26th NRW Topology Meeting

Osnabrück
November 25th - 26th, 2016

Program

Friday, November 25

11:00   **Manh Toan Nguyen (University of Osnabrück)**
Motivic cohomology and algebraic K-theory for finite group actions

12:00   Lunch Break

14:00   **Arthur Bartels (University of Münster)**
Actions on Euclidean retracts and the Farrell-Jones Conjecture

15:10   **Viktoriya Ozornova (University of Bonn)**
Splitting of $TMF_{0(7)}$

16:10   Tea/Coffee Break

16:50   **David Gepner (Purdue University)**
On the theorem of the heart in negative K-theory

18:00   **Joana Cirici (FU Berlin)**
Intersection homotopy type of complex varieties with isolated singularities

19:15   Dinner at Italian Job
Natruper Str. 127, Osnabrück

Saturday, November 26

09:30   **Ulrich Bunke (University of Regensburg)**
Equivariant coarse homotopy theory

10:30   Tea/Coffee Break

11:00   **Daniela Egas Santander (FU Berlin)**
Derived A-infinity algebras and their homotopies

12:00   **Fabian Hebestreit (University of Bonn)**
Stable moduli spaces of odd dimensional manifolds

The 26th NRW Topology meeting will be held at the University of Osnabrück, Institute of Mathematics, Albrechtstr. 28a, Room 69/125.

Abstracts

Friday, November 25

Manh Toan Nguyen (University of Osnabrück)

Motivic cohomology and algebraic K-theory for finite groupactions

Motivic cohomology, initiated by Beilinson and Lichtenbaum around 1908s, is an algebraic version of singular cohomology in topology. Many attempts have been made during 1990s to construct this cohomology theory, due to Beilinson, Bloch, Levine, Voevodsky, Suslin and others. Motivic cohomology has a numerous applications. It is one of the key ingredients in the proof of Milnor-Bloch-Kato conjecture, Quillen-Lichtenbaum conjecture, etc. In this talk, I will present some equivariant versions of motivic cohomology for algebraic varieties with an action of a finite group. In the end, I will discuss about the relation between equivariant motivic cohomology and Thomason's equivariant K-theory.

Arthur Bartels (University of Münster)

Actions on Euclidean retracts and the Farrell-Jones Conjecture

The Conjecture of Farrell and Jones predicts that the K- and L-theory of group rings is determined by the K- and L-theory of group rings of virtually cyclic groups (and group homology). I will discuss conditions for groups that imply cases of the conjecture. Theses conditions are formulated in terms of actions on Euclidean retracts. I will also try to summarize what is known about these conditions and what is not.

Viktoriya Ozornova (University of Bonn)

Splitting of $\mathrm{TMF}_0(\mathbf{7})$

In a joint ongoing project with Lennart Meier, we exhibit a splitting of $TMF_0(7)$ into shifted copies of TMF and $TMF_1(2)$ at the prime 3. This splitting is promoting a splitting of corresponding vector bundles on the moduli stack of elliptic curves. This extends the results by L.Meier on splittings of $TMF_1(n)$ and $TMF_0(n)$ in some cases and gives a hope to provide similar results for $TMF_0(n)$ for wider range of levels, connecting to recent results by Martin Olbermann.

David Gepner (Purdue University)

On the theorem of the heart in negative K-theory

We show that the negative K-groups $K_{-n}(C)$ vanish for any small stable infinity C which admits a bounded t-structure with noetherian heart. This generalizes a theorem of Schlichting on the vanishing of negative K-groups for noetherian abelian categories and extends a theorem of Barwick to the nonconnective case. This is joint work with B. Antieau and J. Heller.

Joana Cirici (FU Berlin)

Intersection homotopy type of complex varieties with isolated singularities

I will explain a homotopical treatment of intersection cohomology recently developed by Chataur-Saralegui-Tanré, which associates a perverse homotopy type to every singular space. In this context, there is a notion of intersection-formality, measuring the vanishing of Massey products in intersection cohomology. In this talk, I will show how to compute the perverse algebraic model for a complex algebraic variety with isolated singularities. I will then prove some intersection-formality results using mixed Hodge theory. (This is joint work with David Chataur).

