



Birational Geometry and Related Topic

December 25-26, 2025

Venue

Math Building MB 241, North Campus, XJTLU, Suzhou

Invited Speakers

Yifan Chen	Beihang University, Beijing
Yifei Chen	AMSS, Chinese Academy of Sciences, Beijing
Yong Hu	Shanghai Jiaotong University, Shanghai
Fei Hu,	Nanjing University, Nanjing
Zhan Li	Southern University of Science and Technology, Shenzhen
Jihao Liu	Peking University, Beijing (online)
Yanze Wang	AMSS, Chinese Academy of Sciences, Beijing

Organizer

Jinsong Xu (Department of Pure Mathematics, SMP)

Sponsor

*Department of Pure Mathematics, XJTLU
XJTLU-IRA*



Xi'an Jiaotong-Liverpool University

西交利物浦大學

Schedule

December 25, Thursday

13:00-14:00 *Yifan Chen*
14:15-15:15 *Yong Hu*
15:30-16:30 *Yifei Chen*

December 26, Friday

9:15-10:15 *Jihao Liu (Online)*
10:30-11:30 *Yanze Wang*
11:30-13:30 *Lunch break*
13:30-14:30 *Fei Hu*
14:45-15:45 *Zhan Li*

Title and Abstract

Title: **Mori Dreamness of Fake Quadrics**

Speaker: **Yifan Chen** (Beihang University)

Abstract: In this talk, I will talk about fake quadrics. These surfaces have the same Betti numbers as smooth quadrics in $P^3 \mathbb{C}$, but they are surfaces of general type. Fake quadrics fall into two classes, the odd ones and the even ones, according to the intersection form.

I will talk about the Mori dreamness of fake quadrics and explain that the Shavel type fake quadrics are even and they are not Mori dream spaces.

The talk is based on the joint work with Paolo Cascini, Fabrizio Catanese and JongHae Keum

Title: **Optimal lower bounds for the canonical volume of irregular threefolds of general type**

Speaker: **Yong Hu** (Shanghai Jiaotong University)

Abstract: In this talk, I will present some optimal lower bounds for the canonical volume of irregular threefolds of general type. This is joint work in progress with Jungkai Chen, Zhi Jiang, and Tong Zhang.

Title: Jordan constants of Cremona group of rank 2 in odd characteristic

Speaker: Yifei Chen (AMSS, Chinese Academy of Sciences)

Abstract: A classical theorem of C. Jordan asserts that finite subgroups in a general linear group over a field of characteristic zero contains normal abelian subgroups of bounded index. In general, a group G has Jordan property, if any finite subgroup of G contains a normal abelian subgroup of index at most J , where J is a constant only depending on G . J.P. Serre proves Cremona group of rank 2 has Jordan property, and he conjectures Cremona group of any rank has Jordan property. The conjecture is proved by Prokhorov-Shramov and Birkar. In this talk, we give explicit bounds for Cremona group of rank 2 in odd characteristic. This is a joint work with C. Shramov.

Title: Boundedness of Fano algebraically integrable Foliations (Online)

Speaker: Jihao Liu

Abstract: I will discuss works on the boundedness of Fano foliations, particularly the algebraically integrable ones.

Title: Sarkisov program for algebraically integrable and threefold foliations

Speaker: Yanze Wang (AMSS, Chinese Academy of Sciences)

Abstract: By applying the theory of the minimal model program for adjoint foliated structures, we establish the Sarkisov program for algebraically integrable foliations on klt varieties: any two Mori fiber spaces of such structure are connected by a sequence of Sarkisov links.

Combining with a result of R. Mascharak, we establish the Sarkisov program for foliations in dimension at most 3 with mild singularities. Log version and adjoint foliated version of the aforementioned Sarkisov programs are also established.

This is a jointed work with Yifei Chen and Jihao Liu.

Title: **Parity and symmetry of polarized endomorphisms on cohomology**

Speaker: **Fei Hu** (Nanjing University)

Abstract: We show that the eigenvalues of any polarized endomorphism acting on the ℓ -adic étale cohomology of a smooth projective variety satisfy certain parity and symmetry properties, as predicted by the standard conjectures. These properties were previously known for Frobenius endomorphisms. Besides the hard Lefschetz theorem, a key new ingredient is a recent Weil's Riemann hypothesis-type result due to J. Xie. We also prove a "Newton over Hodge" type property for abelian varieties and Grassmannians.

Title: **On the Morrison-Kawamata dream space and its applications**

Speaker: **Zhan Li** (SUSTech)

Abstract: I will discuss the theory of Morrison-Kawamata dream spaces, which axiomatizes varieties (not necessarily of Calabi-Yau type) that satisfy the Morrison-Kawamata cone conjecture. If time permits, I will also present some applications of this theory. This talk is based on the joint work with Sung Rak Choi, Xingying Li and Chuyu Zhou.