Northern California
Symplectic Geometry Seminar

Berkeley – Davis – Santa Cruz – Stanford

Monday, May 7, 2012

BERKELEY, 740 EVANS HALL

2:30–3:30
Başak Gürel (Vanderbilt)
Action-index relations for Hamiltonian dynamical systems

Abstract: In this talk, we will discuss a rigidity feature for Hamiltonian diffeomorphisms with finitely many periodic orbits. Namely, we show that, under suitable assumptions on the ambient manifold, the actions and mean indices of periodic orbits of such a diffeomorphism must satisfy certain relations. This talk is based on joint work with Chance and Ginzburg.

3:30–4:15
Tea Break (not in Evans Hall)

4:15–5:15
Alan Weinstein (UC Berkeley) The Maslov cycle as singular support of quantization

Abstract: In the lagrangian grasmannian Λ of lagrangian subspaces in $T^*\mathbb{R}^n$, the elements which have nonzero intersection with the fibre over 0 form a codimension 1 cooriented subvariety Σ with singular set of codimension 3 in Λ. Σ is called the Maslov cycle, as it is dual to the Maslov class in $H^1(\Lambda, \mathbb{Z})$.

According to Givental (who proved a much more general result), Σ is the image under the cotangent projection of a smooth, conic lagrangian submanifold $\mathcal{S}$ in the cotangent bundle of Λ with the zero section removed. In this talk, I will describe a distribution (i.e. generalized function) ϕ on Λ whose singular support is Σ and whose wave-front set is $\mathcal{S}$.

ϕ is, in fact, a Fourier integral distribution attached to $\mathcal{S}$. I will make some remarks on the Maslov class of $\mathcal{S}$, which determines the bundle where the principal symbol of ϕ takes its values, and on the regularity properties of ϕ.

Finally, I will explain how the results above fit into a larger program of describing "impossible operations" on distributions as generalized functions on spaces of distributions.

Please contact alanw@math.berkeley.edu to arrange parking.

There will be a dinner at 6:00

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