# Samuel M. Corson                                    Curriculum Vitae

| | |
|---|---|
| **Contact** | sammyc973@gmail.com |
| **Website** | https://topologyandgrouptheory.wordpress.com |
| **Citizenship** | United States of America |

**Interests**

Group Theory (combinatorial, geometric)
Topology (algebraic, low-dimensional, point-set)
Geometry
Applications of Set Theory

**Current Position**

**UPV/EHU Postdoctoral Researcher**
Maria Zambrano grant
UPV/EHU, Spain

**Previous Positions**

**Heilbronn Research Fellow**
Heilbronn Institute for Mathematical Research
University of Bristol, United Kingdom
Mentor: Mark Hagen
Ended September 2022

**ICMAT Postdoctoral Researcher**
Severo Ochoa Programme for Centres of Excellence in R&D SEV-20150554
Instituto de Ciencias Matemáticas Madrid, Spain
Ended December 2019

**UPV/EHU Postdoctoral Researcher**
European Research Council Grant PCG-336983
UPV/EHU, Spain
Supervisor: Ilya Kazachkov
Ended April 2019

**Education**

**Vanderbilt University**
PhD May 2016; MS December 2013
Advisor: Mark Sapir

**Brigham Young University**
MS April 2010; BS April 2008 (minor in logic)
Orson Pratt Award (outstanding senior); Graduate Service Award

**Papers (Preprint)**

(27) **Profinite rigidity of affine Coxeter groups**
with Sam Hughes, Philip Möller, and Olga Varghese (submitted) arXiv:2404.14255

(26) **Higman-Thompson groups and profinite properties of right-angled Coxeter groups**
with Sam Hughes, Philip Möller, and Olga Varghese (submitted) arXiv:2309.06213

(25) **The nonabelian product modulo sum**
(submitted) arXiv:2206.02682

(24) **On quasi-isometry and choice**
(submitted) arXiv:1609.01353

**Papers
(Accepted)**

(23) **On projections of the tails of a power**
with Saharon Shelah
Forum Math. DOI:10.1515/forum-2022-0375 arXiv:2211.13749

(22) **The fundamental group of reduced suspensions**
with Wolfram Hojka
Fund. Math. DOI: 10.4064/fm309-11-2023 arXiv:1712.08284

(21) **The Griffiths double cone group is isomorphic to the triple**
Pac. J. Math. 327 (2023), 297-336. arXiv:2012.06794

(20) **A widely connected topological space made from diamond**
Eur. J. Math. DOI:10.1007/s40879-024-00735-3 arXiv:2007.10195

(19) **Steep uncountable groups**
with Alexander Olshanskii and Olga Varghese
Bull. London Math. Soc. 56 (2024), 701-710. arXiv:2305.02953

(18) **Jónsson groups of various cardinalities**
Proc. Amer. Math. Soc. 150 (2022), 2771-2775. arXiv:2101.11035

(17) **Abstract homomorphisms from some topological groups to acylindrically hyperbolic groups**
with Oleg Bogopolski
Math. Ann. 384 (2022), 1017-1055. arXiv:1907.10166

(16) **Bi-orders do not arise from total orders**
Canad. Math. Bull. 65 (2022), 217-224. arXiv:2004.13798

(15) **Strongly bounded locally indicable groups**
Bull. Aust. Math. Soc. 104 (2021), 443-447. arXiv:2004.13798

(14) **Automatic continuity of $\aleph_1$-free groups**
Israel J. Math 237 (2020), 267-285. arXiv:1808.00272

(13) **The independence of Stone's Theorem from the Boolean Prime Ideal Theorem**
Proc. Amer. Math. Soc. 148 (2020), 5381-5386. arXiv:2001.06513

(12) **Strongly bounded groups of various cardinalities**
with Saharon Shelah
Proc. Amer. Math. Soc. 148 (2020), 5045-5057. arXiv:1906.10481

(11) **A Nunke type classification in the locally compact setting**
with Olga Varghese
J. Algebra 563 (2020), 49-52. arXiv:1912.11867

(10) **Freely indecomposable almost free groups with free abelianization**
J. Group Theory 23 (2020), 531-543. arXiv:1903.03334

(9) **On preservation of automatic continuity**
with Ilya Kazachkov
Monastsh. Math. 191 (2020), 37-52. arXiv:1901.09279

(8) **On definable subgroups of the fundamental group**
Topol. Appl. 258 (2019), 336-357. arXiv:1610.00145

