Pennsylvania State University, April 29 - 30, 2017

Schedule of talks

SATURDAY, April 29

10:00 - 10:15  Registration

10:15 - 10:50  Opening ceremony. Remarks by the department chair, Helmut Hofer, and by several Penn State colleagues.

11:00 - 12:00  Helmut Hofer
Feral Pseudoholomorphic curves in Dynamics

12:00 - 2:30  Lunch break

2:30 - 3:30  Katrin Wehrheim
Polyfold lab report

3:30 - 4:00  Coffee break

4:00 - 5:00  Yasha Eliashberg
Geometry and Topology of Weinstein manifolds

6:30 -  Banquet at Fuji & Jade Garden Restaurant
418 Westerly Pkwy, State College, PA 16801

SUNDAY, April 30

10:30 - 11:30  Dusa McDuff
The stabilized symplectic embedding problem

11:30 - 12:00  Coffee break

12:00 - 1:00  Vadim Kaloshin
Birkhoff Conjecture for convex planar billiards and deformational spectral rigidity of planar domains
**Titles and Abstracts**

**Dusa McDuff** (Barnard/Columbia)  
*The stabilized symplectic embedding problem*  
I will discuss recent results about symplectic embeddings of ellipsoids into balls in dimensions 4 and above. The talk will be elementary, not assuming any knowledge of symplectic geometry.

**Yasha Eliashberg** (Stanford)  
*Geometry and Topology of Weinstein manifolds*  
A Weinstein structure is one of basic structures of symplectic topology. Weinstein manifolds can be one hand seen as symplectic analogs of Stein complex manifolds, while on the other they can be viewed as cotangent bundles of manifolds with singularities. In the talk I will discuss the status of the subject and some open problems.

**Helmut Hofer** (Institute for Advanced Study)  
*Feral Pseudoholomorphic curves in Dynamics*  
We show how questions about minimal sets for Hamiltonian flows on energy surfaces are related to a new class of feral pseudoholomorphic curves.

**Vadim Kaloshin** (University of Maryland)  
*Birkhoff Conjecture for convex planar billiards and deformational spectral rigidity of planar domains*  
The classical Birkhoff conjecture states that the only integrable convex planar domains are circles and ellipses. We show that this conjecture is true for perturbations of ellipses. It turns out that the method of proof gives an insight into deformational spectral rigidity of planar axis symmetric domains and gives a partial answer to a question of P. Sarnak. This is based on several papers with Avila, De Simoi, G. Huang, Sorrentino, and Q. Wei.

**Katrin Wehrheim** (UC Berkeley)  
*Polyfold lab report*  
I will survey various results (in progress) on applications and extensions of Hofer-Wysocki-Zehnder’s polyfold theory:  
- fiber products of polyfold Fredholm sections  
- equivariant transversality - existence and obstructions  
- equivariant fundamental class  
- Gromov-Witten axioms  
- two polyfold proofs of the Arnold conjecture  
These are joint with or due to Peter Albers, Ben Filipenko, Joel Fish, Wolfgang Schmaltz, and Zhengyi Zhou.