

Proceedings of the International Conference on
Singularity Theory and Applications
Hefei, China, July 25-31, 2011

Laurentiu Maxim
Editor

The International Conference on Singularity Theory and Applications was held at the University of Science and Technology of China (Hefei, China), during July 25-31, 2011. The conference was focused around recent developments in Singularity Theory, including topics such as: fundamental groups of algebraic varieties, topological and Hodge-theoretic aspects of singularities, characteristic classes of singular varieties, etc. The meeting was attended by about fifty participants from all over the world.

The papers in this volume cover the various subjects discussed during the conference. All manuscripts have been carefully peer-reviewed. I would like to express my gratitude to the authors for their contributions, as well as to the referees for the high quality job. I also thank all the participants – especially the speakers – who made the meeting both successful and fruitful. I am very grateful for the financial support received from the National Science Foundation, as well as from the Department of Mathematics of the University of Science and Technology of China. Last, but not least, I would like to thank Xiuxiong Chen and his staff for a flawless organization of this conference.

May 2012
Laurentiu Maxim, Editor

List of Participants

Alexander Aleksandrov

Russian Academy of Sciences, Institute of Control Sciences, Russian Federation

Paolo Aluffi

Florida State University, USA

Donu Arapura

Purdue University, USA

Markus Banagl

University of Heidelberg, Germany

Gergely Berczi

University of Oxford, UK

Maciej Borodzik

University of Warsaw, Poland

Jean-Paul Brasselet

Institut de Mathematiques de Luminy, France

Sylvain Cappell

Courant Institute, USA

Gang Chen

Nanjing University, China

Qiusheng Cheng

USTC, China

Zhi Chen

University of Science and Technology of China, China

Rong Du

East China Normal University, China

Yun Gao

Shanghai JiaoTong University, China

Manuel Gonzalez Villa

University of Heidelberg, Germany

Jose Ignacio Cogolludo

University of Zaragoza, Spain

Guangfeng Jiang

Beijing University of Chemical Technology, China

Ludmil Katzarkov

University of Wien and University of Miami

Toshitake Kohno

University of Tokyo, Japan

Ping Li

Fudan University, China

Yu Li

Nanjing University, China

Xia Liao

Florida State University, USA

Yongqiang Liu

USTC, China

Zhi Lu

Fudan University, China

Yanwei Lv

USTS, China

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Banaras Hindu University, India

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University of Heidelberg, Germany

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Faculdade de Ciencias da Universidade de Lisboa, Portugal

Mutsuo Oka

Tokyo University of Science, Japan

Piotr Pragacz

Institute of Mathematics of Polish Academy of Sciences, Poland

Richard Rimanyi

University of North Carolina at Chapel Hill, USA

Christian Schnell

University of Illinois at Chicago, USA

Jörg Schürmann

University of Münster, Germany

Kiyoshi Takeuchi

University of Tsukuba, Japan

Andrzej Weber

Institute of Mathematics, University of Warsaw, Poland

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Purdue University, USA

Jie Wu

National University of Singapore

Min Yan

Hong Kong University of Science and Technology

Shoji Yokura

Kagoshima University, Japan

Masahiko Yoshinaga

Kyoto University, Japan

Sergey Yuzvinsky

University of Oregon, USA

Zhiyong Zhao

USTC, China

Huan Zhu

USTC, China

Kefu Zhu

USTC, China

Bing Wang

USTC, China

List of Talks

- Alexander Aleksandrov:** *Residue theory and logarithmic de Rham complex*
- Paolo Aluffi:** *Chern classes of hyperplane arrangements*
- Donu Arapura:** *Hodge theory and the fundamental group*
- Markus Banagl:** *Singularities and intersection spaces: theory and application*
- Jean-Paul Brasselet:** *Some insights on the Euler local obstruction*
- Sylvain Cappell:** *Symmetries and rigidity of aspherical manifolds*
- Zhi Chen:** *KZ connections and Brauer type algebras*
- Manuel Gonzalez Villa:** *Motivic zeta functions for quasi-ordinary hypersurface singularities*
- Jose Ignacio Cogolludo:** *Mordell-Weil groups of elliptic threefolds over \mathbb{P}^2 , Alexander polynomials, and quasi-toric relations of curves*
- Guangfeng Jiang:** *The global invariant of hyperplane arrangements*
- Ludmil Katzarkov:** *Degenerations, singularities and wall crossings*
- Toshitake Kohno:** *Monodromy groups of conformal field theory*
- Zhi Lu:** *A differential operator and tom Dieck-Kosniowski-Stong localization theorem*
- Teresa Monteiro Fernandes:** *Propagation for solutions with moderate growth of D -Modules*
- Mutsuo Oka:** *Mixed polynomials and mixed varieties*
- Piotr Pragacz:** *On positivity of Thom polynomials*
- Richard Rimanyi:** *Thom series via equivariant localization and iterated residues*
- Christian Schnell:** *Hodge modules on abelian varieties*
- Jörg Schürmann:** *Characteristic classes of Hilbert schemes of points via symmetric products*
- Kiyoshi Takeuchi:** *Motivic Milnor fibers and Newton polyhedra*

Andrzej Weber: *Local equivariant Chern classes of Singular varieties*

Jaroslaw Wlodarczyk: *Weights on the cohomology and invariants of singularities*

Jie Wu: *Obtaining higher homotopy groups from the fundamental groups*

Min Yan: *Homotopy classification of multiaxial actions*

Shoji Yokura: *Fiberwise bordism groups*

Masahiko Yoshinaga: *Minimal stratifications for line arrangements*

Sergey Yuzvinsky: *Topological complexity of arrangement complements*