Saturday, November 26

Ulrich Bunke (University of Regensburg)

Equivariant coarse homotopy theory

In this talk I will provide a motivic view on equivariant coarse homology theories. I will explain how interesting equivariant homology theories can derived from non-equivariant ones. In particular, I will make this idea explicit in the case of algebraic K-theory.

Daniela Egas Santander (FU Berlin)

Derived A-infinity algebras and their homotopies

The notion of a derived A-infinity algebra, introduced by Sagave, is a generalization of the classical A-infinity algebra, relevant to the case where one works over a commutative ring rather than a field. Special cases of such algebras are A-infinity algebras and twisted complexes (also known as multicomplexes). We initiate a study of the homotopy theory of these algebras, by introducing a hierarchy of notions of homotopy between their morphisms. In this talk I will define these objects and describe two different interpretations of them as A-infinity algebras in twisted complexes and as A-infinity algebras in split filtered cochain complexes. We use this reinterpretation to show that this hierarchy of homotopies is an extension of the special case of twisted complexes.
This is joint work with Joana Cirici, Muriel Livernet and Sarah Whitehouse
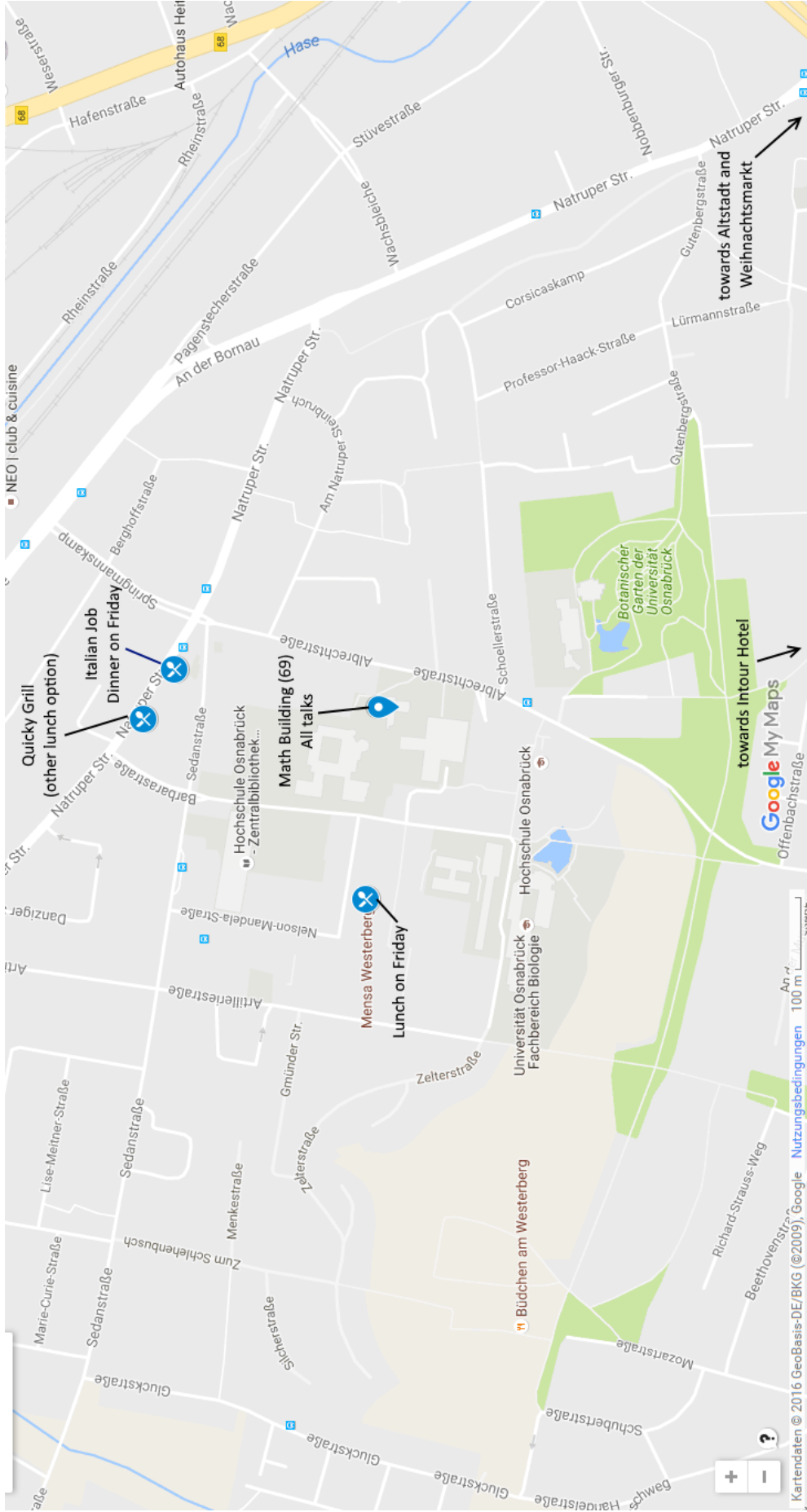
Fabian Hebestreit (University of Bonn)

