

# Northern California Symplectic Geometry Seminar

BERKELEY – DAVIS – SANTA CRUZ – STANFORD

Monday, March 4, 2023  
at Berkeley

2:00–3:00, room 736 Evans (NOTE SPECIAL TIME)

Roman Krutowski (UCLA)

**Heegaard Floer symplectic cohomology and generalized Viterbo’s isomorphism theorem**

**Abstract:** In recent years several groups of authors introduced various invariants that are based on Lagrangian Floer homology of a symmetric product of a symplectic manifold. In this talk, I will introduce Heegaard Floer symplectic cohomology (HFSH), an invariant of a Liouville domain  $M$  which mimics symplectic cohomology of the  $k$ -th symmetric product of  $M$ . This invariant can also be regarded as a deformation of the  $k$ -th symmetric version of symplectic cohomology, obtained by counting curves of higher genus. I will also introduce a multiloop Morse complex and show that for cotangent bundles this complex computes HFSH. This is a joint work with Tianyu Yuan.

3:00–4:00 — Tea Break

4:00–5:00, room 736 Evans

Shaoyun Bai (Columbia)

**Gauged linear sigma model and infinitude of Hamiltonian periodic orbits**

**Abstract:** Take an irrational rotation of the two-sphere; it only has the north and south poles as its periodic points. However, Franks proved that for any area-preserving diffeomorphism of the two-sphere, if it has more than two fixed points, then it must have infinitely many periodic points. I will discuss a generalization with Guangbo Xu of this result to all compact toric manifolds in the form of a “Betti number or infinity” dichotomy. The Floer theory package and mirror symmetry considerations from gauged linear sigma models, also known as symplectic vortices, play a surprising role.

There will be dinner in downtown Berkeley following the talks.

**Organizers:** M. Abouzaid, R. Casals, Y. Eliashberg, D. Fuchs, V. Ginzburg, M. Hutchings, E. Ionel, R. Montgomery, V. Shende, L. Starkston, K. Wehrheim, A. Weinstein