

Curriculum Vitae

Stephan Martin Wehrli

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Research Interests: Low-dimensional Topology, Knot Theory, Knot Homology Theories

Professional Experience:

- 2016-present, Associate Professor, Syracuse University
- 2010-2016, Assistant Professor, Syracuse University
- Spring 2010, Postdoctoral Fellow, Mathematical Sciences Research Institute, Berkeley
- 2008-2010, Postdoctoral Fellow, Université Paris VII, France
- 2007-2008, Postdoctoral Fellow, Columbia University
- 2004-2007, Teaching Assistant, University of Zurich, Switzerland
- 2003-2004, Teaching Assistant, University of Basel, Switzerland

Education:

- 2007, Ph.D., Mathematics, with distinction, University of Zurich, Switzerland
Thesis Title: Contributions to Khovanov Homology
Advisors: A. Beliakova, N. A'Campo
- 2002, Diploma, Mathematics, University of Basel, Switzerland
(The Swiss Diploma degree is equivalent to a Master's degree)

Grants and Fellowships:

- Fall 2011-Fall 2017, NSF Grant DMS-1111680
- Spring 2010, Fellow of the Mathematical Sciences Research Institute, Berkeley
- 2008-2010, Fellow of the Fondation Sciences Mathématiques de Paris
- 2007-2008, Fellow of the Swiss NSF

Collaborators:

- D. Auroux, University of California, Berkeley
- A. Beliakova, University of Zurich, Switzerland
- M. Doig, Syracuse University
- J. E. Grigsby, Boston College
- M. Hogancamp, University of Southern California
- A. Licata, Australian National University in Canberra, Australia
- K. Putyra, University of Zurich

Invited Conference Talks:

- 2019 Knots in Washington XLVII, George Washington University:
“Colored quantum annular Khovanov homology”
- 2016 Advances in Quantum and Low-Dimensional Topology, University of Iowa:
“On categorical traces and invariants of annular links”
- 2015 Knots in Washington XLI, George Washington University:
“A (mostly) combinatorial proof of the homology cobordism classification of lens spaces”
- Categorification in Algebra, Geometry and Physics, Cargèse, France:
“Annular Khovanov homology and knotted Schur-Weyl representations”
- 2014 AMS Sectional Meeting, Greensboro, NC:
“Quantum sutured annular Khovanov homology”
- Knots in Washington XXXVIII:
“Commuting actions of $sl(2)$ and S_n on sutured annular Khovanov homology”
- 2012 Knots in Washington XXXV, George Washington University:
“A symmetric group action on the Khovanov homology of cables”
- AMS Sectional Meeting, Washington DC: “Diagram algebras in Khovanov- and Heegaard Floer-type homology theories”
- 2011 Knots in Washington XXXIII, George Washington University:
“Khovanov’s diagram algebras and bordered Floer homology”
- Homological Invariants in Low-dimensional Topology, Stony Brook University:
“Khovanov-Seidel quiver algebras and bordered Floer homology”
- Swiss Knots 2011, Lake Thun, Switzerland:
“Khovanov-Seidel quiver algebras and bordered Floer homology”
- 2010 XIX Oporto Meeting on Geometry, Topology and Physics, Faro: “Oriented Khovanov homology and a new categorification of the colored Jones polynomial”
- AMS Sectional Meeting, Newark: “On the relationship between sutured Khovanov homology and sutured Floer homology”
- 2009 Swiss Knots 2009, Université de Fribourg: “Sutured Floer homology and the colored Jones polynomial”
- 2008 Heegaard Floer Panel of the Kirbyfest 2008, MSRI, Berkeley: “Colored Khovanov homology and Sutured Floer homology”
- Knots in Washington XXVI, George Washington University: “A new categorification of the colored Jones polynomial”

- 2007 Link homology and categorification, Kyoto University: “Mutation invariance of Khovanov homology over \mathbb{F}_2 ”
- Knots in Washington XXIV, George Washington University: “Mutation invariance of Khovanov homology over \mathbb{F}_2 ”

Summer Schools:

- 2012 Lectures on Khovanov homology at the École de recherche CIMPA-ICTP Géométrie symplectique et topologie géométrique, Meknès, Morocco (Research summer school aimed at giving young researchers from the Greater Middle East the opportunity to learn about recent developments in symplectic geometry and low-dimensional topology)

Invited Seminars and Colloquia:

- 2017 Boston College, Geometry/Topology Seminar
- Australian National University, Quantum Mathematics Seminar
- Columbia University, Symplectic Geometry, Gauge Theory, and Categorification Seminar
- 2014 Boston College, Informal Seminar
- 2013 Institut de Mathématiques de Jussieu, Séminaire de Topologie
- Columbia University, Symplectic Geometry, Gauge Theory, and Categorification Seminar’
- University of Geneva, Séminaire Groupes de Lie et espaces de modules
- 2012 Columbia University, Symplectic Geometry, Gauge Theory, and Categorification Seminar
- 2011 University of Pennsylvania, Geometry-Topology Seminar
- Boston College, Geometry-Topology Seminar
- 2009 ETH Zurich, Algebra-Topology Seminar
- Université de Strasbourg, Séminaire Quantique
- University of Cambridge, Differential Geometry Seminar
- University of Warwick, Geometry and Topology Seminar
- Columbia University, Informal Heegaard Floer Homology Seminar
- Université Joseph Fourier, Séminaire de Topologie

- 2008 CTQM, University of Aarhus, Topology Seminar
 Bryn Mawr College, Bryn Mawr-Haverford Colloquium
 University of Massachusetts Amherst, Geometry and Topology Seminar
- 2007 Université Paris VII, Séminaire de Topologie

Teaching Experience:

- Courses taught at Syracuse University:
 - Algebraic Topology (MAT 762), Fall 2011, 2013, 2014, 2016
 - Introduction to Algebraic Topology (MAT 761), Spring 2011, Spring 2018
 - Introduction to Point Set Topology (MAT 661), Fall 2012
 - Elementary Topology (MAT 562), Spring 2013, 2015
 - Second Course in Linear Algebra (MAT 531), every semester since Spring 2013, except in Fall 2017 and in Fall 2018
 - Independent Study (MAT 490), Fall 2016
 - Calculus III (MAT 397), Spring 2012, 2016
 - First Course in Linear Algebra (MAT 331), Spring 2014
 - Calculus II (MAT 296), Spring 2017
 - Calculus I (MAT 295), large lecture, Fall 2015
 - Calculus for the Life Sciences I (MAT 285), Fall 2010, Spring 2011, Fall 2018
 - Reading Course for a graduate student, Fall 2015
- University of Zurich:
 - Teaching Assistant for “Mathematics for Teachers”
 - Teaching Assistant for “Geometry and Topology” (held recitations, gave substitute lectures, prepared and graded homework, served as a co-examiner for diploma (masters) exams in Mathematics)
 - Coorganizer of a seminar on Heegaard Floer homology at ETH Zurich
- University of Basel:
 - Teaching Assistant for “Mathematics for Natural Scientists”
 - Teaching Assistant for “Complex Analysis” (held recitations, prepared and graded homework)

Service:

- Co-organizer of the Special Session on “Knots, 3-manifolds and their Invariants” at the AMS Fall Eastern Sectional Meeting at SUNY Buffalo, September 16-17, 2017
- Co-organizer of Topology Day at SUNY Buffalo, September 15, 2017
- Advisor for freshman and sophomore students at Syracuse University from Fall 2012 to Spring 2015
- Advisor for math majors since Spring 2017
- Ph.D. advisor for Casey Necheles since Spring 2016
- Honors capstone advisor for Jordan Barrett from Fall 2016 to Spring 2017
- Mentored two postdoctoral students (Thomas Jäger and Margaret Doig) between 2011 and 2016
- Co-organizer and co-initiator of the new Geometry & Topology Seminar at Syracuse University
- Member of the Undergraduate Committee of the SU Mathematics Department, Fall 2012 to Spring 2015, Fall 2016 to Spring 2017, and Fall 2018
- Member of the Chair Search Committee of the SU Mathematics Department, Fall 2016
- Member of several search subcommittees of the SU Mathematics Department
- Regular referee for Algebraic & Geometric Topology, Duke Mathematical Journal, Journal of Knot Theory and Its Ramifications, Pacific Journal of Mathematics, Quantum Topology, Mathematical Research Letters
- Reviewer of a grant proposal for the NSA

Publications and Preprints:

- *Quantum Link Homology via Trace Functor I* (with A. Beliakova and K. Putyra), *Inventiones Mathematicae*, **215**(2) (2019) 383–492
- *An action of $\mathfrak{gl}(1|1)$ on odd annular Khovanov homology* (with J. E. Grigsby), conditionally accepted for publication in *Mathematical Research Letters*, arXiv:1806.05718 , 20 pages, 2018
- *Annular Khovanov-Lee homology, braids, and cobordisms* (with J. E. Grigsby and A. M. Licata), *Pure and Applied Mathematics Quarterly*, Special Issue in Honor of Simon Donaldson, **13**(3) (2017) 389–436 (published online on November 12, 2018)
- *Annular Khovanov homology and knotted Schur-Weyl representations* (with J. E. Grigsby and A. M. Licata), *Compositio Mathematica*, **154**(3) (2018) 459–502
- *An elementary fact about unlinked braid closures* (with J. E. Grigsby), *AWM Springer Series, Advances in the Mathematical Sciences*, (2016) 93–101
- *A combinatorial proof of the homology cobordism classification of lens spaces* (with M. I. Doig), submitted, arXiv:1505.06970 , 9 pages, 2015
- *Sutured Khovanov homology, Hochschild homology, and the Ozsváth-Szabó spectral sequence* (with D. Auroux and J. E. Grigsby), *Transactions of the American Mathematical Society*, **367**(10) (2015) 7103–7131
- *Khovanov-Seidel quiver algebras and bordered Floer homology* (with D. Auroux and J. E. Grigsby), *Selecta Mathematica*, **20**(1) (2014) 1–55
- *On Gradings in Khovanov homology and sutured Floer homology* (with J. E. Grigsby), *Contemporary Mathematics* **560** (2011) 111–128
- *On the naturality of the spectral sequence from Khovanov to Heegaard Floer homology* (with J. E. Grigsby), *International Mathematics Research Notices*, **2010**(21) (2010) 4159–4210
- *Khovanov homology, sutured Floer homology, and annular links* (with J. E. Grigsby), *Algebraic & Geometric Topology*, **10** (2010) 2009–2039
- *Mutation invariance of Khovanov homology over \mathbb{F}_2* , *Quantum Topology*, **1**(2) (2010) 111–128
- *On the Colored Jones Polynomial, Sutured Floer homology, and Knot Floer homology*, (with J. E. Grigsby), *Advances in Mathematics*, **223**(6) (2010) 2114–2165
- *A remark on the topology of (n, n) Springer varieties*, arXiv:0908.2185
- *Categorification of the colored Jones polynomial and Rasmussen invariant of links*, (with A. Beliakova), *The Canadian Journal of Mathematics*, **60** (2008) 1240–1266
- *A spanning tree model for Khovanov homology*, *Journal of Knot Theory and Its Ramifications*, **17**(12) (2008) 1561–1574
- *Contributions to Khovanov homology*, Ph.D. Thesis, University of Zurich (2007)
- *Khovanov Homology and Conway Mutation*, arXiv:math/0301312