

Andrew Ranicki's 60th Birthday Conference

“Surgery and Manifold Theory“

18. - 20.06.2008

Organizing committee:

Ian Hambleton, Wolfgang Lück, and Erik Kjær Pedersen.

Westfälische Wilhelms-Universität Münster

Sponsored by:

Sonderforschungsbereich “Geometrische Strukturen in der Mathematik“

Graduiertenkolleg “Analytische Topologie und Metageometrie“

Max-Planck-Forschungspreis

Westfälische Wilhelms-Universität Münster
Mathematisches Institut
Einsteinstr. 62
48149 Münster

How to reach us

A collection of online navigator systems of Germany is available
<http://portale.web.de/Auto/Routenplaner/>

By plane: The airport Münster-Osnabrück (<http://www.fmo.de/>) is located about 30 km to the north of Münster and offers national and international connections. Shuttle service by bus to Münster central station is available.

Public transport: Münster is well connected by train. For details see Deutsche Bahn (<http://www.bahn.de/p/view/index.shtml>). Starting at the central station, several bus lines lead to the department. Best choices are probably number 4 / direction "Alte Sternwarte", number 5 / direction "Nienberge", number 11, 12, 22 / direction "Gievenbeck", number 13 / direction "Technologiepark" and number 20 / direction "Roxel".

Get off at bus stop **Coesfelder Kreuz** after about 15 minutes. To get to the department, go right and cross the street with traffic lights. There is a flat building right behind the street, connected to a 9-story-building, this is the department. As an alternative, take a taxi from the main station.

By car:

From South: take A1 or A43 north. If on A1, change to A43 at crossing Münster South, direction Münster. When the motorway ends at the traffic lights, go ahead for another 500 meters, then go left following the signs to "Universitätsklinik" (university hospital). Follow this road over a bridge and through several traffic lights. At the crossing where the hospital goes left, go straight ahead (there should be a large parking block to your left) - the department is now already on your right, take the entrance after about 20 meters. Attention - this can be easily overlooked!
From North: Take A1 direction South. At exit Münster North, leave A1, direction Münster. You are now on B54 heading Münster, follow instructions from West below.

From West (Netherlands): If you want to avoid taking the northern motorways, take the B54 into Münster (from Enschede). Pass the motorway entrance and drive right into town. At the first major crossing with traffic light in Münster there is a sign to "Coesfeld", pointing right. Follow it. At the second traffic light, there is a parking block on your right. Take a U-Turn and go right after 20 meters into the entrance of the department.

A1 from Osnabrück/Bremen: Take the exit Münster-NORD. Follow the Steinfurter Straße direction Centrum, as signposted. As soon as you pass Münster Schloß (castle) on the right-hand side, move into the left lane. Drive past the Tankstelle DEIM (petrol station) on the right, and after the next traffic lights move into the left turn lane. You will then turn into the Aegidiistraße. The third intersecting road on the right is the Grüne Gasse.

Here you will find the entrance to the underground garage.

A1 from Dortmund/Köln (Cologne): Take the exit Münster-SÜD/B51. Follow the B51 until you reach Weselerstraße. Then follow the directions for A43.

Registration

Please come for **registration** to

Julia Fiege
Mathematisches Institut
Einsteinstraße 62
Room 516

18.06.2008, 11:00 - onwards
19.06.2008, 08:30 - onwards

Thursday, 19.06.2008

08:30 – onwards registration (Room 516)

09:30 – 10:15 Sylvain Cappell
“ L^2 Betti-less manifolds“

We discuss joint work with Shmuel Weinberger on invariants and cobordism classifications of manifolds with certain kinds of fundamental groups and vanishing L^2 Betti numbers.

10:30 – 11:15 Stefan Friedl
“Topologically slice knots“

In this talk we will study the following question: when is a link topologically slice, i.e. when does a link L in S^3 bound a union of locally flat disks in D^4 ? In 1983 Mike Freedman showed that a knot with trivial Alexander polynomial is topologically slice. Generalizing Freedman's theorem turns out to be very difficult since almost all fundamental groups of complements of disks in D^4 are "not good". In this talk we consider certain types of "satellite construction" and show how they give rise to interesting topologically slice links. In particular we give the first sliceness criterion which also applies to links. This is joint work with Tim Cochran and Peter Teichner.

11:15 – 12:00 Coffee break

12:00 – 12:45 Dusa McDuff
“Symplectic embeddings of 4-dimensional ellipsoids“

Gromov's celebrated nonsqueezing theorem of 1985 says that it is impossible to embed symplectically a large ball into a thin cylinder. One of the foundational results of modern symplectic topology, this led to a more or less complete solution of the 4-dimensional symplectic packing problem (which asks when a given disjoint union of balls can be symplectically embedded into another ball.) However there are many other packing problems. In this talk we discuss recent joint work with Schlenk about the constraints on embedding a symplectic ellipsoid into a ball. This leads to some intriguing elementary questions in number theory. The result has applications to constructing 6-dimensional manifolds with symplectic circle action. The talk does not use much symplectic topology and will be accessible to nonspecialists.

