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**RIMS Kôkyûroku Bessatsu B24**

# Higher Dimensional Algebraic Geometry

edited by Shigeru Mukai and Noboru Nakayama

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Research Institute for Mathematical Sciences

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*RIMS Kôkyûroku Bessatsu B24*

*Higher Dimensional Algebraic Geometry*

*December 14 ~18, 2009*

*edited by Shigeru Mukai and Noboru Nakayama*

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## PREFACE

This volume of Kôkyûroku Bessatsu is the proceedings of the workshop

**“Higher Dimensional Algebraic Gemetry”**

which was held at the Research Institute for Mathematical Sciences (RIMS) of Kyoto University during December 14–18, 2009. There were 20 lectures at the workshop and this volume collects nine contributions from the speakers. As the editors we would like to thank the referees. Special thanks are due to the organizer Professor Daisuke Matsushita.

Shigeru MUKAI  
Noboru NAKAYAMA

# PROGRAM

RIMS Workshop on

## Higher Dimensional Algebraic Geometry

Organizer: Daisuke Matsushita (Hokkaido University)

Period: December 14 – December 18, 2009

Place: Room 127, Faculty of Science Building #3, Kyoto University

### December 14, Monday

- 13:15 – 14:15 Osamu Fujino (Kyoto University)  
Non-lc ideal sheaves
- 14:30 – 15:30 Hisanori Ohashi (Kyoto University)  
Integral sections of some elliptic  $K3$  surface and the binary Golay code
- 15:45 – 16:45 Taro Fujisawa (Tokyo Denki University)  
Polarization on the limiting mixed Hodge structure

### December 15, Tuesday

- 9:00 – 10:00 Takashi Kishimoto (Saitama University)  
An application of log minimal model program to affine algebraic threefolds
- 10:15 – 11:15 Shigeru Kuroda (Tokyo Metropolitan University)  
The wildness of several automorphisms of a polynomial ring
- 13:15 – 14:15 Akira Fujiki (Osaka University)  
The relative Picard varieties for certain degenerations with application to twistor spaces
- 14:30 – 15:30 Kazushi Ueda (Osaka University)  
Dimer models and exceptional collections
- 15:45 – 16:45 Young-Hoon Kiem (Seoul National University)  
On the birational geometry of moduli spaces of rational curves in projective space

### December 16, Wednesday

- 9:00 – 10:00 Nobuyoshi Takahashi (Hiroshima University)  
Descending chain condition for stringy invariants
- 10:15 – 11:15 Katsuhisa Furukawa (Waseda University)  
Defining ideal of the Segre locus in arbitrary characteristic
- 13:15 – 14:15 Kimiko Yamada (Kyoto University)  
Birational aspects of moduli scheme of stable sheaves on a surface
- 14:30 – 15:30 Masao Aoki (University of Tokyo)  
On the Picard groups of the moduli stacks of curves
- 15:45 – 16:45 Xavier Roulleau (University of Tokyo)  
On the cotangent map of surfaces of general type

### December 17, Thursday

- 9:00 – 10:00 Shunsuke Takagi (Kyushu University)  
On  $F$ -jumping numbers
- 10:15 – 11:15 Takehiko Yasuda (Kagoshima University)  
An application of the Frobenius morphism of a noncommutative blowup
- 13:15 – 14:15 Nobuo Hara (Tohoku University)  
Splitting of Frobenius sandwiches
- 14:30 – 15:30 Karl Schwede (University of Michigan)  
On the behavior of the test ideal under finite maps
- 15:45 – 16:45 Anna Cadoret (Université de Bordeaux)  
Kodaira dimension of the generic  $\ell$ -primary torsion for abelian schemes over surfaces

### December 18, Friday

- 9:00 – 10:00 Takuzo Okada (Kyoto University)  
Birational unboundedness of  $\mathbb{Q}$ -Fano varieties of dimension at least five
- 10:15 – 11:15 De-Qi Zhang (National University of Singapore)  
Zariski decomposition and Lagrangian fibration on compact HyperKähler manifolds

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