Stable moduli spaces of odd dimensional manifolds

The introduction of cobordism categories into the study of diffeomorpism groups by Galatius, Madsen, Tillmann and Weiss lead to many new computations of rings of characteristic classes for manifold bundles: First in the form of the Madsen-Weiss theorem and later at the hands of Randal-Williams and Galatius for higher, even dimensional manifolds. Results of Ebert, however, sharply limited the efficacy of such categories in odd dimensions. In my talk I will present recent joint work with Nathan Perlmutter on an enhancement of odd-dimensional cobordism categories surmounting these difficulties. In particular we show that the moduli spaces of the title have the homology type of an infinite loopspace.

Participants

Arndt, Peter	Heinrich-Heine-University Düsseldorf
Bartels, Arthur	University of Münster
Beckert, Falk	University of Wuppertal
Boes, Felix	MPIM Bonn
Bunke, Ulrich	University of Regensburg
Chu, Hongyi	University of Osnabrück
Cirici, Joana	FU Berlin
Egas Santander, Daniela	FU Berlin
Frankland, Martin	University of Osnabrück
Gepner, David	Purdue University
Guzman, Gabriela	University of Duisburg-Essen
Hartmann, Elisa	University of Göttingen
Hebestreit, Fabian	University of Bonn
Heine, Hadrian	University of Osnabrück
Hornbostel, Jens	University of Wuppertal
Hudson, Thomas	University of Wuppertal
Joachim, Michael	University of Münster
Khan, Adeel	University of Regensburg
Kurmar, Arum	University of Osnabrück
Loose, Robin	University of Münster
Nguyen, Manh Toan	University of Osnabrück
Notbohm, Dietrich	University of Amsterdam
Ozornova, Viktoriya	University of Bonn
Raventós, Oriol	University of Regensburg
Röndigs, Oliver	University of Osnabrück
Sabonis, David	University of Copenhagen & TU Munich
Sagave, Steffen	Radboud University Nijmegen
Schwede, Stefan	University of Bonn
Spitzweck, Markus	University of Osnabrück
Sroka Robin,	University of Münster
Stelzer, Manfred	University of Osnabrück
Syed, Sabrina	University of Osnabrück
Tilson, Sean	Universität Wuppertal
Verdugo, Paula	University of Osnabrück
Voelkel, Konrad	University of Osnabrück
Weiss, Michael	University of Münster
Wendt, Matthias	University of Hannover
Wimmer, Christian	University of Bonn
Zeidler, Rudolf	University of Münster
Zibrowius, Marcus	Heinrich-Heine-University Düsseldorf

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towards Altstadt and
Weihnachtsmarkt

towards Intour Hotel

Italian Job
Dinner on Friday

Quicky Grill
(other lunch option)

Math Building (69)
All talks

Mensa Westerberg
Lunch on Friday

NEO | club & cuisine

Hochschule Osnabrück
- Zentralbibliothek...

Botanischer
Garten der
Universität
Osnabrück

Hochschule Osnabrück

Universität Osnabrück
Fachbereich Biologie

Büdchen am Westerberg

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