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

Guts 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, arXiv:2110.02874
Accepted by Geom. Topol.

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, arXiv:2107.10490
Int. Math. Res. Not. 2023, rnad066, DOI:10.1093/imrn/rnad066

Instanton Floer homology, sutures, and Euler characteristics
Joint with Zhenkun Li, arXiv:2101.05169
Accepted by Quantum Topol.

Sutured instanton homology and Heegaard diagrams
Joint with John A. Baldwin and Zhenkun Li, arXiv:2011.09424
Accepted by Compos. Math.

Instanton Floer homology, sutures, and Heegaard diagrams
Joint with Zhenkun Li, arXiv:2010.07836
J. Topol. 15 (1): 39-107 (2022), DOI: 10.1112/topo.12218,

Constrained knots in lens spaces
Algebraic Geom. Topol. 23:3 (2023), 1097–1166, DOI: 10.2140/agt.2023.23.1097, 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, Institute of Mathematics of the Polish Academy of Sciences	*07/2021*
Seminar talk, MPIM, Bonn	*06/2023*
Seminar talk, Caltech	*05/2023*
Conference talk, MIT	*05/2023*
Seminar talk, Brown University	*05/2023*
Conference talk, University of Miami	*04/2023*
Seminar talk, Stony Brook	*10/2022*
Seminar talk, Peking University	*04/2022*
Seminar talk, Morningside Center of Mathematics Chinese Academy of Sciences	*04/2022*
Seminar talk, University of Warsaw	*12/2021*
Seminar talk, Gauge Theory Virtual	*11/2021*
Seminar talk, MIT	*11/2021*
Seminar talk, Caltech	*10/2021*
Seminar talk, Peking University	*10/2021*
Seminar talk, Princeton	*09/2021*
Summer School on 4-manifolds, Georgia Tech	*07/2021*
Group report, Summer Trisectors Workshop	*06/2021*
Conference talk, NCNGT2021	*06/2021*
Seminar talk, Peking University	*06/2021*
Seminar talk, Stanford	*03/2021*
Seminar talk, Peking University	*03/2021*

SYNERGISTIC ACTIVITIES

Minicourses, BICMR	*10/2021*
Co-organizer for Harvard Gauge theory and Topology seminar	*09/2022-Now*

Referee for J. Differ. Geom., J. Topol., Quantum Topol., Algebraic & Geom. Topol., J. Knot Theory Ramif.