

# WEIHONG XU

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## RESEARCH INTERESTS

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Algebraic geometry and combinatorics.

## EMPLOYMENT

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Postdoctoral Associate, Virginia Tech, Mentor: Leonardo Mihalcea

Oct 2022 – Aug 2024

## EDUCATION

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Ph.D. Mathematics, Rutgers University, Advisor: Anders Buch

Sept 2017 – Oct 2022

M.S. Mathematics, Courant Institute

Sept 2014 – May 2016

B.S. Theoretical and Applied Mechanics, Peking University

Sept 2010 – July 2014

## PUBLICATIONS AND PREPRINTS

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8. Quantum K-theory of  $SG(2, 2n)$  (with V. Benedetti and N. Perrin), *in preparation*.
7. Quantum K Whitney relations for partial flag varieties (with W. Gu, L. Mihalcea, E. Sharpe, H. Zhang, and H. Zou), *submitted*, arxiv: 2310.03826.
6. *Appendix to* Quantum K-theory Chevalley formulas in the parabolic case (with T. Kouno, C. Lenart, S. Naito, and D. Sagaki), *Journal of Algebra* (to appear), arxiv: 2109.11596.
5. Quantum K theory rings of partial flag manifolds (with W. Gu, L. Mihalcea, E. Sharpe, H. Zhang, and H. Zou), *Journal of Geometry and Physics* (to appear), arxiv: 2306.11094.
4. The isomorphism problem for cominuscule Schubert varieties (with E. Richmond and M. Tarigradschi), *Selecta Mathematica* (to appear), arxiv: 2302.11642.
3. The isomorphism problem for Grassmannian Schubert varieties (with M. Tarigradschi), *Journal of Algebra* (2023), arXiv: 2205.12814.
2. Quantum K-theory of Incidence Varieties, *in revision at European Journal of Mathematics*, arXiv: 2112.13036.
1. On an equivalence of divisors on  $\overline{M}_{0,n}$  from Gromov–Witten theory and conformal blocks (with L. Chen, A. Gibney, L. Heller, E. Kalashnikov, and H. Larson), *Transformation Groups* (2022), arXiv: 2107.00174.

## CONFERENCE PROCEEDINGS

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1. The isomorphism problem for Cominuscule Schubert varieties (with E. Richmond and M. Tarigradschi), *Proceedings of the 35th Conference on Formal Power Series and Algebraic Combinatorics (Davis), Séminaire Lotharingien de Combinatoire 89B (2023)*.

## CONFERENCE AND SEMINAR TALKS

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AMS Special Session on Combinatorial Insights into Algebraic Geometry, JMM San Francisco

Jan 2024

Algebra Seminar, University of Georgia

Dec 2023

Mid-Atlantic Algebra, Geometry & Combinatorics (MAAGC) workshop (*poster*)

Dec 2023

AMS Special Session on Representation theory and flag varieties, the University at Buffalo (SUNY)

Sept 2023

Algebra/Topology Seminar, the University at Albany (SUNY), Albany

Sept 2023

Virginia Tech Algebra Seminar

Sept 2023

International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC) (*poster*)

July 2023

Schubert Conference, UIUC	June 2023
Equivariant Schubert calculus and beyond, the University of Ottawa	June 2023
Gauged Linear Sigma Models @30, Simons Center for Geometry and Physics	May 2023
Women in Algebra and Combinatorics, the University at Albany (SUNY)	Apr 2023
Algebra, Geometry and Combinatorics Day (AlGeCom), Loyola University ( <i>poster</i> )	Apr 2023
University of British Columbia Discrete Math Seminar	Mar 2023
Canadian Western Algebraic Geometry Symposium, Simon Fraser University ( <i>poster</i> )	Mar 2023
Geometric Representation Theory and Quantum Topology workshop, Paris Cité University	Dec 2022
University of British Columbia Algebraic Geometry Seminar	Nov 2022
MIT-Harvard-MSR Combinatorics Seminar, MIT	Oct 2022
AMS Special Session on Combinatorial Algebraic Geometry	Oct 2022
Virginia Tech Algebra Seminar	Sept 2022
Algebraic Geometry Northeastern Series, Rutgers University ( <i>poster</i> )	May 2022
Schubert Seminar	Mar 2022
Versailles Saint-Quentin-en-Yvelines University Seminars AG	Feb 2022
Rutgers University Algebra Seminar	Jan 2022
ICERM Geometry and Combinatorics from Root Systems workshop	Mar 2021
ICERM Sage/Oscar Days for Combinatorial Algebraic Geometry workshop	Feb 2021
American Graduate Student Algebraic Geometry Seminar (AGSAGS)	Dec 2020

## TEACHING

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### Virginia Tech, Instructor

Modern Algebra	Fall 2023
Introduction to Linear Algebra	Spring 2023

### UIUC, Teaching Assistant

Quantum K-theory mini-course at the Schubert Summer School	June 2023
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### ICERM, Teaching Assistant

Combinatorial Algebraic Geometry Introductory Workshop ( <i>online</i> )	Feb 2021
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### Rutgers University, Instructor

Introductory Linear Algebra ( <i>online</i> )	Summer 2020
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### Rutgers University, Teaching Assistant

Special Pre-enrollment Program for New Graduate Students ( <i>online</i> )	Aug 2020
Differential Equations for Engineering and Physics	Spring 2020
Calculus I Math/Physics (Honors)	Fall 2019
Graduate Algebra I	Fall 2018

### Johns Hopkins Center for Talented Youth, Teaching Assistant

Inductive and Deductive Reasoning ( <i>for 5th and 6th graders</i> )	Summer 2017
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## SERVICE AND MENTORING

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### Journals refereed

Advances in Mathematics

Journal of the London Mathematical Society

Journal of Pure and Applied Algebra

Mentor, PKU Algebra and Combinatorics Experience (PACE), Peking University Summer 2024

Co-organizer, Algebra Seminar, Virginia Tech Fall 2023

Co-instructor, Blacksburg Math Circle Feb 2023

Math Department Liaison, Rutgers Overseas Semester Program Aug 2020 – Dec 2021

Co-organizer, Graduate Student and Postdoc Seminar,

ICERM Combinatorial Algebraic Geometry Semester Program Spring 2021

Discussion Leader, International Teaching Assistant Orientation, Rutgers University Aug 2019

Research Glimpse for Incoming Graduate Students, Rutgers University Sept 2018

Graduate Mentor, undergraduate research on Schubert calculus (REU), Rutgers University Summer 2018

Lecture at CSplash (*annual lecture series for high school students*), Courant Insititute 2016

## HONORS AND AWARDS

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### Collaboration opportunities

Combinatorics and Geometry of Moduli Spaces of Curves, BIRS July 2024

### Fellowships

Rutgers University School of Arts and Sciences Graduate Fellowship Spring 2021

Rutgers University Janice Pattwell Annual Mathematics Fellowship 2020

Rutgers University TA/GA Professional Development Fund 2018

## EXPOSITORY TALKS

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### Rutgers University

Graduate Algebra and Representation Theory Seminar (*2 talks*) 2018, 2021

Algebraic Geometry Learning Seminar 2019

Graduate Combinatorics Seminar 2018

Undergraduate Math Seminar 2018

### Temple University

Annual Graduate Student Conference in Algebra, Geometry, and Topology 2018