LUNCH BREAK

15:30 – 16:15 Laurence Taylor
“Examples of Exotic Stratifications“

16:15 – 17:00 Coffee break

17:00 – 18:00 Michael Weiss
“Around the total surgery obstruction“
(An overview of Andrew's work)

Andrew Ranicki has been most influential where he imported concepts from homological algebra into surgery theory. His theory of quadratic forms on chain complexes is a well known example. Slightly less well known and more complex is his account of the total surgery obstruction, which makes an impressive transition from transversality to sheaf theory. I'm planning to bear witness. Time permitting, there will be a few words on a related but more recent project of Andrew's which grew out of the wish to make sheaf theory without having to rely on transversality.

Friday, 20.06.2008

09:30 – 10:15 Arthur Bartels
“Topological rigidity and non-positively curved groups“

The Borel conjecture asserts that aspherical manifolds are topologically rigid, i.e., every homotopy equivalence between such manifolds is homotopic to a homeomorphism. This conjecture is strongly related to the Farrell-Jones conjectures in algebraic K- and L-theory. We will give an introduction to these conjectures and discuss joint work with Lück on the Borel conjecture for high-dimensional aspherical manifolds with non-positively curved fundamental groups.

10:30 – 11:15 Jim Davis
“Nilpotent and splitting phenomena in manifold theory“

One way of studying manifolds is to split them along codimension one submanifolds. A framework for this study was constructed 35 years ago, but recently much headway has been made in computing the relevant obstructions, partly motivated by the Farrell-Jones Conjectures. The talk will report on the recent progress.

11:15 – 12:00 Coffee break

12:00 – 12:45 Bruce Williams
“A Family Hirzebruch Signature Theorem with Converse“

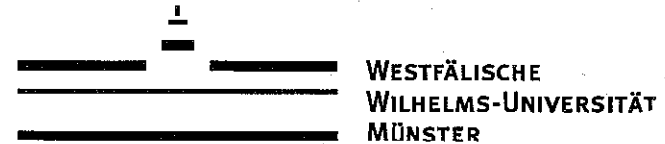
Suppose X^n is an oriented n -dim Poincare complex. If $4|n$, the signature of X , $\sigma(X) \in \mathbb{Z}$ is defined using symmetric structure on $H_{n/2}(X)$. If X is a manifold, then Hirzebruch showed $\sigma(X)$ has a “local description“ in terms of Pontrjagin classes. This follows from the index theorem applied to the signature operator. By using the symmetric structure on $C(\tilde{X})$, the cellular chain complex of the universal cover of X , Ranicki defined the (visible) symmetric signature of X , $\sigma_V(X)$ which is a refinement of $\sigma(X)$. He proved that when $n > 4$, X is homotopy equivalent to a topological manifold if and only if $\sigma_V(X)$ has a local description in terms of a symmetric L-theory fundamental class for X . If $p: E \rightarrow B$ is a fibration with fibers n -dim Poincare complexes, then p has a parametrized (visible) symmetric signature, $\sigma_V(p)$. If p is a topological fiber bundle with closed n -dim fibers, then $\sigma_V(p)$ satisfies a certain fiberwise index theorem. In this talk I'll describe a further refinement $\sigma_{VA}(p)$ of $\sigma_V(p)$. We again get a family index theorem, but we also get a converse when $\dim B < n/3$, B is path connected, and $p^{-1}(b)$ is homotopy equivalent to a smooth manifold for some $b \in B$. Then the fibration p satisfies our signature family index theorem if and only if p is fiber homotopy equivalent to a fiber bundle with fibers closed n -dim manifolds.

LUNCH BREAK

15:30 – 16:15 **Peter Teichner and Matthias Kreck**
“On the topological classification of 4-manifolds, part I“

16:15 – 17:00 **Coffee break**

17:00 – 17:45 **Peter Teichner and Matthias Kreck**
“On the topological classification of 4-manifolds, part II“



Talks Marcel Reich-Ranicki and Wolfgang Lück
18.06.2008, 16:30 Uhr

You have to register for getting your ticket before the talks.

Aula des Schlosses der
Westfälischen Wilhelms-Universität Münster
Schlossplatz 2
48149 Münster

<http://portale.web.de/Auto/Routenplaner/>

From the Stadthotel turn right and then walk along to the next street. Turn left and continue walking straight ahead on this street until you see the castle/university on the right side.

From the Hotel am Schlosspark turn left and then right at the big traffic light (Aral petrol station). Then you see the castle/university on the right side.

MÖVENPICK Hotel Münster
Kardinal-von-Galen-Ring 65
48149 Münster

<http://portale.web.de/Auto/Routenplaner/>

From Einsteinstr. 62: Turn left on Rishon-Le-Zion-Ring in direction Zoo. You continue walking on this street until you can see the Mövenpick Hotel on the left side.

