

# WENYUAN LI

wenyuan.li@usc.edu

KAP 424A, 3620 S. Vermont Ave, Los Angeles, CA, U.S.

## EDUCATION

---

**Department of Mathematics, Northwestern University** 09/2018-06/2023

Ph.D. in Mathematics

Advisor: Prof. Emmy Murphy & Prof. Eric Zaslow.

Thesis: Some functoriality results on microlocal sheaves over Legendrians and Lagrangians.

**Department of Mathematics, Princeton University** 09/2021-06/2022

Visiting graduate student

**Department of Mathematics, Peking University** 09/2015-07/2018

B.A. in Mathematics

Advisor: Prof. Huijun Fan,

Undergraduate thesis: Geometry of Lagrangian submanifolds in symplectic manifolds.

**Department of Psychology, Peking University** 09/2014-09/2015

## EMPLOYMENT

---

**Department of Mathematics, University of Southern California** 08/2023-05/2026

Assistant Professor (RTPC) in Mathematics

## RESEARCH INTEREST

---

Symplectic topology, contact topology, microlocal sheaf theory, and their connections to cluster algebras, mirror symmetry, noncommutative geometry, algebraic K-theory and persistence modules.

## AWARDS AND GRANTS

---

AMS-Simons Travel Grant

2024–2025

## PAPERS AND PREPRINTS

---

**11. Estimating Reeb chords using microlocal sheaf theory,**

39pp, to appear in *Algebr. Geom. Topol.*, arXiv:2106.04079.

**10. Lagrangian cobordism functor in microlocal sheaf theory II,**

*J. Sympl. Geom.* 23 no.3 (2025): 599-672, arXiv:2308.05089.

**9. Lagrangian cobordism and shadow distance in Tamarkin category,**

joint with Tomohiro Asano and Yuichi Ike, 34pp, *Sel. Math. New Ser.* 31, 45 (2025), arXiv:2312.14429.

**8. Duality and kernels in microlocal geometry,**

joint with Christopher Kuo, *Int. Math. Res. Not.* (2025), no.6, 1-34, arXiv:2405.15211.

**7. Existence of generating families on Lagrangian cobordisms,**

*Math. Ann.* 390 (2024), no.4, 5471–5494, arXiv:2308.05727.

**6. Lagrangian cobordism functor in microlocal sheaf theory I,**

*J. Topol.* 16.3 (2023): 1113-1166, arXiv:2108.10914.

**5. Positive microlocal holonomies and globally regular,**

joint with Roger Casals, 35pp, submitted, arXiv:2409.07435.

4. **Conjugate fillings and Legendrian weaves**,  
joint with Roger Casals, 100pp, submitted, arXiv:2210.02039.
3. **Relative Calabi-Yau structure on microlocalization**,  
joint with Christopher Kuo, 50pp, submitted, arXiv:2408.04085.
2. **Spherical adjunction and Serre functor from microlocalization**,  
joint with Christopher Kuo, 62pp, submitted, arXiv:2210.06643.
1. **Decompositions of augmentation varieties via weaves and rulings**,  
joint with Johan Asplund, Orsola Capovilla-Searle, James Hughes, Caitlin Levenson and Angela Wu, 88pp, submitted, arXiv:2508.20226.

#### RESEARCH TALKS

---

- |  |                     |
|--|---------------------|
| <b>Conformal Dynamics and Geometry in Bordeaux</b> (short talk)<br>$C^0$ -rigidity of Legendrian submanifolds  | <i>Aug 26, 2025</i> |
| <b>Loo-Keng Hua Youth Forum (topology session), AMSS</b><br>$C^0$ -rigidity of Legendrian submanifolds   | <i>Aug 11, 2025</i> |
| <b>Kyoto University Symplectic Geometry Seminar</b><br>Lagrangian correspondence in topological Fukaya categories  | <i>Jul 11, 2025</i> |
| <b>CBMS Summer School, Legendrian Links and the Microlocal Theory of Sheaves</b><br>Structural results for microlocal sheaves for Legendrians  | <i>Jun 10, 2025</i> |
| <b>AMS Western Sectional Meeting, Recent Developments in Contact and Symplectic Geometry</b> (short talk)<br>Global regular functions on the moduli of Lagrangian fillings           | <i>May 04, 2025</i> |
| <b>Geometric Representation Theory Seminar, UC Berkeley</b><br>Regular functions on the moduli of Lagrangian fillings  | <i>Apr 17, 2025</i> |
| <b>BIRS Workshop on Symplectic Geometry, Representation Theory and Cluster Algebras</b> (short talk)<br>Symplectic geometric construction of cluster variables on braid varieties    | <i>Apr 01, 2025</i> |
| <b>University of Toronto Symplectic Geometry Seminar</b><br>Relative Calabi-Yau structure on microlocal sheaves  | <i>Mar 17, 2025</i> |
| <b>AMS Southeastern Sectional Meeting, Invariants in Geometric Topology: Low Dimensions and Beyond</b> (short talk)<br>Global regular functions on the moduli of Lagrangian fillings | <i>Mar 08, 2025</i> |
| <b>2024 Annual International Congress of Chinese Mathematicians</b><br>Structural results for microlocal sheaves in symplectic geometry  | <i>Jan 03, 2025</i> |
| <b>The 1st Cross-strait Symplectic Geometry Conference, USTC</b><br>Lagrangian cobordisms and microlocal sheaf theory  | <i>Dec 28, 2024</i> |
| <b>Center for Quantum Mathematics Seminar, University of Southern Denmark</b><br>Relative Calabi-Yau structures for microlocal sheaves   | <i>Dec 17, 2024</i> |
| <b>AMS Western Sectional Meeting, Non-commutative algebras in representation theory and topology</b> (short talk)<br>Relative Calabi-Yau structures for microlocal sheaves           | <i>Oct 26, 2024</i> |
| <b>Shanghai Jiao Tong University Topology Seminar</b>  |                     |