(7) **Deeply concatenable subgroups might never be free**
with Saharon Shelah
J. Math. Soc. Japan 71 (2019), 1123-1136. arXiv:1804.05538

(6) **On subgroups of first homology**
Fund. Math. 247 (2019), 217-228 arXiv:1610.05422

(5) **The number of homomorphisms from the Hawaiian earring group**
J. Algebra 523 (2019), 34-52. arXiv:1801.09505

(4) **A note on automatic continuity**
with Gregory R. Conner
Proc. Amer. Math. Soc. 147 (2019), 1255-1268. arXiv:1710.04787

(3) **Root extraction in one-relator groups and slenderness**
Comm. in Alg. 46 (2018), 4317-4324. Corrected: Comm. in Alg. 51 (2023), 1320-1322. arXiv:1709.02906

(2) **Torsion-free word hyperbolic groups are noncommutatively slender**
Int. J. Algebra Comput. 26 (2016), 1467-1482. arXiv:1510.04326

(1) **On the first homology of Peano continua**
with Gregory R. Conner
Fund. Math. 232 (2016), 41-48. arXiv:1509.07055

(0) **Subgroups and quotients of fundamental groups**, PhD Thesis, May 2016.

(00) **Applications of descriptive set theory in homotopy theory**, MS Thesis, April 2010.

| | | |
|---|---|---|
| **Honors and Awards** | 2022 | Maria Zambrano Grant (2 yr) with U. Complutense de Madrid, 1st place in experimental science, perfect score, declined |
| | 2022 | Maria Zambrano Grant (2 yr) with UPV/EHU |
| | 2020 | Heilbronn Research Fellowship |
| | 2019 | ICMAT postdoctoral research project "Automatic continuity" Severo Ochoa Program |
| | 2011–2016 | University Graduate Fellowship ($10,000/annum in addition to the standard stipend) |
| | 2011 | Winter Semester: Perfect 8/8 overall student ratings of instructor |
| | 2010 | Graduate Service Award |
| | 2008 | Graduation Magna Cum Laude, GPA 3.98 |
| | 2008 | Orson Pratt Award (Outstanding Graduating Senior) |
| | 2008 | National Society of Collegiate Scholars |
| | 2007 | Golden Key Society, Phi Kappa Phi |
| | 2006 | Phi Eta Sigma |

**Refereeing & Quick Opinion**    Groups, Geometry, and Dynamics (2); Journal of the London Mathematical Society; Journal of Combinatorial Algebra; Michigan Mathematical Journal; Journal of Algebra (2); Acta Mathematica Hungarica; International Journal of Algebra and Computation (2); Journal of the Australian Mathematical Society; Journal of Group Theory; Open Mathematics; Arab Journal of Mathematical Sciences; Topology and its Applications; Glasnik Matematicki; Hacettepe Journal of Mathematics and Statistics; Topology Proceedings.

**Meeting Organization**    University of Bristol Algebra Seminar co-organizer (2021-2022)

GTA Gran Bilbao (conference 2024)

GTA Gran Bilbao (conference 2019)

**Talks**
▶ **Many trivially generated groups are the same**, Geometry, Topology and Group Theory Seminar, Mathematisches Institut, Universität Münster, Germany.
22 January 2024
▶ **A steep uncountable group**, Advanced Seminar on Group Theory, Universität Düsseldorf, Germany.
6 June 2023

▶ **Groups with finitary behavior**, Fields Postdoc Colloquium, Fields Institute, Canada.

19 April 2023

▶ **Groups with finitary behavior**, Algebraic Cryptography Seminar, Stevens Institute of Technology, USA.

17 April 2023

▶ **Many trivially generated groups are the same**, New York Group Theory Seminar, CUNY Graduate Center, USA.

14 April 2023

▶ **Lots of infinity**, STEM Lunch, Morristown High School, NJ, USA.

11 April 2023

▶ **Lots of infinity**, Linear Algebra class, Morristown High School, NJ, USA.

11 April 2023

▶ **Groups with finitary behavior**, AMS Special Session, Georgia Tech University, USA.

18 March 2023

▶ **Many trivially generated groups are the same**, Algebra Seminar, Ohio State University, USA.

2 March 2023

▶ **Groups with finitary behavior**, Topology & Group Theory Seminar, Vanderbilt University, USA.

22 February 2023

▶ **Many trivially generated groups are the same**, Algebra Seminar, Department of Mathematics UPV/EHU, Spain.

15 February 2023

▶ **A thinly connected thick space**, Cannon Seminar, BYU, USA.

