



## GEOMETRY, TOPOLOGY, AND PHYSICS SEMINAR

Stability in Algebraic Geometry  
and Wall-Crossing FormulasDave Morrison  
UCSBFriday, October 31, 2008, 4:00 p.m.  
Room 6635 South Hall

**Abstract:** As observed by Mumford in the early 1960's, moduli problems in algebraic geometry generally require a notion of *stability* in order to be well-posed. Although the possibility of different choices of stability condition was implicit in Mumford's original work, it is only in the last 15 years that systematic investigations have been made into stability choices and their effects on moduli spaces. These days, one recognizes that there is generally a parameter space for the stability choices, with the algebro-geometric structure on the corresponding moduli space constant within regions of this parameter space but changing from region to region. Often, one can put a natural metric on these moduli spaces, which varies continuously with the stability parameters within a region, and has certain well-understood behaviors when moving from region to region.

We will review this general topic, with an eye towards the relationship with the wall-crossing formulas for BPS counting functions which have been the underlying topic of this seminar for the fall quarter. Our primary example will be the moduli spaces of representations of the conifold superpotential algebra, as studied in recent work of Nagao and Nakajima.

Information about future meetings of this seminar can be found at  
<http://www.math.ucsb.edu/~malmendier/GTPseminar/>