STRATIFIED SPACES:
JOINING ANALYSIS, TOPOLOGY AND GEOMETRY

WORKSHOP PROGRAM

OBERWOLFACH, DEC. 11 - DEC. 17, 2011

Organizers: Markus Banagl (Heidelberg), Ulrich Bunke (Regensburg),
Shmuel Weinberger (Chicago)

MONDAY, Dec. 12

SPECIAL INTRODUCTORY LECTURE:
9:00am - 10:00am Jonathan Woolf (Liverpool)
Title: *Intersection Cohomology and Perverse Sheaves*

Abstract: From an algebraic viewpoint, intersection cohomology complexes are the simple objects in the category of perverse sheaves. In this light, many of the remarkable properties of intersection cohomology arise from the remarkable properties of perverse sheaves, and the latters' close relationships with Morse theory, symplectic geometry and representation theory. This expository talk will review the basic definition and properties of perverse sheaves, sketch the aforementioned connections, and outline some consequences, both 'classical' and more recent.

10:15am - 11:15am Jim McClure (Purdue)
Title: *The Symmetric Signature of Witt Spaces*

11:30am - 12:30pm Matthias Kreck (Bonn)
Title: *Poincaré Duality for Equivariant Cohomology using Stratifolds*

12:30 LUNCH, 2:30-4pm TEA/COFFEE

4:00pm - 5:00pm Min Yan (Hong Kong University of Science and Technology)
Title: *Homotopy Classification of Multiaxial Actions*

5:15pm - 6:15pm Florian Gaisendrees (Heidelberg)
Title: *Intersection Spaces, Fiberwise Homology Truncation, and the Halperin Conjecture*

TUESDAY, Dec. 13

SPECIAL INTRODUCTORY LECTURE:
9:00am - 10:00am Shoji Yokura (Kagoshima)

Title: *Characteristic Classes and Genera of Singular Varieties*

10:15am - 11:15am Edward Bierstone (Toronto)
Title: *Stratification by the Desingularization Invariant*

11:30am - 12:30pm Jörg Schürmann (Münster)
Title: *Witt Groups of Perverse Sheaves*

12:30 LUNCH, 2:30-4pm TEA/COFFEE

4:00pm - 5:00pm Xianzhe Dai (Santa Barbara)
Title: *Analytic Torsion and Intersection Reidemeister Torsion for Manifolds in Conical Singularities*

5:15pm - 6:15pm Manuel Villa (Heidelberg)
Title: *Motivic Integration and Invariants of Singular Points of Complex Hypersurfaces: Applications to the Quasi-Ordinary Case*

6:30 DINNER

8:00pm Problem Session

WEDNESDAY, Dec. 14

SPECIAL INTRODUCTORY LECTURE:
9:00am - 10:00am Eric Leichtnam (Paris)
Title: *Higher Signature Index Classes and Stratified Spaces*

Abstract: We shall review the higher signature index class and give some applications. First we shall recall the case of a closed manifold, then we shall deal with the case of stratified spaces. The second part will describe a joint work with P. Albin, R. Mazzeo and P. Piazza.

10:15am - 11:15am Hessel Posthuma (Amsterdam)
Title: *Localized Index Theory on Lie Groupoids and the van Est Map*

11:30am - 12:30pm Jean-Marie Lescure (Université Blaise Pascal Clermont-Ferrand)
Title: *Pseudodifferential Operators on Manifolds with Fibered Corners and Poincaré Duality for Stratified Spaces*

12:30 LUNCH

NO TALKS THIS AFTERNOON.

THURSDAY, Dec. 15

9:00am - 10:00am Bernd Ammann (Regensburg)
Title: *Regularity of eigenfunctions of Schrödinger type equations*

10:15am - 11:15am James Fowler (Ohio State)
Title: *Poincaré Duality Groups*

11:30am - 12:30pm Markus Pflaum (Boulder)
Title: *Geometry of Orbit Spaces of Proper Lie Groupoids*

12:30 LUNCH, 2:30-4pm TEA/COFFEE

4:00pm - 5:00pm Ursula Ludwig (Freiburg)
Title: *A comparison Theorem between two complexes on a singular space*

5:15pm - 6:15pm Victor Nistor (Penn State)
Title: *Stratified spaces, Lie manifolds, and the solvability of the Laplace's equation*

FRIDAY, Dec. 16

9:00am - 10:00am Anda Degeratu (MPI for Gravitational Physics Golm)
Title: *Singular Spin Structures*

10:15am - 11:15am Wolfgang Lück (Bonn)
Title: *Approximation of L^2-Invariants*

11:30am - 12:30pm Daniel Grieser (Oldenburg)
Title: *Pseudodifferential Operators on Spaces with Multiply Fibered Cusps*

12:30 LUNCH

1:45pm - 2:45pm Paul Loya (Binghamton)
Title: *Witten's Holonomy Theorem on Manifolds with Corners*

3:00pm - 4:00pm Daniele Otera (Orsay)
Title: *Quasi-Isometry Topological Invariants for Finitely Presented Groups*