FIELDS

SPEAKER ABSTRACTS 1.2

MATT ANDO
University of Illinois

Equivariant elliptic cohomology, loop group representations, and the fibered WZW models of Distler and Sharpe

By work of Grojnowski and myself, and independently Lurie, the Verlinde algebra at level k of a simple and simply connected lie group G appears in elliptic cohomology as the k-twisted G-equivariant elliptic cohomology of a point. We'll describe this result, and explain how it provides insight on the equivariant string orientation. Then we'll explain how loop group representations give rise to exotic elliptic genera, which have been studied by Kefeng Liu and myself. Recently these Distler and Sharpe have given a physical interpretation of these genera, and David Lipsky has made significant progress towards constructing the corresponding enriched topological field theories.

VIGLEIK ANGELTVEIT
University of Chicago

the Algebraic K-theory of Z/p^n

While the K-theory of the the p-adic integers is well understood, the K-theory of Z/p^n has remained mysterious. I will present some partial results about$K(Z/p^n)$, obtained from the cyclotomic trace map to topological cyclic homology. Topological cyclic homology is built from topological Hochschild homology, and I will explain how a filtration of a ring R gives a way of understanding various spectra related to THH(R). Applied to Z/p^n filtered by powers of p, this gives a relationship between the computation of $K(F_p[x]/x^n)$, which is known, and $K(Z/p^n)$.

CLARK BARWICK
Harvard University

Equivariant derived algebraic geometry and K-theory

I describe the manner in which some of the key ideas of derived algebraic geometry may be applied in the context of equivariant E-infinity ring spectra, and I discuss some applications of the resulting 'equivariant derived algebraic geometry' to a conjecture of Gunnar Carlsson about algebraic K-theory.

FIELDS

SPEAKER ABSTRACTS 1.2

MARK BEHRENS
MIT

The homotopy groups of the $E(2)$-local sphere at large primes, revisited

The homotopy groups of the $E(2)$-local sphere at large primes, revisited

ANDREW BLUMBERG
University of Texas

THH of Waldhausen categories and the localization sequence for THH(ku)

In this talk, I will describe a theory of topological Hochschild homology (and topological cyclic homology) for Waldhausen categories. These theories satisfy the analogues of Waldhausen's theorems for K-theory. In particular, there are two different versions of the localization sequence; one more closely related to the localization of Thomason-Trobaugh, the other generalizing the localization studied by Hesselholt and Madsen. I will describe the conceptual reasons for the existence of these distinct localization sequences, and discuss an application to constructing the localization sequence $THH(Z) -> THH(ku) -> THH(ku|KU)$. This is joint work with Mandell.

RALPH COHEN
Stanford University

String Topology and Calabi-Yau structures in (infinity) categories

In this talk I will describe some categorical aspects of string topology.In particular I will describe the String Topology 'Fukaya -category' of a given manifold M,as defined in joint work with Blumberg and Teleman. The objects are are submanifolds of M and the morphisms are equivalent to chains (or spectra)of spaces of paths connecting the submanifolds. We describe Lurie's notion of a Calabi-Yau object in a symmetric monoidal (infinity) 2-category, and show that the string topology category fits this definition. In so doing, this leads to the question of the role of Koszul duality in topological field theories, and I'll state some conjectures in this regard.

JOHN FRANCIS
Northwestern University

E_n geometry

FIELDS

SPEAKER ABSTRACTS 1.2

ANDRÉ HENRIQUES
Utrecht University

Composition of defects

There are many mathematical definitions that correspond to thephysical notion of conformal field theory. Conformal nets is one of them. A defect is a thing one can put between two different conformal field theories, and should bethought of as a kind of 'bimodule'. Even though the notion of defect can be made sense of in many different models, defects between conformal nets are the only ones that can always be composed. Proving that the composition of two defects is again a defect turns out to be extremely difficult and technical. After presenting the definition, I will point out some of the difficulties lie and sketch how we deal with them. This is joint work with Arthur Bartels and Chris Douglas.

PO HU
Wayne State University

Equivariant and Real motivic homotopy theory

I will discuss the foundations of G-equivariant motivic stable homotopy theory, where G is a finite group. As an application, I will talk about our proof of a completion conjecture for Karoubi's Hermitian K-theory. As another application, I will discuss the motivic Real cobordism spectrum MGLR. (Joint with I. Kriz and K. Ormsby)

DAN ISAKSEN
Wayne State University

Stable motivic homotopy groups over Spec R

NIKO NAUMANN
University of Regensburg

Secondary Invariants for String Bordism and tmf

Using spectral invariants of Dirac operators we construct a secondary version of the Witten genus, a bordism invariant of string manifolds in dimensions $4m-1$. We prove a secondary index theorem which relates this global-analytic construction with its homotopy-theoretic analog. The latter will be calculated through its factorization over topological modular forms. This is joint work with Ulrich Bunke.

FIELDS

SPEAKER ABSTRACTS 1.2

MIKE HILL
University of Virginia

Equivariant Computations and the Kervaire Invariant

GERD LAURES
University of Bochum

How to compute Toda brackets with modular forms

The talk explains how congruences between modular forms can be used to compute Toda brackets. The passage from homotopy classes to modular forms is furnished by the f-invariant, an tertiary invariant based on TMF. The talk derives some formulas which generalize the ones obtained by Frank Adams for the classical e-invariant.

MICHAEL MANDELL
University of Indiana

Cochains and Homotopy Theory

It is known that the E-infinity algebra structure on the cochain complex of a space contains all the homotopy theoretic information about the space, but for partial information, less structure is needed. I will discuss some ideas and preliminary work in this direction.

CHRISTIAN SCHLICHTKRULL
University of Bergen

Diagram spaces and symmetric spectra

NEIL STRICKLAND
University of Sheffield

Self-injective rings and the Generating Hypothesis

Let R_* be the p-completion of the ring of stable homotopy groups of spheres. It is known that Freyd's Generating Hypothesis would imply that R_* is injective as a module over itself, that the only finitely-presented ideals in R_* are 0 and R_*-itself, and that a certain category of R_*-modules is naturally triangulated. The first property is especially remarkable, because self-injective rings are usually very small (say finite-dimensional over a field) whereas R_* is large. I will explain some joint work with Leigh Shepperson, in which we have investigated a number of instructive examples of rings sharing some of the listed conjectural properties of R_*.

FIELDS

SPEAKER ABSTRACTS 1.2

GIANCALO TABUADA
University of Lisboa

Non-commutative motives

In this talk I will describe the construction of various categories of non-commutative motives in the spirit of Drinfeld-Kontsevich's non-commutative algebraic geometry program. In the process, I will establish conceptual characterizations of various higher algebraic K-theories. As an illustration, I will use these results to obtain the higher Chern characters and the cyclotomic trace map. Parts of this work are the result of a collaboration with D.-C. Cisinski, and with A. J. Blumberg and D. Gepner.