

# WEIHONG XU

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## RESEARCH INTERESTS

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Algebraic geometry and combinatorics.

## EMPLOYMENT

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Harry Bateman Teaching Fellowship in Mathematics, California Institute of Technology Sept 2024 –  
*Mentors: Thomas B. Graber, Tony Yue YU*

Postdoctoral Associate, Virginia Tech Oct 2022 – Aug 2024  
*Mentor: Leonardo C. Mihalcea*

## EDUCATION

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Ph.D. Mathematics, Rutgers University Sept 2017 – Oct 2022  
*Advisor: Anders S. Buch*

M.S. Mathematics, Courant Institute Sept 2014 – May 2016

B.S. Theoretical and Applied Mechanics, Peking University Sept 2010 – July 2014

## JOURNAL ARTICLES

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5. *Appendix to Quantum K-theory Chevalley formulas in the parabolic case* (with T. Kouno, C. Lenart, S. Naito, and D. Sagaki), *Journal of Algebra* (2024), arxiv: 2109.11596.
4. 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* (2024), arxiv: 2306.11094.
3. The isomorphism problem for cominuscule Schubert varieties (with E. Richmond and M. Tarigradschi), *Selecta Mathematica* (to appear), arxiv: 2302.11642.
2. The isomorphism problem for Grassmannian Schubert varieties (with M. Tarigradschi), *Journal of Algebra* (2023), arXiv: 2205.12814.
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.

## PREPRINTS

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3. Quantum K-theory of  $SG(2, 2n)$  (with V. Benedetti and N. Perrin), *in preparation*.
2. Quantum K Whitney relations for partial flag varieties (with W. Gu, L. Mihalcea, E. Sharpe, H. Zhang, and H. Zou), *submitted*, arxiv: 2310.03826.
1. Quantum K-theory of Incidence Varieties, *in revision at European Journal of Mathematics*, arXiv: 2112.13036.

## 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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Combinatorics Seminar, Washington University in St. Louis	Apr 2024
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 ( <i>poster</i> )	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) ( <i>poster</i> )	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, Spring 2024

Introduction to Linear Algebra Spring 2023

### UIUC, Teaching Assistant

Quantum K-theory mini-course at the Schubert Summer School June 2023

### ICERM, Teaching Assistant

Combinatorial Algebraic Geometry Introductory Workshop (*online*) Feb 2021

### Rutgers University, Instructor

Introductory Linear Algebra ( <i>online</i> )	Summer 2020
<b>Rutgers University</b> , 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
<b>Johns Hopkins Center for Talented Youth</b> , Teaching Assistant	
Inductive and Deductive Reasoning ( <i>for 5th and 6th graders</i> )	Summer 2017
<b>New York University</b> , Recitation Leader	
Great Ideas in Math	Fall 2015

## 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 ( <i>annual lecture series for high school students</i> ), Courant Insititute	2016

## HONORS AND AWARDS

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### Collaboration opportunities

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