

ISAAC SUNDBERG

email: icraig@brynmawr.edu

webpage: imsundberg.github.io

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Academic Positions

Postdoctoral fellow | 2022-2024 | Max-Planck-Institut für Mathematik, Bonn, Germany

Education

Ph.D. Mathematics | 2022 | Bryn Mawr College, Bryn Mawr, Pennsylvania, USA

Khovanov homology & uniqueness of surfaces in the 4-ball

M.A. Mathematics | 2018 | Bryn Mawr College, Bryn Mawr, Pennsylvania, USA

B. S. Mathematics | 2016 | University of Wisconsin La Crosse, La Crosse, Wisconsin, USA

Research Interests

Low-dimensional topology: exotic phenomena in 4-dimensions; isotopy of surfaces in 4-manifolds; Khovanov homology; link homology theories; knots and links.

Publications & preprints

Submitted:

1. *Seifert surfaces in the 4-ball*, with Kyle Hayden, Seungwon Kim, Maggie Miller, and JungHwan Park (2022)
2. *Khovanov homology and exotic surfaces in the 4-ball*, with Kyle Hayden (2021)

Published or accepted:

3. *Relative Khovanov-Jacobsson classes*, with Jonah Swann, *Algebr. & Geom. Topol.* (2021)
4. *Multiplication operators on weighted Banach spaces of a tree*, with Robert F. Allen, *Bulletin of the Korean Mathematical Society*, 54:3 (2017), 747-761

Research Talks

MPIM Low-dimensional Topology Seminar	Sep 2022
MPIM Topology Seminar	Sep 2022
DMV Jahrestagung 2022	Sep 2022
Princeton Topology Seminar	Apr 2022
Duke Geometry & Topology Seminar	Jan 2022
University of Oregon Topology Seminar	Nov 2022
MIT Geometry & Topology Seminar	Sep 2021
Columbia Geometric Topology Seminar	Sep 2021
Philadelphia Area Contact Topology (PACT) Seminar, mini-series	Sept-Oct 2021
Nearly Carbon Neutral Geometric Topology Conference, virtual	Jun 2021
AIM Research Community in 4-dimensional Topology, virtual	Apr 2021
Graduate Student Topology and Geometry Conference (GSTGC), UI Urbana-Champaign	Mar 2019
EPaDel MAA Section Meeting, King's College	Mar 2019
UWL Mathematics & Statistics Club, UW La Crosse	Nov 2018
EPaDel MAA Section Meeting, Temple University	Mar 2018
AMS Session on Undergraduate Research, JMM Seattle	Jan 2016

Conferences & Workshops

Morphisms in Low Dimensions, Mathematisches Forschungsinstitut Oberwolfach	Jan 2023
Topology in Dimension 4.5, Banff International Research Station	Oct 2022
Algebra and Low-Dimensional Topology Minisymposium, DMV Jahrestagung, Berlin	Sep 2022
Braids in Low-Dimensional Topology, ICERM	Apr 2022
Tech Topology Summer School on 4-manifolds, Online	Jul 2021
Nearly Carbon Neutral Geometric Topology Conference, Online	Jun 2021
Nearly Carbon Neutral Geometric Topology Conference, Online	Jun 2020
Graduate Student Conference in Algebra, Geometry, & Topology, Temple University	Jun 2019
Graduate Student Topology and Geometry Conference, UI Urbana-Champaign	Mar 2019
EPaDel MAA Section Meeting, King's College	Mar 2019
Graduate Student Conference in Algebra, Geometry, & Topology, Temple University	Jun 2018
MSRI Summer Graduate School on H-Principles, Tambara Institute, University of Tokyo	Jun-Jul 2018
Summer Geometry/Topology RTG mini-conference, Princeton University	Jun 2018
Topology Student Workshop, Georgia Institute of Technology	Jun 2018
EPaDel MAA Section Meeting, Temple University	Mar 2018
Joint Mathematics Meeting, Seattle, WA	Jan 2016

Teaching Positions

Instructor of Record , Department of Mathematics, Bryn Mawr College <i>Courses:</i> Calculus I	Spring 2020
Co-instructor , Department of Mathematics, Bryn Mawr College <i>Courses:</i> Transitions to Higher Mathematics (with Lisa Traynor)	2021, 2022
Teaching Assistant , Department of Mathematics, Bryn Mawr College <i>Courses:</i> Abstract Algebra I & II, History of Math, Theory of Probability, Transitions, Topology	2016-2021
Substitute Lecturer , Department of Mathematics, Bryn Mawr College <i>Courses:</i> Abstract Algebra, Graduate Algebraic Topology, History of Math, Graduate Topology	2017-2022
Tutor in Mathematics , Murphy Learning Center, UW La Crosse <i>Courses:</i> College Algebra, Pre-calculus and Trigonometry, Calculus I-III, Differential Equations	2013-2016

Service

Professional Service

Referee , Transactions of the American Mathematical Society	2021-2022
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Bryn Mawr College

Graduate representative , Prelim Restructuring Committee, Department of Mathematics	2021-2022
Co-founder & co-organizer , Graduate Research Seminar	2019-2022
Departmental representative , Graduate Student Association	2019-2020
Co-founder & co-organizer , Directed Reading Program	2019-2020
President , AMS Graduate Student Chapter, Department of Mathematics	2018-2020
Chair , Diversity, equity, & inclusion committee, Graduate Student Association	2017-2019
Organizer , Professional Development Seminar	2018-2019
Co-chair , Graduate Student Association	2017-2019
Representative to Graduate Council , Graduate Student Association	2017-2019

Service (continued)

University of Wisconsin La Crosse

President , Mathematics & Statistics Club	2015-2016
Tutor and staff , FastTrack Remedial Mathematics Camp	2015
Teaching assistant and staff , Girls in Science Day Camp	2015

Awards & Honors

Bryn Mawr Community Building Honor Roll, Bryn Mawr College	2019, 2022
Doris Sill Carland Award for Excellence in Teaching, Bryn Mawr College	2021
Research Assistantship, Bryn Mawr College	Fall 2020, Fall 2021
Convocation Speaker Representing the Graduate Student Association, Bryn Mawr College	2018
McPherson Graduate Award for Excellence, Bryn Mawr College	2018
Department of Mathematics Outstanding Service Award, UW La Crosse	2016
SIAM Outstanding Efforts & Accomplishments in the Chapter, UW La Crosse	2016

References

Kyle Hayden, Columbia University
Mikhail Khovanov, Columbia University
Adam S. Levine, Duke University
Lisa Traynor, Bryn Mawr College