2 November 2022

▶ **Infinite groups which behave like finite groups**, Equations in Groups and Complexity (conference, contributed talk), Newcastle, UK.

18 July 2022

▶ **Infinite groups which behave like finite groups**, Pure Mathematics Colloquium, University of Southampton, UK.

11 March 2022

▶ **A space which is slightly connected and very thick**, University of Bristol Geometry & Topology Seminar (online), UK.

8 February 2022

▶ **A thinly connected thick space**, Algebra Seminar, Department of Mathematics UPV/EHU, Spain.

16 November 2021

▶ **Some finite-like groups**, Groups and Dynamics Seminar (online), Texas A & M University, USA.

27 October 2021

▶ **The harmonic archipelago and double cone have isomorphic fundamental group**, Cannon Seminar (online), BYU, USA.

15 June 2021

▶ **Groups with finitary behavior**, Universität Magdeburg Algebra and Geometry Seminar (online), Germany.

15 June 2021

▶ **Infinite groups which behave like finite groups**, University of Bristol Algebra Seminar (online), UK.

24 March 2021

▶ **Groups with finitary behavior**, London Algebra Colloquium (online), Queen Mary University of London, UK.

4 March 2021

▶ **Some exotic finite-like groups**, Geometry, Topology and Group Theory Seminar (online), Mathematisches Institut, Universität Münster, Germany.

2 March 2021

▶ **Infinite groups which behave like finite groups**, Algebra Seminar (online), Department of Mathematics UPV/EHU, Spain.

17 February 2021

▶ **Groups whose proper subgroups are small**, Cannon Seminar (online), BYU, USA.

9 February 2021

▶ **An exotic connected space**, Set Theory in the UK (online conference, minitalk).

4 December 2020

▶ **A strange almost free group**, Colloquium, West Chester University of Pennsylvania, USA.

27 February 2020

▶ **A weird almost free group**, Algebraic Cryptography Seminar, Stevens Institute of Technology, USA.

24 February 2020

▶ **Automatic continuity in its elementary forms**, Geometry, Topology and Group Theory Seminar, Mathematisches Institut, Universität Münster, Germany.

3 December 2019

▶ **Almost free groups of an unusual sort**, Algebra seminar, Technische Universität Wien, Vienna, Austria.

22 November 2019

▶ **Some anti-geometric groups**, Groups and their Actions 2019 (conference, contributed talk), Gliwice, Poland.

9 September 2019

▶ **Some groups which are extraordinarily close to being free**, Operator Algebras, Groups, and Applications to Quantum Information (conference), Madrid, Spain.

17 June 2019

▶ **Some groups which are extraordinarily close to being free**, Mathematics Seminar, Universidad Autónoma de Madrid, Spain.

30 May 2019

▶ **Some unusual almost free groups**, Arches Topology Conference, Hurricane, USA.

25 April 2019

▶ **How close can you be to free?**, Algebra Seminar, Department of Mathematics UPV/EHU, Spain.

20 March 2019

▶ **Very discrete groups**, Logic Seminar, University of Illinois at Chicago, USA.

15 January 2019

▶ **The most discrete of groups**, Algebraic Cryptography Seminar, Stevens Institute of Technology, USA.

20 December 2018

▶ **New groups of automatic continuity**, Séminaire Gaston Darboux, Institut Montpellierain Alexander Grothendieck, France.

23 November 2018

▶ **The most discrete of groups**, Algebra Seminar, Universitat Politècnica de Catalunya Barcelona, Spain.

13 November 2018

▶ **New automatic continuity from old techniques**, Pure Mathematics Colloquium, University of Southampton, UK.

9 November 2018

▶ **The nicest possible homomorphisms**, Algebra Seminar, University of Ljubljana,

Slovenia.

25 October 2018

▶ **The homomorphisms from the Hawaiian earring group**, Topology Seminar, University of Ljubljana, Slovenia.

22 October 2018

▶ **When a map is necessarily continuous**, Colloquium, Universität Düsseldorf, Germany.

19 October 2018

▶ **The metric path to slenderness**, Geometric Group Theory Seminar, Universität Düsseldorf, Germany.

18 October 2018

▶ **Homomorphisms are necessarily nice**, Algebra Seminar, Department of Mathematics UPV/EHU, Spain.

2 October 2018

▶ **The price of freedom**, Mathematics Seminar, Universidad Autónoma de Madrid, Spain.

17 May 2018

▶ **What can fail without choice**, Algebra Seminar, Department of Mathematics UPV/EHU, Spain.

24 April 2018

▶ **Prime root extraction in one-relator groups and slenderness**, Topology Seminar, BYU, USA.

