

Northern California Symplectic Geometry Seminar

BERKELEY – DAVIS – SANTA CRUZ – STANFORD

Monday, October 7th, 2024

at Stanford

2:30–3:30pm, room 380H

Semon Rezhikov (Princeton)

Cyclotomic Structure in Symplectic Topology

Abstract: Symplectic cohomology is a fundamental invariant of a symplectic manifold M with contact type boundary that is defined in terms of dynamical information and counts of pseudoholomorphic genus zero curves, and carries algebraic structures that parallel the algebraic structures on the Hochschild (co)homology of the Fukaya category of M . We show, under natural topological assumptions, that the symplectic cohomology is the homology of a genuine p -cyclotomic spectrum in the sense of Nikolaus-Scholze. The cyclotomic structure arises geometrically from the map which sends loops in M to their p -fold iterates. The data of this refinement is expected to produce many new algebraic structures of an arithmetic nature on symplectic cohomology, analogously to the way that prismatic cohomology refines the de Rham cohomology of a variety. The talk will explain the result and, if time permits, discuss concrete connections to equivariant string topology, equivariant Gromov-Witten theory, and to arithmetic geometry.

3:30–4:00pm — Tea Break

4:00–5:00pm, room 383N

Andreas Floer Memorial Lecture

Ko Honda (UCLA)

A Morse A_∞ -model for the higher-dimensional Heegaard Floer homology of cotangent fibers

Abstract: Given a smooth closed n -manifold M and a κ -tuple of basepoints $\mathbf{q} \subset M$, we define a Morse-type A_∞ -algebra called the based multiloop A_∞ -algebra and show the equivalence with the higher-dimensional Heegaard Floer A_∞ -algebra of κ disjoint cotangent fibers of T^*M .