

Northern California Symplectic Geometry Seminar

BERKELEY – DAVIS – SANTA CRUZ – STANFORD

Monday, November 7, 2005

STANFORD, Building 380, Room 383N

- 2:30–3:30 Ludmil Katzarkov (UC Irvine)
“Homological Mirror Symmetry and Birational Geometry”
- 3:30–4:00 Tea break
- 4:00–5:00 Helmut Hofer (NYU)
“Fredholm Theory in Polyfolds”

Abstracts

Katzarkov: In this talk we will introduce homological mirror symmetry for manifolds of general type. We will discuss some applications to Birational Geometry and symplectic topology.

Hofer: We describe a very general nonlinear Fredholm Theory in which “Gromov-Witten Theory”, “Floer-Theory”, “Contact Homology” and more generally “Symplectic Field Theory” can be formulated in a very efficient way. In all these concrete problems “violent” analytical phenomena like “Stretching the neck”, “breaking of trajectories”, “bubbling-off”, “blowing-up” are responsible for the underlying algebraic structure. It will turn out that one needs to introduce a new kind of abstract spaces to replace Banach manifolds or Banach orbifolds to be able to formulate and package the underlying Fredholm theory associated to our short list of concrete theories. It turns that such a generalization is easy and the Fredholm theory is very easy too.

There will be a dinner at 6pm

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