Alpine Perspectives on Algebraic Topology

Third Arolla Conference
on Algebraic Topology
August 18–24, 2008
Arolla, Switzerland

Christian Ausoni
Kathryn Hess
Jérôme Scherer

Editors

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CONTEMPORARY MATHEMATICS

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Dedicated to Dominique Arlettaz, initiator of the Arolla Conference series.

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Participants in the third Arolla Conference

Preface

Nine years after the first edition, the Third Arolla Conference on Algebraic Topology brought together around 80 mathematicians specialised in a broad range of topics in algebraic topology. Some of us have had the privilege to attend all three editions, and we felt almost at home up there in the Alps, at an altitude of 2000 meters. However, along with the more experienced and faithful participants, many PhD students and postdocs (altogether 30 younger mathematicians) attended the conference. This reveals the vigor of the subject, and is, hopefully, a good sign for the future of the Arolla conferences series !

These proceedings reflect the variety of topics discussed at the conference. Quite roughly, Monday and Tuesday were dedicated to geometry, unstable homotopy theory and operads, Wednesday to algebraic K-theory and traces, Thursday to Goodwillie calculus and its applications, and Friday to field theories and moduli spaces. Saturday then offered conference participants a bouquet of these topics.

Christian Ausoni, Kathryn Hess and Jérôme Scherer

Pre-conference trek: Pigne d'Arolla (3'796m)

List of Conference Talks

Monday, August 18

Anand Dessai — *Some applications of elliptic genera to group actions and positive curvature*

Tuesday, August 19

Natàlia Castellana — *Constructing maps between classifying spaces of p-local finite groups*

Assaf Libman — *The Burnside ring of a saturated fusion system*

Kasper Andersen — *The isogeny theorem for p-compact groups*

Clemens Berger — *The lattice path operad*

Benoît Fresse — *Koszul duality of the chain little cubes operads*

Short communications

Jonathan Barmak — *Simple homotopy types and finite spaces*

Simona Paoli — *Algebraic André-Quillen homology and higher categorical structures*

My Ismail Mamouni — *Lower bounds on the cohomological dimension of elliptic spaces*

Wednesday, August 20

Bjørn Ian Dundas — *Witt rings*

Lars Hesselholt — *K-theory of the dual numbers*

Christian Schlichtkrull — *Higher topological Hochschild homology of Thom spectra*

Birgit Richter — *An involution on the K-theory of (some) bimonoidal categories*

Holger Reich — *Algebraic K-theory of virtually cyclic groups*

Thursday, August 21

Tom Goodwillie	*Functor calculus and pseudoisotopy spaces*
Pascal Lambrechts	*Rational homology of the space of smooth embeddings*
Ismar Volić	*Embedding calculus and Milnor invariants*

Friday, August 22

Ralph Cohen	*Field theories, string topology, and Hochschild homology*
Nathalie Wahl	*Homological conformal field theories*
Søren Galatius	*Spaces of graphs*
Paolo Salvatore	*The topological cyclic Deligne conjecture*
Ulrike Tillmann	*From braid to mapping class groups, configuration to moduli spaces*

Saturday, August 23

Jean-Claude Hausmann	*Conjugation spaces*
Ian Hambleton	*Equivariant CW-complexes and the orbit category*
Jacob Lurie	*Moduli problems for ring spectra*
Wojciech Chachólski	*How to enumerate Bousfield classes in derived categories of abelian categories?*
Nick Kuhn	*Towards calculating the unstable v_n-periodic homotopy groups of spheres*

List of Participants

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Titles in This Series

TITLES IN THIS SERIES

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AMS Bookstore at **www.ams.org/bookstore/**.

This volume contains the proceedings of the Third Arolla Conference on Algebraic Topology, which took place in Arolla, Switzerland, on August 18–24, 2008.

This volume includes research papers on stable homotopy theory, the theory of operads, localization and algebraic K-theory, as well as survey papers on the Witten genus, on localization techniques and on string topology—offering a broad perspective of modern algebraic topology.