Northern California
Symplectic Geometry Seminar
Stanford, Monday, February 28, 2005
Building 380, Room 383N

A–∞ structure of open-closed maps

3:30–4:00 Tea break (second floor lounge)

4:00–5:00 Tobias Ekholm (U. of Southern California)
Pseudo-holomorphic disks with boundary on a Legendrian submanifold of a 1-jet space and gradient flow trees with cusps.

Abstracts

Cheol-Hyun Cho:
I will first review the construction of A-∞ algebra of Lagrangian submanifold by Fukaya, Oh, Ohta and Ono, and explain computations of product structures for toric Fano manifolds. Then I will explain A–∞ algebra for quantum cohomology, and A–∞ morphism between quantum cohomology and Hochschild cohomology of Fukaya category.

Tobias Ekholm:
The projection of a generic Legendrian submanifold \(L \subset J^1(M) \approx T^*M \times \mathbb{R}\), where \(M\) is a Riemannian manifold, to \(J^0(M) \approx M \times \mathbb{R}\) consists of graphs of functions over the complement of a stratified subset of codimension one in \(M\). A cusped gradient flow tree is a certain map of a tree into \(M\), with the property that its edges coincide with gradient flow lines of differences of the functions mentioned above. We show that if \(\dim(L) \leq 2\), or if \(\dim(L) > 2\) and the projection of \(L\) to \(J^0(M)\) has only cusp-edge singularities, then there is a \(1-1\) correspondence between rigid pseudo-holomorphic disks in \(T^*M\) with boundary on (the projection of) \(L\) and rigid cusped gradient flow trees. We will also discuss some ramifications of this result.

There will be a dinner at 6:00
Please contact eliash@math.stanford.edu to arrange parking.

—Y. Eliashberg
D. Fuchs
V. Ginzburg
R. Montgomery
A. Weinstein