ATS - POTSI MEETING
JUNE 7-8, 2011

The joint meeting of the Alberta Topology Seminar (ATS) and Pseudodifferential Operator Theory and Seismic Imaging research group will take place June 7-8 at the University of Calgary Department of Mathematics and Statistics. All talks on June 7 will be in MS 431, and all talks on June 8 will be in MS 427. Snacks and coffee will be in the department lounge. All are invited. The schedule follows, then the titles and abstracts of the talks.

TUESDAY JUNE 7

12:30 Snacks/coffee, welcome by Clifton Cunningham on behalf of PIMS
13:00 Steffen Marcus (Brown Univ.) - joint POTSI - ATS talk
14:10 Lisa Jeffrey (Univ. of Toronto)
15:10 Coffee break
16:00 Debasis Sen (Indian Stastical Inst. Kolkata)

WEDNESDAY JUNE 8

08:30 Snacks/coffee
09:00 Alejandro Adem (Univ. British Columbia)
10:10 Remkes Kooistra (King's Univ Edmonton)
11:10 Coffee break
11:30 Pieter Hofstra (Univ. Ottawa)
12:30 Meeting ends

TALKS AND ABSTRACTS

Steffen Marcus : An Analysis and Comparision of Jacobian and Hurwitz Classes on the Moduli Space of Curves

Abstract

The tautological ring is a heavily studied subring of the cohomology ring of the moduli space of curves. Simply stated, it is just large enough to contain most of the known cohomology classes admitting some geometric construction. In this talk, I will describe natural families of tautological classes which arise by pushing forward the virtual fundamental classes of spaces of relative stable maps to an unparametrized projective line. 'Relative' in this case means our maps have prescribed ramification over zero and infinity given by partitions of the degree. We give a comparision between these push-forwards and a related construction of Richard Hain. This is joint work with Renzo Cavalieri and Jonathan Wise.

Lisa Jeffrey : K-theory of the Based Loop Space of $SU(2)$

Abstract

The based loop group of $G = SU(2)$ has been the subject of extensive study for the past fifty years. It is naturally equipped with an action of G. In this talk I describe the ring structure of the equivariant K-theory of the based loop group. This is joint work with Megumi Harada and Paul Selick.

Debasis Sen : Steenrod Operations in Equivariant Cohomology with Local Coefficients

Abstract

In this talk we will construct Steenrod reduced power operations in simplicial Bredon-Illman cohomology with local coefficients, using Peter May's algebraic approach to Steenrod operations.

Alejandro Adem : Equivariant K-theory for actions with Maximal Rank Isotropy

Abstract

Let G denote a compact connected Lie group with torsion-free fundamental group acting on a compact space X such that all isotropy subgroups are connected and of maximal rank. Let T be a maximal torus with Weyl group W. We derive conditions on the induced action of W on the fixed point set of T which imply that the equivariant K-theory of X is a free module over the representation ring. This is joint work with J.M. Gomez.

Remkes Kooistra : Bott-Chern Cohomology and Regulator Maps

Abstract

In its original definition, Bott-Chern cohomology is nothing more than a slight variation of the Dobeault cohomology for a complex manifold, calculated by differential forms. This talk will present a closer investigation of Bott- Chern cohomology, an investigation that points to a relation with Deligne cohomology. This latter cohomology is often useful as the target for various kinds of regulator maps in algebraic geometry. The second part of the talk will present examples of regulator maps and motivate how Bott-Chern cohomology may also serve as the target of certain regulator maps on complex manifolds.

Pieter Hofstra : Types, Groupoids, and Homotopy

Abstract

This talk will be an exposition of the recently uncovered connections between homotopy theory and type theory. In particular, I will discuss how type theory can be used to generate a class of algebraic structures called ML-complexes, and how these structures can be viewed as models of homotopy types.
