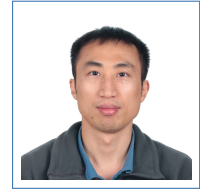


Tao Su (苏桃)

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<https://tao-su-math.github.io/>



Employment

- Feb.2024-present **Assistant professor**, *BIMSA*, Beijing.
- Sep.2022-Sep.2023 **Postdoc**, *IMS, CUHK*, Hong Kong.
- Jan.2021-Jul.2022 **Postdoc**, *YMSC*, Beijing.
supported by the International Postdoctoral Exchange Fellowship (Talent-Introduction)
- Sep.2018-Aug.2020 **Postdoc**, *École Normale Supérieure*, Paris.
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 Xuetao Talents Program

Academic visits

- Oct.30, 2023-Jan.30, 2024 Academy of Mathematics and Systems Science, CAS, China
- Oct.7-Oct.17, 2023 *YMSC*, Beijing, China
- Sep.01-Nov.25, 2020 *IHES*, Paris, France
- Jul.28-Aug.04, 2019 *IBS-CGP*, South Korea
- Jun.08-Jun.30, 2019 *CRM*, Montreal, Canada
- Nov.25-Dec.09, 2018 *RIMS*, Kyoto, Japan
- Oct.04-Oct.06, 2018 *Fourier Institute*, Grenoble, France

Research interests

- Microlocal/Symplectic Geometry, Algebraic Geometry, and Mathematical Physics.

- Specific topics of interest include: Legendrian knots and constructible sheaves, Hodge theory of character varieties and various $P=W$ conjectures, Zariski cancellation problem in characteristic 0, Algebra and geometry of link homology, Springer theory, microlocal sheaves and mirror symmetry.

Publications/Preprints

- Cell decomposition of Deligne-Lusztig varieties, (*in preparation*).
- Mirror $P=W$ phenomena for (wild) character varieties, (*in preparation*).
- A note on the HLRV conjecture, (*in preparation*).
- Cell decomposition, dual boundary complexes and motives of character varieties, arXiv:2307.16657.
(*The main result of this paper proves the weak geometric $P=W$ conjecture of Katzarkov-Noll-Pandit-Simpson for very generic character varieties*)
- Dual boundary complexes of Betti moduli spaces over the two-sphere with one irregular singularity, arXiv:2109.01645. (Under revision for Advances in Mathematics)
- 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

- Feb.22,2024 BIMSA AG seminar, BIMSA, Beijing
- Nov.13,2023 CAS seminar, AMSS, CAS, Beijing
- Oct.8-16,2023 5 lectures on dual boundary complexes of character varieties, YMSC, Beijing
- 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.

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 Combi- ○ (Group competition) Silver medal
 - natorics) Bronze medal

Services

- Tutored 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.