Symplectic and Contact Geometry
Abstracts

Saturday 10:15 - 12:15
Dusa McDuff, Columbia University
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Basak Gurel, Vanderbilt
Sikimeti Ma'u, UC Berkeley

Sunday 8:30 - 10:30
Gordana Matic, University of Georgia
Vera Vertesi, MIT
Joan Licata, Stanford University
Tara Holm, Cornell

Saturday 10:15 - 12:15

10:15
Symplectic topology - an introduction
Dusa McDuff, Columbia University

11:15
Conley conjecture for negative monotone symplectic manifolds
Basak Gurel, Vanderbilt

The Conley conjecture, formulated by Conley in 1984, asserts the existence of infinitely many periodic orbits for Hamiltonian diffeomorphisms of tori and was established by Hingston in 2004. Of course, one can expect the conjecture to hold for a much broader class of closed manifolds and this is indeed the case. For instance, by now, it has been proved for all closed, symplectically aspherical manifolds and Calabi-Yau manifolds using symplectic topological methods. Most recently, jointly with Ginzburg, we establish the conjecture for negative monotone, closed symplectic manifolds.
In this talk, we will briefly examine the question of existence of infinitely many periodic orbits for Hamiltonian diffeomorphisms and outline a proof of the Conley conjecture in the negative monotone case.

11:45
Quilts and Floer modules
Sikimeti Ma'u, UC Berkeley

I'll describe some general A-infinity module structure that appears in Quilted Floer theory. This structure lies behind spectral sequences on hypercuboid complexes encoding relationships between different Quilted Floer homology groups. I'll illustrate with examples

based on compositions of Dehn twists.

Sunday 8:30 - 10:30

8:30
Contact Invariant in Sutured Floer Homology
Gordana Matic, University of Georgia

We describe an invariant of contact structures in Sutured Floer Homology and show some applications to non-fillability of contact structures. This is joint work with Ko Honda and Will Kazez.

9:00
Transverse invariants in Heegaard Floer homology
Vera Vertesi, MIT

Using the language of Heegaard Floer knot homology recently two invariants were defined for Legendrian knots. One in the standard contact 3-sphere defined by Ozsvath, Szabo and Thurston in the combinatorial settings of knot Floer homology, one by Lisca, Ozsvath, Stipsicz and Szabo in knot Floer homology for a general contact 3--manifold. Both of them naturally generalizes to transverse knots. In this talk I will give a characterization of the transverse invariant, similar to the one given by Ozsvath and Szabo for the contact invariant. Namely for transverse braids both transverse invariants are given as the bottommost elements with respect to the filtration of knot Floer homology given by the axis. The above characterization allows us to prove that the two invariants are the same in the standard contact 3--sphere. This is a joint work with J. Baldwin and D.S. Vela-Vick.

9:30
Legendrian Contact Homology in Seifert Fibered Spaces
Joan Licata, Stanford University

Seifert fibered spaces can be viewed as circle bundles over surface orbifolds. We consider when these manifolds can be equipped with contact forms whose Reeb orbits realize the Seifert fibers, and we construct a combinatorial invariant modeled on Legendrian contact homology for Legendrian knots in these contact manifolds. This is joint work with J. Sabloff.

10:00
Topological Invariants of Orbifolds
Tara Holm, Cornell

We present techniques for computing the various cohomology and K-theory rings associated to an orbifold X that arises as a symplectic quotient M//G. We will pay particular attention to the example of a weighted projective space, where many computations simplify.