

# FAN YE

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## RESEARCH INTERESTS

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

## EMPLOYMENT

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Benjamin Peirce Fellow, Harvard University

07/2022-06/2025

## EDUCATION AND EXPERIENCE

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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

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**Knot surgery formulae for instanton Floer homology II: applications**

*Joint with Zhenkun Li, in preparation*

**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, arXiv:2206.10077*

**Small Dehn surgery and  $SU(2)$**

*Joint with John A. Baldwin, Zhenkun Li, and Steven Sivek, submitted, 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, submitted, 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, submitted, 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

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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>