

Stephen Bigelow
Professor II O/S

September 15, 2020

This update refers to the period from September 16, 2015 to September 15, 2020.

CURRICULUM VITAE

Education

University of Melbourne	BSc Mathematics	1992
University of Melbourne	MSc Mathematics	1994
UC Berkeley	PhD Mathematics	2000

Area of Specialization

- Braid groups and knot theory
- Representation theory
- Quantum topology

Previous Academic or Professional Appointments

2000–2002	Research Fellow	University of Melbourne
2002–2007	Assistant Professor	UC Santa Barbara
2007–2016	Associate Professor	UC Santa Barbara
2016–Present	Professor	UC Santa Barbara

Professional Organizations

American Mathematical Society (AMS)

PART I: RESEARCH

The convention in mathematics is to list co-authors alphabetically.

Cumulative List of Publications (or Creative Activities)

#	Year	Title and Authors	Publisher	Category
1	1998	Supplements of bounded permutation groups, Stephen Bigelow	<i>J. Symbolic Logic</i> vol. 63 no. 1, pp 89–102.	Article
2	1999	The Burau representation is not faithful for $n = 5$, Stephen Bigelow	<i>Geom. Topol.</i> vol. 3, pp 397–404.	Article
3	2001	Braid groups are linear, Stephen Bigelow	<i>J. Amer. Math. Soc.</i> vol. 14, no. 2, pp 699–708.	Article
4	2001	The mapping class group of a genus two surface is linear, Stephen Bigelow and Ryan Budney	<i>Algebr. Geom. Topol.</i> vol. 1, pp 493–505.	Article
5	2002	Does the Jones polynomial detect the unknot?, Stephen Bigelow	<i>J. Knot Theory Ramifications</i> vol. 11 no. 4, pp 493–505.	Article
6	2002	A homological definition of the Jones polynomial, Stephen Bigelow	<i>Geom. Topol. Monogr.</i> vol. 4 pp 29–41.	Article
7	2002	Representations of braid groups, Stephen Bigelow	<i>Proc. Int. Congress of Mathematicians</i> vol. 2 pp 37–45.	Article
8	2003	The Lawrence-Krammer representation, Stephen Bigelow	<i>Topology and Geometry of Manifolds</i> pp 51–68.	Article
9	2004	Homological representations of the Iwahori-Hecke algebra, Stephen Bigelow	<i>Geom. Topol. Monogr.</i> vol. 7 pp 495–507.	Article
10	2006	Braid groups and Iwahori-Hecke algebras, Stephen Bigelow	<i>Proc. Sympos. Pure Math</i> vol. 74 pp 285–299.	Article
11	2007	A homological definition of the HOMFLY polynomial, Stephen Bigelow	<i>Geom. Topol.</i> vol. 7 pp 1409–1440.	Article
12	2008	Generalized Long-Moody representations of braid groups, Stephen Bigelow and Jianjun Paul Tian	<i>Commun. Contemp. Math.</i> vol. 10 suppl. 1 pp 1093–1102.	Article

13	2010	Skein theory for the ADE planar algebras, Stephen Bigelow	<i>J. Pure Appl. Algebra</i> vol. 214 no. 5 pp 658–666.	Article
14	2012	A diagrammatic Alexander invariant of tangles, Stephen Bigelow	<i>J. Knot Theory Ramifications</i> vol. 21, 1250081 pp 1–9.	Article
15	2012	The Alexander and Jones polynomials through representations of rook algebras, Stephen Bigelow, Eric Ramos and Ren Yi	<i>J. Knot Theory Ramifications</i> vol. 21 no. 12, 1250114, pp 1–18.	Article
16	2012	Constructing the extended Haagerup planar algebra, Stephen Bigelow, Scott Morrison, Emily Peters and Noah Snyder	<i>Acta Math.</i> vol. 209 no. 1, pp 29–82.	Article
17	2014	Principal graph stability and the jellyfish algorithm, Stephen Bigelow and David Penneys	<i>Math. Ann.</i> vol. 358 no. 1–2, pp 1–24.	Article
18	2014	A diagrammatic definition of $U_q(sl_2)$, Stephen Bigelow	<i>J. Knot Theory Ramifications</i> vol. 23 no. 6, 1450036 pp 1–9.	Article
19	2015	Alexander representation of tangles, Stephen Bigelow, Alessia Cattabriga and Vincent Florens	<i>Acta Math. Vietnam.</i> vol. 40 no. 2, pp 339–352.	Article
20	2015	The pop-switch planar algebra and the Jones-Wenzl idempotents, Stephen Bigelow and Ellie Grano	<i>J. Knot Theory Ramifications</i> vol. 24 no. 6, 1550032 pp 1–14.	Article