Structural results of microlocal sheaf categories for Legendrians	<i>Jul 16, 2024</i>
<b>China Academy of Science AMSS Topology Seminar</b>	
Relative Calabi-Yau structures for microlocal sheaves/Fukaya categories	<i>Jul 10, 2024</i>
<b>UC Riverside Geometry &amp; Topology Seminar</b>	
Relative Calabi-Yau structures for microlocal sheaves/Fukaya categories	<i>May 10, 2024</i>
<b>UC Davis Algebraic Geometry Seminar</b>	
Relative Calabi-Yau structures for microlocal sheaves	<i>Mar 13, 2024</i>
<b>Stanford Symplectic Geometry Seminar</b>	
Generating families on Lagrangian cobordisms	<i>Mar 11, 2024</i>
<b>Duke Geometry &amp; Topology Seminar</b>	
Structural results of microlocal sheaf categories for Legendrians	<i>Feb 19, 2024</i>
<b>The 15th International Symposium of Natural Sciences, INU (online)</b>	
Generating families on Lagrangian cobordisms	<i>Oct 30, 2023</i>
<b>Claremont Topology Seminar</b>	
Generating families on Lagrangian cobordisms	<i>Oct 24, 2023</i>
<b>LSU Geometry &amp; Topology Seminar</b>	
Conjugate fillings and Legendrian weaves	<i>Oct 11, 2023</i>
<b>Caltech/USC Algebra &amp; Geometry Seminar</b>	
Lagrangian cobordism functor in microlocal sheaf theory	<i>Oct 05, 2023</i>
<b>USC Geometry &amp; Topology Seminar</b>	
Lagrangian cobordism functor in microlocal sheaf theory	<i>Aug 21, 2023</i>
<b>Peking University Algebra &amp; Geometry Mini Forum</b>	
Duality and spherical adjunction from microlocalization	<i>Aug 01, 2023</i>
<b>Georgia Topology Conference 2023</b>	
Lightning talk - Conjugate fillings and Legendrian weaves	<i>May 25, 2023</i>
<b>Tianjin University Geometry &amp; Topology Seminar (online)</b>	
Conjugate fillings and Legendrian weaves	<i>Dec 16, 2022</i>
<b>The 2nd Global Youth Forum of IGP, USTC (online)</b>	
Lagrangian cobordism functor in sheaf theory	<i>Dec 14, 2022</i>
<b>Boston College Geometry &amp; Topology Seminar</b>	
Conjugate fillings and Legendrian weaves	<i>Dec 01, 2022</i>
<b>Northwestern Geometry &amp; Physics Seminar</b>	
Duality and spherical adjunction for microlocal sheaves	<i>Nov 03, 2022</i>
<b>Columbia Symplectic Geometry, Gauge Theory &amp; Categorification Seminar</b>	
Duality and spherical adjunction for microlocal sheaves	<i>Oct 14, 2022</i>
<b>UIUC Symplectic &amp; Poisson Geometry Seminar</b>	
Conjugate fillings and Legendrian weaves	<i>Oct 03, 2022</i>
<b>Uppsala Symplectic Geometry Seminar (online)</b>	
Lagrangian cobordism functor in sheaf theory	<i>Sep 29, 2022</i>
<b>Michigan State University Geometry &amp; Topology Seminar</b>	

