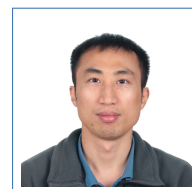


Tao Su

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Employment

- Sep.2022- **Visiting Postdoc**, *IMS, CUHK*, Hong Kong.
Sep.2023
- Jan.2021- **Postdoc**, *YMSC*, Beijing.
Jul.2022 supported by the International Postdoctoral Exchange Fellowship (Talent-Introduction)
- Sep.2018- **Postdoc**, *École Normale Supérieure*, Paris.
Aug.2020 supported by the ANR Microlocal Project

Education

- 2018 **PhD in math**, *UC Berkeley*.
Advisors: Vivek Shende, and Richard E. Borcherds
- 2012 **B.S. in math and physics**, *Tsinghua University*.
Fellowship in the Tsinghua Xuetang Talents Program

Academic visits

- Sep.01- *IHES*, Paris, France
Nov.25,2020
- Jul.28- *IBS-CGP*, South Korea
Aug.04,2019
- Jun.08- *CRM*, Montreal, Canada
Jun.30,2019
- Nov.25- *RIMS*, Kyoto, Japan
Dec.09,2018
- Oct.04- *Fourier Institute*, Grenoble, France
Oct.06,2018

Research interests

- Microlocal/Symplectic geometry, Algebraic geometry and Mathematical physics.
- Lately, I've been working on projects around: Legendrian knots and constructible sheaves, Hodge theory of character varieties and $P=W$, and mirror symmetry.

Publications and Preprints

- Cell decomposition, dual boundary complexes and motives of character varieties, arXiv:2307.16657.
- Dual boundary complexes of Betti moduli spaces over the two sphere with one irregular singularity, arXiv:2109.01645. Submitted.

- Augmentations are sheaves for Legendrian graphs, with Byung Hee An, Youngjin Bae, Journal of Symplectic Geometry, 20 (2022), pp.259-416.
- Augmentations and ruling polynomials for Legendrian graphs, with Byung Hee An, Youngjin Bae, Algebraic & Geometric Topology, 22 (2022), pp.2079-2185.
- A Hodge-theoretic study of augmentation varieties associated to Legendrian knots/tangles, Ph.D thesis, ProQuest 2018.
- Ruling polynomials and augmentations for Legendrian tangles, arXiv:1707.04948.

Research talks

- Aug.2,2023 MIST workshop, IMS, CUHK, Hong Kong
- Jan.7,2023 MIST workshop, IMS, CUHK, Hong Kong
- May 25,2022 Zoom seminar, Zhejiang University.
- Apr.21,2022 Algebraic Geometry/Number theory seminar (zoom), Boston College.
- Dec.17,2021 Tsinghua Algebraic Geometry workshop, YMSC, Beijing.
- Dec.14,2021 Symplectic Geometry and Mathematical Physics seminar, BICMR, Beijing.
- Nov.29,2021 GeoTop seminar, YMSC, Beijing.
- Nov.10,2021 Geometry and Topology seminar, AMSS, Chinese Academy of Sciences, Beijing.
- Oct.13,2021 Geometry and Topology seminar, Chern Institute of Mathematics, Tianjin.
- Oct.12,2021 Geometry and Topology seminar, Chern Institute of Mathematics, Tianjin.
- Sep.24,2021 Geometric representation seminar, YMSC, Beijing.
- Mar.24,2021 Moscow-Beijing topology seminar, Zoom talk.
- Jul.31,2019 Director's seminar, IBS-CGP, South Korea.
- Jun.27,2019 Conference on Homological algebra, Microlocal analysis, and Symplectic geometry, CRM, Montreal.
- Jan.19,2019 Conference on Number theory, Algebra, Combinatorics, IAS of HIT, Haerbin, China.
- Nov.30,2018 Symplectic seminar, RIMS, Kyoto.
- Nov.9,2018 Symplectic seminar, ENS, Paris.
- Oct.5,2018 Topology seminar, Fourier Institute, Grenoble.
- May 24,2018 Student geometry/topology seminar, UC Davis.
- Mar.6,2018 EGN postdoc and student seminar, MSRI.
- Dec.5,2017 3-manifold Seminar, UC Berkeley.
- Jun.28,2017 AIM square meeting "Sheaf theory and Legendrian knots", San Jose.

Selected expository talks

At YMSC, Beijing:

- Jun. 2021 Cotangent complexes and representability for derived stacks, DAG seminar.
- May 2021 Derived schemes and derived algebraic stacks, DAG seminar.
- May 2021 The $(\infty, 1)$ -topos of derived stacks, DAG seminar.
- Apr. 2021 Morphisms of derived affine schemes, DAG seminar.
- Apr. 2021 Cotangent complexes for derived affine schemes, DAG seminar.
- Apr. 2021 The homotopy theory of derived affine schemes, DAG seminar.
- Mar. 2021 Introduction to model categories, DAG seminar.

