Wojciech Politarczyk

Curriculum vitae

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Education

2011–2015 **PhD in Mathematics**, *Adam Mickiewicz University in Poznań*
Participant of the program "Środowiskowe Studia Doktoranckie z Nauk Matematycznych".
PhD Thesis: Khovanov homology of symmetric links,
Advisor: Prof. Krzystof Pawałowski.

2006–2011 **MSc in Mathematics**, *Adam Mickiewicz University in Poznań*
Advisor: Krzysztof Pawałowski.

Employment

since Oct 2019 **Assistant Professor**, *University of Warsaw*

Oct 2018–Sep 2019 **Postdoc**, *University of Warsaw*
Research position funded by the National Science Center grant no. 2016/22/E/ST1/00040.
PI: Maciej Borodzik.

Oct 2016–Sep 2018 **Postdoc**, *University of Warsaw,*
Research position funded by the National Science Center grant no. 2016/20/S/ST1/00369.
PI: Wojciech Politarczyk.

Oct 2015–Sept 2019 **Assistant Professor**, *Adam Mickiewicz University in Poznań*
Leave from Oct 2016 to Sept 2019.

Grants

○ **National Science Center Grant FUGA**, for funding a two-year Post- doc position at the University of Warsaw, grant number 2016/20/S/ST1/00369.

Awards

2011 First prize in the Józef Marcinkiewicz competition for the best student paper in mathematics, organized by the Polish Mathematical Association.

2010/11 Scholarship of the Ministry of Science and Higher Education.

Research visits

Short visits

2024 A one-week research visit at the University of Seville. Host: Marithania Silvero.

2019   Research in pairs: **The slice-ribbon conjecture and non-slice algebraic knots** at CIRM Luminy.

2019   A one week research visit at Durham University. Host: Anthony Conway.

2018   A one week research visit at the University of Zurich. Host: Krzysztof Putyra.

2017   A one week research visit at the University of Geneva. Host: Anthony Conway.

2017   A one week research visit at the University of Regensburg. Host: Michał Marcinkowski.

Longer visits

2013   Research Visit in the Max Planck Institute of Mathematics in Bonn during the activity Semester on 4-manifolds

2012   Research Visit at the Warsaw University as a part of the Program "Środowiskowe Studia Doktoranckie z Nauk Matematycznych"

Research talks

Conference talks

2024   Localization theorem for equivariant Khovanov-Rozansky homology, Mini Symposium "Knot theory and low-dimensional manifolds" at the 9. ECM in Seville, Spain.

2024   Torres formula for multivariable link signatures, Workshop FRG:Topology of 4-manifolds, Glasgow, UK.

2019   Equivariant Khovanov homotopy type, Group Action Forum Workshop, Poznań, Poland.

2019   Cabling formula for twisted Blanchfield forms, Knot concordance and low-dimensional manifolds , Le Croisic, France.

2018   Cabling formula for twisted Blanchfield forms, Twisted and quantum knot invariants, Durham, UK.

2018   Twisted Blanchfield pairings and twisted signatures Knots in Gdańsk II, Gdańsk University, Gdańsk, Poland.

2016   Some remarks on Khovanov homology of periodic links, Perspectives in topology and geometry of 4-manifolds, Dubrovnik, Croatia.

2015   Equivariant Khovanov homology, Stein Manifolds, Contact Structures and Knots, Luminy, France.

2015   Equivariant Khovanov homology of periodic links, Glances at Manifolds, Kraków, Poland.

2015   On equivariant Khovanov homology, Miniconference after the 17-th Andrzej Jankowski Memorial Lecture, Gdańsk, Poland.

2014   On certain spectral sequence converging to Khovanov homology, section Knot Theory, Joint Meeting of the Polish and German Mathematical Societies, Poznań, Poland.

2013   4-manifolds with odd fundamental groups, conference Knots, Manifolds and Group actions, Słubice, Poland.

2013	4-manifolds with odd fundamental groups, 5-th Polish Mathematical Forum, Rzeszów, Poland

Seminar talks

May 2024	Periodic links and Equivariant Khovanov Homology, a series of five introductory lectures on equivariant Khovanov homology given at the University of Seville, Spain.
2020	Equivariant Khovanov homotopy type, online research seminar at the Max Planck Institute for Mathematics in Bonn.
2019	Equivariant Khovanov homotopy type, Durham University.
2018	Equivariant Khovanov homotopy type, University of Zurich.
2017	Khovanov homology of periodic links, University of Geneva.
2017	New periodicity criterion form Khovanov homology, Warsaw University.
2017	Symmetries of knots and Khovanov homology, University of Regensburg.
2014	4-manifolds with odd fundamental group, University of Nantes.