Lagrangian cobordism functor in microlocal sheaf theory *Mar 01, 2022*

**Symplectic Zoominar (CRM-Montréal, Princeton/IAS, Tel Aviv, and Paris)**

Short talk - Estimating Reeb chords using microlocal sheaf theory *Dec 17, 2021*

EXPOSITORY TALKS

**Microlocal Sheaf Theory Learning Seminar** organized by Chris Kuo and Wenyuan Li  
Microlocalization and microsheaves *Mar 28, 2025*

Overview of microlocal sheaf theory and its applications *Jan 31, 2025*

**Legendrian Contact Homology Learning Seminar** organized by Roman Krutowski  
Lagrangian cobordism functor in microlocal sheaf theory *Nov 17, 2023*

**Graduate Student Seminar** at Northwestern University  
Families of functions and Lagrangian submanifolds *May 12, 2023*

**Symplectic ‘N’ Contact Topology Early Career Workshop**  
Exotic Weinstein structure with many closed Lagrangians *Aug 09, 2022*

**Virtual Kylerec Student Seminar 2021**  
An introduction to loose Legendrians in high dimensions *Jun 15, 2021*

**Graduate Student Seminar** at Northwestern University  
Meromorphic differential equations and Riemann-Hilbert correspondence *Feb 19, 2021*

**Graduate Student Seminar** at Northwestern University  
Does symplectic topology of  $T^*M$  remember the smooth topology of  $M$ ? *Nov 13, 2020*

**Graduate Student Seminar** at Northwestern University  
Asymptotically flat symplectic manifolds *Apr 19, 2019*

**Mirror Symmetry Seminar** organized by Professor Huijun Fan & Professor Bo Dai  
Keating’s Lagrangian tori in four-dimensional Milnor fibers  
Lagrangian surgery and computations of Maslov index *Oct, 2017*

TEACHING EXPERIENCE

MATH 535a, Differential geometry, instructor *Spring 2025*

MATH 225, Differential equations and linear algebra, instructor *Fall 2024*

MATH 126g, Calculus II, instructor *Spring 2024*

MATH 126g, Calculus II, instructor *Fall 2023*

GRE Math Sub preparation, Causeway Postbaccalaureate Certificate  
Program, instructor *Summer 2022*

MATH 300-BR, Foundations of higher mathematics, TA *Summer 2022*

MATH 290-3, MENU Linear algebra and multivariable calculus III, TA *Spring 2021*

MATH 330-3, Abstract algebra III, TA *Spring 2021*

MATH 290-2, MENU Linear algebra and multivariable calculus II, TA *Winter 2021*

MATH 330-2, Abstract algebra II, TA *Winter 2021*

MATH 290-1, MENU Linear algebra and multivariable calculus I, TA *Fall 2020*

MATH 330-1, Abstract algebra I, TA *Fall 2020*

MATH 230-1, Multi variable differential calculus, TA *Spring 2020*

MATH 230-1, Multi variable differential calculus, TA *Winter 2020*

MATH 220-1, Single variable differential calculus, TA *Fall 2019*

SERVICE AND OUTREACH

Coorganizer of learning seminar on microlocal sheaf theory, *Spring 2025*  
 Coorganizer of AMS Special Session on Symplectic Geometry and Dynamics, *Spring 2025*  
 Coorganizer of AMS Special Session on Geometry and Topology of Contact  
 and Symplectic Manifolds, *Fall 2024*  
 Coorganizer of Los Angeles Workshop on Representation and Geometry, *Summer 2024*  
 Coorganizer of Caltech/USC joint Algebra & Geometry Seminar, *Fall 2024–*  
 Coorganizer of USC Geometry & Topology Seminar, *Fall 2023–*  
  
 AWM mentoring program, *Fall 2024–*  
 Northwestern Association for Women in Mathematics mentoring program, *Spring 2021*  
  
 Instructor of UCLA Math Circle Advanced III, *Fall 2024–Spring 2025*  
 Directed reading program at Northwestern University, *Spring 2023*  
 Directed reading program at Northwestern University, *Spring 2021*  
 Instructor of Northwestern Putnam training sessions, *Fall 2019*  
 Instructor of Northwestern Putnam training sessions, *Fall 2018*  
  
 Qualifying exam committee member for Jonathan Michala (USC), Haosen Wu (USC),  
 Ángel Manuel Rodríguez López (UC Davis), David O'Connor (USC), Boxi Hao (USC),  
 Yijie Pan (USC).  
  
 Referee (including quick opinions) for *Geometric and Functional Analysis*, *Journal of*  
*Topology*, *Pacific Journal of Mathematics*, *Rend. Sem. Mat. Univ. Padova*.  
 Reviewer for ZbMATH Open.