From Stadthotel: You can take the bus (number 14 / direction Zoo) from Schützenstraße to Franz-Hitze-Haus.

Stadthotel Münster
Aegidiistr. 21
48143 Münster
www.stadthotel-muenster.de

<http://portale.web.de/Auto/Routenplaner/>

The direct route to Stadthotel Münster!

On foot from the Hauptbahnhof main train station (approx. 10 min)

Leave the main exit (Hauptausgang), walk straight ahead along the Windhorststraße, cross the von-Vincke-Straße, and after some meters turn left into the promenade. Follow the promenade (about 5 min's walk) past the Königstraße, and then turn right into a small alley called Hals. Now cross the Schützenstraße, follow the Krumme Straße, and then turn left into the Grüne Gasse. You will find the Stadthotel Münster at the end of the alley on the right-hand side.

You can also reach us from the main train stations via the following bus connections:

#2 (get on at Hauptbahnhof/bus stop C1 - get off at Schützenstraße),
#10 (get on at Hauptbahnhof/bus stop C1 - get off at Aegidiimarkt),
#11 (get on at Hauptbahnhof/busstop C1 - get off at Schützenstraße)

Arrival by car via A43 and A1 motorways:

A43 from Recklinghausen: The A43 will take you directly to the outskirts of Münster until you reach Weseler Straße. Follow this street (direction Centrum) as signposted. At the first signpost: Centrum rechts, please turn right into the Aegidiistraße. The third intersecting road on the right is the Grüne Gasse. Here you will find the entrance to the underground garage.

Hotel am Schlosspark
Schmale Straße 2
48149 Münster
www.hotel-am-schlosspark-muenster.de

<http://portale.web.de/Auto/Routenplaner/>

A1 exit Münster-Nord direction Münster

At the second big traffic light (Aral petrol station) you have to go right in the Wilhelmstraße. After around 300 m you can see a telephone box on the right side, then turn right on Stübbenstraße. On the left side there are two car parks.

A1 / A43 exit Münster-Süd direction Münster

Follow the Weseler Straße straight ahead. On the left side you can see the castle/university. After that, at the second big traffic light (Aral petrol station) turn on Wilhelmstraße. After around 300 m you can see a telephone box on the right side, then turn right on Stübbenstraße. On the left side there are two car parks.

Public transport

Starting at central station, several bus lines lead to the hotel. Best choices are probably:
number. 5 (direction Nienberge) and number 1 (direction Roxel) Get off at the bus stop Wilhelmstraße. Go straight ahead in the Stübbenstraße, on the right side you will see the hotel.

Hotellist

surname	stay	hotel
Bleile	18.-20.06.08	Stadthotel
Brookman	18.-21.06.08	Stadthotel
Browder	DZ 18.-21.06.08	Stadthotel
Cappell	16.-22.06.08	Hotel am Schlosspark
Collins/Köppe	DZ 18.-20.06.08	Stadthotel
Crowley	16.-20.06.08	Stadthotel
Davis	15.-21.06.08	Hotel am Schlosspark
Dwyer	18.-22.06.08	Stadthotel
Friedl	15.-21.06.08	Hotel am Schlosspark
Gramlich/Köhl	DZ 18.-20.06.08	Jellentrup
Hausman	17.-20.06.08	Stadthotel
Hughes	DZ 15.-22.06.08	Hotel am Schlosspark
Jahren	17.-20.06.08	Stadthotel
Karbe	DZ 17.-18.06.08	Stadthotel
Khan	17.-24.06.08	Hotel am Schlosspark
Korzeniewski	17.-21.06.08	Stadthotel
Kreck	DZ 18.-20.06.08	Hotel am Schlosspark
Levikov	18.-20.06.08	Stadthotel
Löffler	18.-20.06.08	Stadthotel
Maxim	15.-21.06.08	Hotel am Schlosspark
McDuff/Milnor	DZ 18.-22.06.08	Hotel am Schlosspark
Müllner	18.-20.06.08	Stadthotel
Ortiz	18.-21.06.08	Stadthotel
Ottenburger	19.-20.06.08	Hotel am Schlosspark
Pedersen	16.-23.06.08	Hotel am Schlosspark
Powell	18.-21.06.08	Hotel am Schlosspark
Quinn	18.-21.06.08	Stadthotel
Ranicki	DZ 17.-21.06.08	Hotel am Schlosspark
	17.-20.06.08	Hotel am Schlosspark
Reich-Ranicki	DZ 17.-20.06.08	Hotel am Schlosspark
	17.-20.06.08	Hotel am Schlosspark
Sheiham	DZ 19.-21.06.08	Hotel am Schlosspark
Sixt	18.-20.06.08	Stadthotel
Stolz	18.-20.06.08	Stadthotel
Taylor	16.-23.06.08	Stadthotel
Teichner	DZ 18.-22.06.08	Hotel am Schlosspark
Weiss	18.-21.06.08	Hotel am Schlosspark
Williams	16.-23.06.08	Stadthotel