

MATHEMATISCHES FORSCHUNGSINSTITUT OBERWOLFACH

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Complex Algebraic Geometry

Organised by
Fabrizio Catanese, Bayreuth
Yujiro Kawamata, Tokyo
Bernd Siebert, Hamburg
Gang Tian, Princeton

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ABSTRACT. The conference focused on several classical and modern topics in the realm of complex algebraic geometry, such as moduli spaces, birational geometry and the minimal model program, Mirror symmetry and Gromov-Witten invariants, Hodge theory, curvature flows, algebraic surfaces and curves.

Mathematics Subject Classification (2000): 14xx , 18xx , 32xx , 53xx .

Introduction by the Organisers

The workshop *Complex Algebraic Geometry*, organized by Fabrizio Catanese (Bayreuth), Yujiro Kawamata (Tokyo), Bernd Siebert (Hamburg) and Gang Tian (Princeton), drew together 56 participants from all continents (...). There were several young PhD students and other PostDocs in their 20s and early 30s, together with established leaders of the fields related to the thematic title of the workshop. There were 23 50-minutes talks, each followed by a lively discussion.

As usual at an Oberwolfach Meeting, the mathematical discussions continued outside the lecture room throughout the day and the night. The Conference fully realized its purported aim, of setting in contact mathematicians with different specializations and non uniform background, of presenting new fashionable topics alongside with new insights on long standing classical open problems, and also cross-fertilizations with other research topics.

Many talks were devoted to classification theory, especially to the birational geometry of 3-folds, but also to surfaces and higher dimensional varieties, Fano manifolds, relations with mirror symmetry.

Another important direction was moduli spaces: their rationality properties, moduli spaces of curves and Gromov-Witten invariants, automorphisms.

There were also new interesting results on the classical topics of Hyperkähler manifolds, Prym varieties and maps, Hodge modules.

Tian gave a survey talk on curvature flows and on the open problem of VII_0^+ surfaces, and there were also talks on derived categories, McKay correspondences, Hurwitz type spaces.

The variety of striking results and the very interesting and challenging proposals presented in the workshop made the participation highly rewarding. We hope that these abstracts will give a clear and attractive picture, they will certainly be useful to the mathematical community.

Workshop: Complex Algebraic Geometry**Table of Contents**

Christian Böhning (joint with Fedor Bogomolov, Hans-Christian Graf v. Bothmer, Gianfranco Casnati, Jakob Kröker) <i>Rationality properties of linear group quotients</i>	2673
Jungkai Alfred Chen (joint with Christopher Hacon, partly) <i>Birational maps of threefolds</i>	2675
Meng Chen (joint with Jungkai A. Chen) <i>On 3-folds of general type with small fractional genus: $g = \frac{1}{2}$</i>	2678
Ciro Ciliberto (joint with Andreas Knutsen) <i>k-gonal nodal curves on K3 surfaces</i>	2680
Alessio Corti (joint with T. Coates, S. Galkin, V. Golyshev, A. Kasprzyk) <i>Extremal Laurent Polynomials and Fano manifolds</i>	2681
Jean-Pierre Demailly <i>Holomorphic Morse inequalities and the Green-Griffiths-Lang conjecture</i>	2683
Paola Frediani (joint with Elisabetta Colombo) <i>Prym map and Gaussian maps</i>	2687
Jun-Muk Hwang <i>Varieties of minimal rational tangents of codimension 1</i>	2690
Akira Ishii (joint with Kazushi Ueda) <i>Special McKay correspondence and exceptional collections</i>	2693
Sándor J. Kovács <i>Du Bois singularities for the working mathematician</i>	2696
Yongnam Lee (joint with Noboru Nakayama) <i>Simply connected surfaces of general type in arbitrary characteristic via deformation theory</i>	2698
Chi Li <i>On the K-stability and log-K-stability in the Kähler-Einstein problem</i> ...	2700
Jun Li (joint with Christian Liedtke) <i>Rational Curves on K3 surfaces</i>	2703
Michael Lönne (joint with Fabrizio Catanese, Fabio Perroni) <i>Moduli spaces of curves with a fixed group of automorphism</i>	2705
Keiji Ogusio <i>Birational automorphism groups and the movable cone theorem for Calabi-Yau manifolds of Wehler type</i>	2707

Angela Ortega (joint with Herbert Lange)	
<i>Prym varieties of triple coverings</i>	2709
Mihnea Popa (joint with C. Schnell)	
<i>Hodge modules, vanishing, and linearity</i>	2711
Sönke Rollenske (joint with Daniel Greb, Christian Lehn)	
<i>Lagrangian fibrations on hyperkähler manifolds</i>	2714
Helge Ruddat (joint with Mark Gross, Ludmil Katzarkov)	
<i>Mirror Symmetry in Higher Kodaira Dimensions</i>	2716
Richard P. Thomas (joint with Martijn Kool)	
<i>Counting curves in surfaces and the Göttsche conjecture</i>	2721
Gang Tian	
<i>Curvature flows on complex manifolds</i>	2724
Chenyang Xu (joint with Christopher Hacon, James McKernan)	
<i>Boundedness of log pairs</i>	2724
De-Qi Zhang	
<i>Compact Kähler manifolds with automorphism groups of maximal rank</i> .	2726