Schedule for "Very Small Meeting" in Geometry and Topology

Saturday, October 15, 2016

All talks in RIC 209

9:00-9:50   Liviu Mare

Assignments for topological group actions

10:10-10:50   Derek Krepski

TBD

11:00-11:40   Francois Charette

Reidemeister torsion of the Lagrangian Floer complex and open Gromov-Witten

Lunch in Math and Stats Lounge

1:20-2:00   Steven Rayan

The quiver at the bottom of the twisted nilpotent cone on $\mathbf{P}^1$.

2:10-2:50   Tom Baird

Moduli spaces of vector bundles over a real curve.

Abstracts

Liviu Mare, University of Regina

Assignments for topological group actions

Abstract: Polynomial assignments associated to an action of a torus on a manifold
were first considered by Ginzburg, Guillemin, and Karshon (1999) in relation with Hamiltonian
actions on symplectic manifolds. In a recent work, Guillemin, Sabatini, and Zara (2014) established
interesting connections between the equivariant cohomology ring of a torus action and the
space of all polynomial assignments, called the assignment ring of the action.
In my talk I will define polynomial assignments for continuous torus actions on topological spaces
and discuss various aspects concerning the assignment ring:
localization to fixed points, a Chang-Skjelbred lemma, a Goresky-Kottwitz-MacPherson presentation,
and calculations for symplectic quotients. The talk is based on joint work with Oliver Goertsches.

Derek Krepski, University Of Manitoba

Francois Charette, University of Ottawa

Reidemeister torsion of the Lagrangian Floer complex and open Gromov-Witten invariants

Abstract: We will see how the symplectic s-cobordism conjecture of Fukaya leads to strong restrictions
on open Gromov-Witten invariants of a monotone Lagrangian submanifold, and apply this when L is a
closed orientable 3 manifold.

Steven Rayan, University of Saskatchewan

The quiver at the bottom of the twisted nilpotent cone on $\mathbf{P}^1$.

Abstract: For the moduli space of Higgs bundles on a Riemann surface of positive genus, critical points of
the natural Morse-Bott function lie along the nilpotent cone of the Hitchin fibration and are
representations of A-type quivers in a twisted category of holomorphic bundles. The fixed points that
globally minimize the function are representations of A_1. For twisted Higgs bundles on the projective line,
the quiver describing the bottom of the cone is more complicated. We determine it. We show that the
moduli space is topologically connected whenever the rank and degree are coprime. This talk is based
on arXiv:1609.08226.

Tom Baird, Memorial University

Moduli spaces of vector bundles over a real curve.

Abstract: In a seminal paper in 1983, Atiyah and Bott calculated the
Betti numbers of the moduli space of holomorphic bundles over a

complex curve using Morse theory of the Yang-Mills functional. In this talk, I will explain how to adapt the Atiyah Bott method to calculate $\mathbb{Z}/2$- Betti numbers of the moduli space of real/quaternionic vector bundles over a real curve. I will also describe some possible applications to quantum homology.