symplectic orbifolds. McKay correspondence and Hamiltonian reduction will show up along the way. After that, we discuss the Representation functor and its relation to matrix integrals, and to cyclic and Hochschild homology. We define noncommutative differential forms and vector fields, and discuss the basics of noncommutative symplectic/Poisson geometry and corresponding quantization problems. Algebraic counterparts of Calabi-Yau geometry, in particular, the notion of Calabi-Yau algebra will be introduced towards the end.