At UC Berkeley:

- May 2018 Local Euler obstruction and Behrend function, final talk in ‘virtual classes in AG’.
- Nov. 2017 Points-count and E-polynomials of algebraic varieties, Student AG Seminar.
- Oct. 2017 Categorification of HOMFLY-PT polynomials via Soergel bimodules, GRASP Seminar.
- Apr. 2017 Atiyah-Bott fixed-point theorem and Weyl character formula, K-theory seminar.
- Mar. 2017 Equivariant K-theory and localization, K-theory seminar.
- Nov. 2016 Legendrian knots II: Relative contact homology, GRT Seminar.
- Nov. 2016 Legendrian knots I: Classical theory, GRT Seminar.
- Oct. 2016 Constructible sheaves from Legendrian knots, Student Symplectic Seminar.
- Oct. 2016 Categorification of the Jones polynomial, Student Differential Geometry/Low Dimensional Topology (SDG/LDT) Seminar.
- Sept. 2016 3D Dijkgraaf-Witten theory, GRASP seminar.
- Fall 2015 Moduli of sheaves on complex surfaces, Berkeley-Tokyo summer school ‘Geometry and Mathematical physics’, IPMU.
- Spring 2015 Classical BV-BFV extension of BF theory, Quantum gauge theories final talk.

Selected conferences attended

- Feb. 2020 Quiver varieties, character varieties and DT invariants, IHP, Paris.
- Feb. 2020 Perverse sheaves in enumerative geometry, HCM, Bonn.
- Sep. 2019 Stability Conditions in Representation Theory, HCM, Bonn.
- Jul. 2019 IAS/PCMI program: Quantum Field Theory and Manifold Invariants, PCMI, Utah.
- Jun. 2019 Homological Algebra, Microlocal Analysis, and Symplectic Geometry, CRM, Montreal.
- Jun. 2019 New perspectives in Gromov-Witten theory, IMJ-PRG, Paris.
- May 2019 Graduate summer school on the Mathematics and Physics of Hitchin Systems, SCGP.
- Feb. 2019 Intro. Workshop: DAG, Birational Geometry and Moduli Spaces, MSRI.
- Dec. 2018 D-modules, quantum geometry, and related topics, RIMS, Kyoto.
- Jul. 2018 Summer School on Geometric Representation Theory, IST Austria.
- Jun. 2018 Geometric Representation Theory and Gauge Theory, CIME, Cetraro, Italy.
- Apr. 2018 Categorification in mathematical physics, SCGP.
- Mar. 2018 Mirror symmetry and enumerative geometry, UC Berkeley.
- Mar. 2018 Structures in enumerative geometry, MSRI.
- Feb. 2018 Riemann-Hilbert correspondences, U. of Padova, Italy.
- Jan. 2018 Introductory workshop: Enumerative geometry beyond numbers, MSRI.
- Jul. 2017 Soergel bimodules, MSRI.
- Apr. 2017 Gauge theory and Low dimensional topology, SCGP.
- Nov. 2016 Hall algebras, Enumerative invariants and Gauge theories, Fields Institute.
- Jun. 2016 Higgs bundles, branes and quantization, SCGP.
- Mar. 2016 Cluster algebras and Wall-Crossing, MSRI.
- Mar. 2016 Mirror Symmetry and Wall-Crossing, Berkeley.

Honors and Awards

- 2021 International Postdoctoral Exchange Fellowship, China Postdoc Science Foundation

- 2017 Graduate Division Summer Grant, UC Berkeley
- 2015 Graduate Division Summer Grant, UC Berkeley
- 2009-2012 Fellowship in the Tsinghua Xuetaang Talents Program, Tsinghua University
- 2011 S.-T. Yau College Students Mathematics Contests:
 - (All-around Competition) Bronze medal ◦ (Geometry and Topology) Bronze medal
 - (Algebra, Number Theory, and Combinatorics) Bronze medal ◦ (Group competition) Silver medal

Services

- Tutoring Friend scholar for Qiuzhen college, Tsinghua university, Apr. 2021-Jun.2022.
- Organized Derived Algebraic Geometry learning seminar, YMSC, Spring 2021.
- Referee for Symmetry, Integrality and Geometry: Methods and Applications.

Teaching experience

- Fall 2021 TA for Geometric Representation Theory II, Tsinghua university.
- Spring 2018 TA for Math 113, Introduction to Abstract Algebra, UC Berkeley.
- Fall 2017 GSI for Math 16B, Analytic Geometry and Calculus, UC Berkeley.
- Fall 2016 GSI for Math 16B, Analytic Geometry and Calculus, UC Berkeley.
- Spring 2016 GSI for Math 16B, Analytic Geometry and Calculus, UC Berkeley.
- Fall 2015 GSI for Math 16B, Analytic Geometry and Calculus, UC Berkeley.
- Spring 2015 GSI for Math 54, Linear Algebra and Differential Equations, UC Berkeley.
- Fall 2014 GSI for Math 54, Linear Algebra and Differential Equations, UC Berkeley.
- Spring 2014 GSI for Math 16B, Analytic Geometry and Calculus, UC Berkeley.
- Fall 2013 GSI for Math 1B, Calculus, UC Berkeley.