

MATHEMATISCHES FORSCHUNGSIINSTITUT OBERWOLFACH

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Komplexe Algebraische Geometrie

Organised by

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Mathematics Subject Classification (2000): 14-XX.

Introduction by the Organisers

The Workshop “Komplexe algebraische Geometrie”, organized by Fabrizio Catanese (Bayreuth), Yujiro Kawamata (Tokyo), Gang Tian (Princeton), and Eckart Viehweg (Essen), drew together 49 participants. In an age range between the early 20’s and the late 50’s, there were young PhD students, together with established leaders of the fields which are related to the not too specialized thematic title of the workshop. There were 23 talks, each one lasting 50 minutes but followed by a lively 10-15 minutes discussion, which as usual continued outside the lecture room and throughout the day and the night. The Conference fully fulfilled 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 as arithmetic and physics (for the last, cf. the survey of Jun Li on Gromov Witten invariants). The more detailed contents of the several expositions can be suitably grouped under the following general headings :

- (1) Moduli spaces and invariant theory (Brion, Mukai, Verra, Paul, Shepherd-Barron)
- (2) Hodge Theory and variations of Hodge structures (Voisin, Ekedahl, Esnault, Möller, Zuo)
- (3) Surfaces (Schröer, Schreyer, Pignatelli)

- (4) Classification and geometry of higher dimensional varieties (Pirola, Kovács, Reid, Kebekus, Corti)
- (5) Complex analytic methods (Voisin, Jun Li, Paul)
- (6) Arithmetic questions and motivic integration (Esnault, Ein, Yasuda, Hulek)
- (7) Algebraic curves (Verra, Aprodu)

The style of the talks varied considerably, ranging from general overviews like the one by Corti, to “experimental” conjectures, like the ones given by Schreyer, but the variety of striking results and very interesting and challenging proposals is so great that certainly each organizer and each participant had its favourite ones. We believe however that the quality of the expositions in the abstracts collected here is such that we do not deem it necessary to further procrastinate the anticipated pleasure of the reader.