Conferences co-organized

May 2024	Advanced School: Insights into Knots, Homologies, and Physics – a workshop within the Simons Semester entitled "Knots, Homologies and Physics".
May 2024	Summary Workshop: Knots, Homologies and Physiscs – a workshop within the Simons Semester entitled "Knots, Homologies and Physics".
Apr 2024	A Simons Semester Workshop with lecture series by Wei Li and Dmitri Noshchenko.
Mar 2024	A Simons Semester Workshop with lecture series by Mark Powell and Ramadevi Pichai.
Mar 2024	Learning Workshop: Knots, Homologies and Physics – a workshop within the Simons Semester entitled "Knots, Homologies and Physics".
2021	kpa70 – the online conference celebrating the 70th birthday of prof. Krzysztof Pawałowski.
2013	Knots, Manifolds and Group actions, Słubice

Other research activities

- I collaborated as a referee with several scientific journals: Algebraic & Geometric Topology, Michigan Mathematics Journal, Fundamenta Mathematicae, Journal of Knot theory & its Ramifications.
- I wrote reviews for the MathSciNet and ZBMath.

Publications

Published papers

[1] Maciej Borodzik, Anthony Conway, and Wojciech Politarczyk. Twisted Blanchfield pairings and twisted signatures. I: Algebraic background. *Linear Algebra Appl.*, 655:236–290, 2022.

[2] Maciej Borodzik, Anthony Conway, and Wojciech Politarczyk. Twisted Blanchfield

pairings and twisted signatures III: Applications. *Glasgow Mathematical Journal*, pages 1–40, April 2024.

[3] Maciej Borodzik and Wojciech Politarczyk. Khovanov homology and periodic links. *Indiana Univ. Math. J.*, 70(1):235–267, 2021.

[4] Maciej Borodzik, Wojciech Politarczyk, and Marithania Silvero. Khovanov homotopy type, periodic links and localizations. *Math. Ann.*, 380(3-4):1233–1309, 2021.

[5] Anthony Conway, Min Hoon Kim, and Wojciech Politarczyk. Nonslice linear combinations of iterated torus knots. *Algebr. Geom. Topol.*, 23(2):765–802, 2023.

[6] Marek Kaluba and Wojciech Politarczyk. Non-symplectic actions on complex projective spaces. *J. Symplectic Geom.*, 10(1):17–26, 2012.

[7] Maria Marchwicka and Wojciech Politarczyk. On the slice genus of generalized algebraic knots, 2023. to appear in Journal of Knot Theory and its Ramifications.

[8] Maciej Markiewicz and Wojciech Politarczyk. A new polynomial criterion for periodic knots. *J. Knot Theory Ramifications*, 31(10):14, 2022. Id/No 2250064.

[9] Wojciech Politarczyk. Equivariant Jones polynomials of periodic links. *J. Knot Theory Ramifications*, 26(3):21, 2017. Id/No 1741007.

[10] Wojciech Politarczyk. Equivariant Khovanov homology of periodic links. *Mich. Math. J.*, 68(4):859–889, 2019.

[11] Wojciech Politarczyk, Mark Powell, and Arunima Ray. From Immersed Discs to Capped Gropes. In Stefan Behrens, Boldizsar Kalmar, Min Hoon Kim, Mark Powell, and Arunima Ray, editors, *The Disc Embedding Theorem*, pages 227–238. Oxford University PressOxford, 1 edition, July 2021.

Preprints

[12] Maciej Borodzik, Anthony Conway, and Wojciech Politarczyk. Twisted blanchfield pairings and twisted signatures ii: Relation to Casson-Gordon invariants, 2022.

[13] Maciej Borodzik, Wojciech Politarczyk, and Ramazan Yozgyur. Khovanov-rozansky sl_n-homology for periodic links, 2022.

[14] David Cimasoni, Maciej Markiewicz, and Wojciech Politarczyk. Torres-type formulas for link signatures, 2023.

Teaching experience

- Complex calculus course – twice,
- Student research seminar – several times,
- TA for Topology course – several times,
- Mathematics BSc seminars – several times,
- Mathematics for chemistry students – several times,
- Linear algebra for economy students – several times.

Languages

Polish	native
English	fluent