

Workshop on Complex Geometry and related topics

15 Feb 2019

Time: 10AM to 5:30PM

Venue: NUS Block S17 Room 04-06



Department of Mathematics
Faculty of Science

Programme

- 10.00am – 10.50am **A surface in odd characteristic with discrete and non-finitely generated automorphism group**
Keiji Ogiso
University of Tokyo
- 10.50am – 11.10am Coffee Break
- 11.10am – 12.00pm **On endomorphisms of Calabi-Yau varieties**
Sheng Meng
Max Planck Institute - Bonn
- 12.00pm – 2.00pm Lunch
- 2.00pm – 2.50pm **A Monge-Ampère operator for plurisubharmonic functions with analytic singularities**
Elizabeth Wulcan
Chalmers University of Technology and University of Gothenburg
- 2.50pm – 3.10pm Coffee Break
- 3.10pm – 4.00pm **Dynamics of correspondences on Riemann Surfaces**

Lucas Kaufmann
National University of Singapore
- 4:00pm – 4:20pm Coffee Break
- 4:20pm – 5:10pm **Okounkov bodies and Kähler manifolds**
David Witt Nyström
Chalmers University of Technology and University of Gothenburg

Abstract

A surface in odd characteristic with discrete and non-finitely generated automorphism group

Keiji Ogusio, Tokyo

It was proved by Professor Tien-Cuong Dinh and me that there is a smooth complex projective surface whose automorphism group is discrete and not finitely generated. In this talk, I would like to show that there is a smooth projective surface, birational to some K3 surface, such that the automorphism group is discrete and not finitely generated, over any algebraically closed field of odd characteristic except precisely an algebraic closure of the prime field.

On endomorphisms of Calabi-Yau varieties

Sheng Meng, Bonn

In this talk, we are going to study surjective endomorphisms of klt projective varieties with numerically trivial canonical divisors. I will enumerate various divisorial (cohomological) and geometrical conditions on the endomorphisms and discuss how they affect each other. In particular, I will talk about the cases of Hyperkähler and abelian varieties.

This talk is based on my recent preprint which is available on arxiv:1901.07089.

Monge-Ampère operator for plurisubharmonic functions with analytic singularities

Elizabeth Wulcan, Gothenburg

I will discuss a way of defining a (mixed) Monge-Ampère operator with nice local and global properties for plurisubharmonic functions with analytic singularities. The talk will be of survey type and based in joint papers with several people including Andersson, Blocki, Lärkäng, Raufi, and Sera. If time admits I will briefly mention a joint work in progress with Lärkäng and Sera which concerns regularization of these Monge-Ampère products.

Dynamics of correspondences on Riemann Surfaces

Lucas Kaufmann, Singapore

Let X be a compact Riemann surface. A correspondence f on X is a multi-valued map from X to itself. Each point of X has d images and d' pre-images counting multiplicity. As in the case of maps we can iterate f and study its dynamics. When d and d' are different the global dynamics of f is well understood. In this talk I will present some results concerning the case $d = d'$. As an application, we can consider the action of subgroups of $\mathrm{PSL}(2, \mathbb{C})$ on \mathbb{P}^1 and recover some classical results about random products of matrices. This is joint work with Tien-Cuong Dinh and Hao Wu.

Okounkov bodies and Kähler manifolds

David Witt Nyström, Gothenburg

Okounkov bodies were introduced by Okounkov in the 90's as a way of generalizing the correspondence between line bundles and polytopes in toric geometry to the setting of ample line bundles on projective manifolds. I will discuss a new way of thinking of Okounkov bodies as arising from certain degenerations of the manifold together with its Kähler structure. This is work in progress together with Ya Deng.