

# Patrick Naylor

University of Waterloo  
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## Research Interests:

Low dimensional and geometric topology: in particular, questions about 3- and 4-manifolds, knotted surfaces, and trisections of 4-manifolds.

## Education

- 2016–Present **PhD, Pure Mathematics**, *University of Waterloo*, Waterloo, Canada.  
Advised by Doug Park
- 2015–2016 **MMath, Pure Mathematics**, *University of Waterloo*, Waterloo, Canada.
- 2011–2015 **BSc Honours, Pure Mathematics**, *University of Manitoba*, Winnipeg, Canada.
- Research Visits
- Fall 2019 **Visiting Student**, *Max Planck Institute for Mathematics*.
- Fall 2018 **Visiting Student**, *University of Georgia*.

## Papers and Preprints

- P. Naylor, H. Schwartz, **Gluck twisting roll-spun knots**, [arXiv:2009.05703], 2020.
- P. Naylor, **Trisection diagrams and twists of 4-manifolds**, [arXiv:1906.01495], 2019. Submitted.
- A. Beyaz, P. Naylor, S. Onaran, D. Park, **From automorphisms of Riemann surfaces to smooth 4-manifolds**, *Math. Res. Lett.* 27(3), 629-645, 2020.
- A. Clay, C. Desmarais, P. Naylor, **Testing bi-orderability of knot groups**, *Canad. Math. Bull.* 59(3), 472-482, 2016.
- R. Craigen, C. Desmarais, T. Eaton, P. Naylor, **Negacyclic Weighing Matrices**, 2016. Submitted.

## Talks

### Invited Talks

- Sep 2019 Workshop on 4-manifolds (lightning talk), Max Planck Institute for Mathematics
- Jun 2019 CMS Summer Meeting Topology Session, University of Regina
- May 2019 Quantum Gravity Seminar, Perimeter Institute for Theoretical Physics
- Mar 2019 Joint Pure Math and C&O Graduate Student Colloquium, University of Waterloo
- Mar 2018 Geometry and Topology Seminar, McMaster University
- Sep 2017 Pure Math Graduate Student Colloquium, University of Waterloo

### Seminar Talks

2018-Present GT GAPS Seminar, Online  
 2019-Present Geometry Working Seminar, University of Waterloo  
     2020 TQFT and Frobenius Algebras Learning Seminar, University of Waterloo  
     2018 Topology Student Seminar, University of Georgia  
 2017–2018 Topology and Geometry Learning Seminar, University of Waterloo  
 2016–2018 Algebraic Geometry Learning Seminar, University of Waterloo  
 2015–2016 Ring Theory Learning Seminar, University of Waterloo

## Conferences Attended

Jun 2020 Virtual Summer Trisectors Workshop, Online  
 Jun 2020 Nearly Carbon Neutral Geometric Topology Conference, Online  
 Nov 2019 Unifying 4-dimensional Knot Theory, Banff International Research Station  
 Sep 2019 Workshop on 4-manifolds, Max Planck Institute for Mathematics  
 Jul 2019 Four manifolds: Confluence of High and Low Dimensions, The Fields Institute  
 Jun 2019 Canadian Mathematical Society Summer Meeting, University of Regina  
 Apr 2019 Spring Trisectors Meeting, University of Georgia  
 Dec 2018 Virginia Topology Conference, University of Virginia  
 Dec 2018 Canadian Mathematical Society Winter Meeting, Vancouver  
 Jun 2018 Topology Students Workshop, Georgia Institute of Technology  
 Mar 2018 1st Canadian Geometry and Topology Seminar, The Fields Institute  
 Dec 2017 Canadian Mathematical Society Winter Meeting, University of Waterloo  
 Dec 2016 Canadian Mathematical Society Winter Meeting, Niagara Falls

## Service and Extracurricular

2020–Present **Math Circles Presenter**, *CEMC, University of Waterloo*.  
 Organized math enrichment workshops for high school students.  
 2020–Present **CEMC Contest Committee member**, *CEMC, University of Waterloo*.  
 Committee to generate a contest problems for national high school math contests.  
 2020–Present **Problem of the Month Committee member**, *CEMC, University of Waterloo*.  
 Committee to generate a “problem of the month” for enthusiastic high school students.  
 2016–Present **Math Contest Marker**, *CEMC, University of Waterloo*.  
 Volunteered to mark high school math contests run by the University of Waterloo.  
 2013–2015 **Undergraduate Research Assistant**, *Department of Mathematics, University of Manitoba*.  
 with Adam Clay in 2014 and 2015, with Andriy Prymak in 2014, and with Robert Craigen in 2013.

## Teaching

- Spring 2020 **Instructor**, *University of Waterloo*.  
Math 235: Linear Algebra 2 for Honours Math (Online)
- 2015–Present **Teaching Assistant**, *Department of Pure Mathematics, University of Waterloo*.  
TA for a wide variety of undergraduate, graduate, and online math courses.
- 2013–2015 **Teaching Assistant**, *Department of Mathematics/Statistics, University of Manitoba*.  
TA for introductory mathematics and statistics courses.

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## Awards and Honours

### Academic

- 2017–2020 **NSERC CGS-D Scholarship**, *University of Waterloo*.
- 2016–2020 **President's Graduate Scholarship**, *University of Waterloo*.
- 2018 **NSERC CGS-D MSFSS Scholarship**, *University of Waterloo*.
- 2018 **David Johnston International Experience Award**, *University of Waterloo*.
- 2016 **NSERC CGS-M Scholarship**, *University of Waterloo*.
- 2015 **Special Graduate Scholarship**, *University of Waterloo*.
- 2013; 2014 **Agnes Stewart Hart Award in Mathematics**, *University of Manitoba*.
- 2013 **Faculty of Science Undergraduate Research Award**, *University of Manitoba*.  
To support mathematics research throughout the summer term.
- 2012; 2013 **President's Scholarship**, *University of Manitoba*.
- 2011 **Canadian Association of Physicists Award**.  
For high performance on the CAP national physics contest.

### Extracurricular

- 2012–2014 **CIS Academic All Canadian**, *University of Manitoba*.  
Maintaining an 80% average while competing on the varsity track team.
- 2013 **Track & Field/Cross Country Athletic Award**, *University of Manitoba*.
- 2009–2011 **National Triathlon Age Group Medalist**, *Kelowna, British Columbia*.  
Silver medalist (2009), and gold medalist (2010, 2011) in the U19 division.

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## Interests

Playing piano, track and field, cycling, being a master chef for departmental BBQs.