

# Northern California Symplectic Geometry Seminar

BERKELEY – DAVIS – SANTA CRUZ – STANFORD

Monday, May 2nd, at **Stanford**

2:30–3:30pm, room 383N

**Jacqui Espina (UC Santa Cruz)**

**“On the mean Euler characteristic of contact manifolds”**

**Abstract:** The mean Euler characteristic (MEC) of a contact manifold is an invariant that arises in contact homology. True to its name, the mean Euler characteristic is the average alternating sum of the ranks of cylindrical or linearized contact homology. This is a powerful enough invariant to distinguish inequivalent contact structures within the same homotopy class. We will give an expression of the MEC in terms of local properties (the mean indices) of closed Reeb orbits for a broad class of contact manifolds, the so-called *asymptotically finite* contact manifolds. This class is essentially closed under subcritical contact surgery and we will see that the MEC changes under such surgery in a very simple way. Furthermore, we will give an expression for the mean Euler characteristic in the Morse-Bott case. Using these MEC formulas, we will calculate the MEC of some interesting manifolds.

3:30–4:00pm — Tea Break, 2nd floor lounge

4:00–5:00pm, room 383N

**Aaron McMillan (Berkeley)**

**“Embedding Singular Poisson Varieties”**

**Abstract:** This talk will focus on the following “Poisson embedding problem”: given a singular Poisson variety, when can one realize it as a Poisson subvariety of a smooth Poisson variety? We will examine this problem locally and relate it to the problem of linearizing Poisson brackets. In this context, we describe necessary conditions for (locally) extending the Poisson bracket of an embedded variety to a formal neighborhood of a singular point. Finally, we’ll look at numerous examples that will provide evidence of a surprising rigidity displayed by the Poisson structures on these singular spaces.

There will be a dinner at 6pm.

—D. Auroux, Y. Eliashberg, D. Fuchs, V. Ginzburg, M. Hutchings, E. Ionel, R. Montgomery, A. Weinstein