Since last review:

21	2018	Bowling ball representations of braid groups, Stephen Bigelow Link	<i>J. Knot Theory Ramifications</i> vol. 27 no. 5, 1850035 pp 1–9.	Article
22	2018	An exact entangling gate using Fibonacci anyons, Stephen Bigelow and Claire Levailant Link	<i>Bull. Aust. Math. Soc.</i> vol. 99 no. 2, pp 319–326.	Article

Work in Press

#	Year	Title and Authors	Publisher	Category
B-1	2020	The Temperley-Lieb algebra and planar algebras Link	<i>Concise Encyclopedia of Knot Theory</i>	Survey

Work Submitted

#	Year	Title and Authors	Publisher	Category
C-1	2020	On the Brouwer Representation of B_4 modulo p , with Beridze and Traczyk Link	<i>Tbilisi Mathematical Journal</i>	Article
C-2	2020	Review: the annular structure of subfactors, by Vaughan Jones Link	<i>Celebratio Mathematica</i>	Survey

PART II: TEACHING

Statement of Departmental Teaching Load

The standard teaching load for the Department of Mathematics is 4 courses per year for untenured ladder faculty and 4.5 courses per year for tenured ladder faculty. Some credit is also given for supervision of graduate students. His teaching record is consistent with these guidelines.

Catalog Courses

Please see the Annual Teaching List, available from Budget and Planning.

Undergraduate Projects Directed

None during the review period.

MA Degree Committees

Student	Deg.Compl.	Role	Optional Information
Justin Kelz	June 2018	Member	
Sarafina Ford	July 2019	Chair	

Phd Degree Committees

Student	Deg.Compl.	Role	Optional Information
Amanda Curtis	June 2017	Chair	
Ebrahim Ebrahim	Sep 2018	Member	
Wade Bloomquist	April 2019	Member	
Colleen Delaney	May 2019	Member	
Nancy Scherich	May 2019	Member	
Nathan Schley	June 2019	Member	
Sherilyn Tamagawa	June 2019	Chair	

Postdoctoral Scholars Supervised

Dates	Name	Optional Information
July 2018-June 2019	Eric Samperton	

Other Teaching Contributions

June - Sep 2020: Two unofficial reading courses with undergraduate students.

PART III: PROFESSIONAL ACTIVITIES

Lectures Presented

Mo/Yr	Title	Meeting/Place
01/2017	A diagrammatic approach to Ocneanu cells	Isaac Newton Institute

Grants and Contracts

None during the review period.

Awards and Honors

None during the review period.

Reviewing and Refereeing Activity

Date	Activity and for Whom
04/2016	Referee, Geometriae Dedicata
07/2016	Referee, Fundamenta Mathematicae
01/2017	Referee, Journal of Topology and Analysis
04/2017	Referee, Experimental Mathematics
06/2018	Referee, J. Knot Theory Ramifications
10/2018	Referee, Annali Scuola Normale Superiore
12/2019	Referee, Geometry and Topology
05/2020	Referee, Advances in Mathematics
06/2020	Referee, Trans. American Mathematical Society
08/2020	Referee, Geometry and Topology
09/2020	Referee, Journal of Algebra

Special Appointments

None during the review period.

Other Professional Contributions

None during the review period.

PART IV: SERVICE

University Service

Years	Position	Type of Service
2015-2020	Member	Mathematics Graduate Committee
2015-2020		Graduate advisor for pure mathematics
2016	Member	Computer committee
2016	Member	IT hiring committee
2016-2017		Diversity officer
2016-2019	Member	UCSB Reads

Public Service

Maintaining a math blog. [Link](#)