18 October 2017

▶ **Some new results in automatic continuity**, Wasatch Topology Conference, USA.

14 August 2017

▶ **Introduction to my research and why it is interesting**, Hiring Committee, NUI Galway, Ireland.

28 June 2017

▶ **The definable subgroups of the fundamental group**, Colloquium, BYU, USA.

6 October 2016

▶ **Some new results about n-slender groups**, Topology & Group Theory Seminar, Vanderbilt University, USA.

2 March 2016

▶ **Some new results on Peano continua and n-slenderness**, Geometry and Topology Seminar, University of Tennessee, Knoxville, USA.

19 October 2015

▶ **Lebesgue space and Peano continua**, Topology Seminar, BYU, USA.

26 March 2015

▶ **The Grigorchuk group**, Topology Seminar, BYU, USA.

25 November 2013

▶ **Weak presentations of groups**, Workshop on Topology of Wild Spaces and Fractals, Strobl, Austria.

8 July 2011

| | | |
|---|---|---|
| **Teaching (University of Bristol)** | Fall    2021 | Instructor, Topics in Modern Geometry |

| | | | |
|---|---|---|---|
| **Teaching (Vanderbilt University)** | Winter | 2016 | Teaching Assistant, Probability and Statistics |
| | Fall | 2015 | Instructor, Calculus I |
| | Fall | 2014 | Instructor, Calculus I |
| | Winter | 2014 | Teaching Assistant, Multivariable Calculus and Linear Algebra |
| | Fall | 2013 | Teaching Assistant, Calculus I |
| | Winter | 2013 | Teaching Assistant, Differential Equations and Linear Algebra |
| | Fall | 2012 | Teaching Assistant, Calculus II |
| | | | |
| **Teaching (Brigham Young University)** | Spring | 2011 | Instructor, Calculus I |
| | Winter | 2011 | Instructor, Calculus I |
| | Fall | 2010 | Instructor, Calculus I |
| | Summer | 2010 | Instructor, Calculus I |
| | Winter | 2010 | Teaching Assistant, Calculus II |
| | Fall | 2009 | Teaching Assistant, Calculus II |
| | Summer | 2009 | Instructor, Trigonometry |
| | Winter | 2009 | Teaching Assistant, Calculus I |
| | Fall | 2008 | Teaching Assistant, Topology |
| | Fall | 2008 | Teaching Assistant, Complex Analysis |
| | | | |
| **Long Visits** | 20 Jan - 27 Jan | 2024 | University of Münster (Philip Möller) |
| | 13 Feb - 2 June | 2023 | Fields Institute |
| | 16 Nov - 31 Dec | 2022 | UPV/EHU (Ilya Kazachkov) |
| | 1 - 15 Nov | 2022 | BYU (Gregory Conner) |
| | 14 Oct - 1 Nov | 2022 | UPV/EHU (Ilya Kazachkov) |
| | 8 - 29 Nov | 2021 | UPV/EHU (Ilya Kazachkov) |
| | 4 months | 2020 | University of Münster (Olga Varghese) **cancelled** |
| | 21-27 Oct | 2018 | University of Ljubljana (Petar Pavešić) |
| | 6 Oct - 16 Nov | 2017 | BYU (Gregory Conner) |
| | 8 - 21 Oct | 2016 | BYU (Gregory Conner) |
| | 7 - 15 July | 2016 | Hebrew University (Saharon Shelah) |
| | | | |
| **Other Skills** | Languages: English (native), Russian (conversational), Spanish (functional), German (meager-travel); LaTex, Beamer | | |

**References**

**Ilya Kazachkov**
Ikerbasque Research Professor
University of the Basque Country UPV/EHU
ilya.kazachkov@ehu.es

**Yago Antolin Pichel**
Professor Titular of Mathematics
Univers. Complutense de Madrid & ICMAT
yantolin@ucm.es

**Greg Conner**
Professor of Mathematics
Brigham Young University
conner@math.byu.edu

**Thomas Jordan**
Senior Lecturer in Pure Mathematics
University of Bristol
Thomas.Jordan@bristol.ac.uk
(Teaching letter writer)

**Saharon Shelah**
Professor of Mathematics
Hebrew University

shlhetal@math.huji.ac.il

**Justin Tatch Moore**
Professor of Mathathematics
Cornell University
justin@math.cornell.edu

**Doug Hardin**
Professor of Mathematics, Associate DGS
Vanderbilt University
doug.hardin@vanderbilt.edu
(Teaching letter writer)