

FAN YE

Email: fanye@math.harvard.edu Homepage: scholar.harvard.edu/fanye

RESEARCH INTERESTS

Low-dimensional topology, especially knot theory, gauge theory and Floer homology

EMPLOYMENT

Benjamin Peirce Fellow, Harvard University 07/2022-06/2025

EDUCATION AND EXPERIENCE

Ph.D. in DPMMS, University of Cambridge, supervised by Jacob Rasmussen 10/2019-06/2022
B.S. in School of Mathematical Sciences (SMS), Peking University 09/2015-06/2019
Visitor, Beijing International Center for Mathematical Research (BICMR) 09/2020-04/2022
Special Student Program, Massachusetts Institute of Technology (MIT) 01/2018-12/2018

PUBLICATIONS AND PREPRINTS

Knot surgery formulae for instanton Floer homology II: applications

Joint with Zhenkun Li, submitted, arXiv:2209.11018

Seifert surface complements of nearly fibered knots

Joint with Zhenkun Li, submitted, arXiv:2208.05382

Knot surgery formulae for instanton Floer homology I: the main theorem

Joint with Zhenkun Li, submitted, arXiv:2206.10077

Small Dehn surgery and $SU(2)$

Joint with John A. Baldwin, Zhenkun Li, and Steven Sivek, accepted by Geometry & Topology, arXiv:2110.02874

$SU(2)$ representations and a large surgery formula

Joint with Zhenkun Li, submitted, arXiv:2107.11005

An enhanced Euler characteristic of sutured instanton homology

Joint with Zhenkun Li, accepted by International Mathematics Research Notices (IMRN), arXiv:2107.10490

Instanton Floer homology, sutures, and Euler characteristics

Joint with Zhenkun Li, accepted by Quantum Topology, arXiv:2101.05169

Sutured instanton homology and Heegaard diagrams

Joint with John A. Baldwin and Zhenkun Li, accepted by Compositio Mathematica, arXiv:2011.09424

Instanton Floer homology, sutures, and Heegaard diagrams

*Joint with Zhenkun Li, Journal of Topology 15 (1): 39-107 (2022),
DOI: 10.1112/topo.12218, arXiv:2010.07836*

Constrained knots in lens spaces

Accepted by Algebraic & Geometric Topology, arXiv:2007.04237

Ph.D. Thesis, New techniques in calculation of sutured instanton Floer homology:

*by Heegaard diagrams, Euler characteristics, and Dehn surgery formulae
DOI: 10.17863/CAM.85094*

CONFERENCES AND TALKS

Seminar talk, Stony Brook	<i>10/2022</i>
Seminar talk, Peking University	<i>04/2022</i>
Seminar talk, Morningside Center of Mathematics Chinese Academy of Sciences	<i>04/2022</i>
Seminar talk, University of Warsaw	<i>12/2021</i>
Seminar talk, Gauge Theory Virtual	<i>11/2021</i>
Seminar talk, MIT	<i>11/2021</i>
Seminar talk, Caltech	<i>10/2021</i>
Seminar talk, Peking University	<i>10/2021</i>
Seminar talk, Princeton	<i>09/2021</i>
Summer School on 4-manifolds, Georgia Tech	<i>07/2021</i>
Group report, Summer Trisectors Workshop	<i>06/2021</i>
Conference talk, The Nearly Carbon Neutral Geometric Topology Conference (NCNGT2021)	<i>06/2021</i>
Seminar talk, Peking University	<i>06/2021</i>
Seminar talk, Stanford	<i>03/2021</i>
Seminar talk, Peking University	<i>03/2021</i>

SYNERGISTIC ACTIVITIES

Minicourses, BICMR	<i>10/2021</i>
Co-organizer for Harvard Gauge theory and Topology seminar	<i>09/2022-Now</i>
Referee for Journal of Topology, Quantum Topology, and Algebraic & Geometric Topology	