

Northern California Symplectic Geometry Seminar

BERKELEY – DAVIS – SANTA CRUZ – STANFORD

Monday, December 5, 2011, **Berkeley**

2:30–3:30pm — Room **2 Evans**

Mark McLean (MIT)

“Smooth Affine Varieties, cotangent bundles and wrapped Floer cohomology”

Abstract: If we have a smooth compact manifold, then its cotangent bundle has a natural symplectic form. A smooth affine variety also has a natural symplectic form. We show that many cotangent bundles are not symplectomorphic to smooth affine varieties. Examples include cotangent bundles of simply connected n -manifolds with at least one Betti number greater than that of the n -torus. The main tool used to distinguish these objects is called the growth rate of wrapped Floer cohomology. We show that this growth rate is finite for every pair of Lagrangians in a smooth affine variety, but many cotangent bundles have Lagrangians with infinite growth.

3:30–4:00pm — Tea Break, Room 1015 Evans

4:15–5:15pm — Room **740 Evans**

Nick Sheridan (MIT)

“Homological Mirror Symmetry for a Calabi-Yau hypersurface in projective space”

Abstract: We prove homological mirror symmetry for a smooth Calabi-Yau hypersurface in projective space. In the one-dimensional case, this is the elliptic curve, and our result is related to that of Polishchuk-Zaslow; in the two-dimensional case, it is the K3 quartic surface, and our result reproduces that of Seidel; and in the three-dimensional case, it is the quintic three-fold (also considered by Nohara-Ueda, using our work). After stating the result carefully, we will describe some of the techniques used in its proof, and draw pictures in the one-dimensional case.