

abstract

Members Seminar

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

A Lagrangian correspondence is a Lagrangian submanifold in the product of two symplectic manifolds. This generalizes the notion of a symplectomorphism and was introduced by Weinstein in an attempt to build a symplectic category. In joint work with Chris Woodward we define such a category in which all Lagrangian correspondences are composable morphisms. We extend it to a 2-category by extending Floer homology to cyclic sequences of Lagrangian correspondences. This is based on counts of 'holomorphic quilts' - a collection of holomorphic curves in different manifolds with 'seam values' in the Lagrangian correspondences. A fundamental isomorphism of Floer homologies ensures that our constructions are compatible with the geometric composition of Lagrangian correspondences.

This provides a general prescription for constructing topological invariants by decomposition into simple pieces and a partial functor into the symplectic category (which need only be defined on simple pieces; with moves corresponding to geometric composition).