

Charles Starling

Curriculum Vitae

School of Mathematics and Statistics
Carleton University
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Nationality: Canadian

Education

- 2012 **Doctor of Philosophy**, *University of Ottawa*, Canada.
Supervisor: Thierry Giordano. Thesis: Actions of Finite Groups on Substitution Tilings and Their Associated C^* -algebras.
- 2005 **Master of Science**, *University of Victoria*, Canada.
Supervisor: Ian Putnam. Thesis: Computation of the Ruelle-Sullivan Map for Substitution Tilings.
- 2003 **Bachelor of Science**, *University of Victoria*, Canada, Honours in Mathematics and Physics.
Jubilee Silver Medal for top graduating GPA in the Faculty of Science.

Positions

- 2017–2020 **Term Assistant Professor**, *Carleton University*, Ottawa, Canada.
- 2015–2017 **Postdoctoral Researcher**, *University of Ottawa*, Ottawa, Canada.
Supervisors: Thierry Giordano, Benoît Collins, and Vladimir Pestov
- 2013–2014 **Pós-doutorado Junior**, *Universidade Federal de Santa Catarina*, Florianópolis, Brazil.
Supervisor: Ruy Exel
- 2012 **Postdoctoral Researcher**, *University of Ottawa*, Ottawa, Canada.
Supervisors: Thierry Giordano and Benoît Collins
- 2007–2012 **Part-time Professor and Teaching Assistant**, *University of Ottawa*, Ottawa, Canada.

Publications

Preprints

- [20] **C. Starling** and I. Tolich, *The C^* -algebra of a cancellative semigroup*, arXiv:2001.00156.
- [19] T. Bice and **C. Starling**, *Locally Hausdorff Tight Groupoids Generalised*, arXiv:1912.03774.
- [18] R. Exel, E. Pardo, and **C. Starling**, *C^* -algebras of self-similar graphs over arbitrary graphs*, arXiv:1807.01686.

Publications in Press

- [17] T. Bice and **C. Starling**, *Hausdorff Tight Groupoids Generalised*, to appear in *Semigroup Forum*, arXiv:1809.08578.

Publications in Print

- [16] L. O. Clark, R. Exel, E. Pardo, A. Sims, and **C. Starling**, *Simplicity of algebras associated to non-Hausdorff groupoids*, *Trans. Amer. Math. Soc.*, **372**, No. 5, 3669–3712, 2019..
- [15] T. Bice and **C. Starling**, *General Non-Commutative Locally Compact Locally Hausdorff Stone Duality*, *Adv. Math.*, **341**, 40–91, 2019 .

- [14] T. Bice and **C. Starling**, *Locally Compact Stone Duality*, J. Log. Anal., **10**, Paper No. 2, 1–36, 2018.
- [13] D. Gonçalves, M. Sobottka, and **C. Starling**, *Inverse semigroup shifts over countable alphabets*, Semigroup Forum, **96** (2), 203–240, 2018.
- [12] R. Exel and **C. Starling**, *Amenable actions of inverse semigroups*, Ergodic Theory Dynam. Systems, **37** No.2, 481–489, 2017.
- [11] T. Giordano, D. Gonçalves, and **C. Starling**, *Bratteli-Vershik models for partial actions of \mathbb{Z}* , Int. J. Math., **22** No.10, 2017.
- [10] D. Gonçalves, M. Sobottka, and **C. Starling**, *Two-sided shift spaces over infinite alphabets*, J. Aust. Math. Soc., **103** (3), 357–386, 2017.
- [9] D. Gonçalves, M. Sobottka, and **C. Starling**, *Sliding block codes between shift spaces over infinite alphabets*, Math. Nachr., **289** (17–18), 2178–2191, 2016.
- [8] **C. Starling**, *C^* -algebras of Boolean inverse monoids – traces and invariant means*, Doc. Math., **21**, 809–840, 2016.
- [7] **C. Starling**, *Inverse semigroups associated to subshifts*, J. Algebra, **463**, 211–233, 2016.
- [6] R. Exel and **C. Starling**, *Self-Similar Graph C^* -Algebras and Partial Crossed Products*, J. Operat. Theor., **75** (1), 299–317, 2016.
- [5] **C. Starling**, *Boundary quotients of C^* -algebras of right LCM semigroups*, J. Funct. Anal., **268** (11) 3326–3356, 2015.
- [4] **C. Starling**, *K -theory of crossed products of tiling C^* -algebras by rotation groups*, Commun. Math. Phys., **344** (1), 301–311, 2015.
- [3] D. Gonçalves and **C. Starling**, *Division Point Measures from Primitive Substitutions*, Expo. Math., **33** (1), 67–77, 2015.
- [2] **C. Starling**, *Finite symmetry group actions on substitution tiling C^* -algebras*, Münster J. Math. **7**, 381–412, 2014.
- [1] R. Exel, D. Gonçalves, and **C. Starling**, *The tiling C^* -algebra viewed as a tight inverse semigroup algebra*, Semigroup Forum, **84**, 229–240, 2012.

Invited Conference Presentations

- Sep 2019 **Simplicity of algebras associated to non-Hausdorff groupoids**, Topology and Measure in Dynamics and Operator Algebras, Banff, Canada.
- Aug 2018 **Non-Hausdorff groupoids arising from self-similar actions and simplicity of their algebras**, International Congress of Mathematicians Operator Algebras Satellite Conference, Florianópolis, Brazil.
- Jun 2018 **The Mathematics of Aperiodic Patterns**, Ottawa Mathematics Conference, Ottawa, Canada.
- Jul 2017 **Bratteli-Vershik models for partial actions of \mathbb{Z}** , Mathematical Congress of the Americas, Montreal, Canada.
- Jun 2016 **Inverse semigroups in C^* -algebras**, Fields Workshop on New Directions in Inverse Semigroups, University of Ottawa, Canada.

- Dec 2015 **C*-algebras generated by partial isometries and amenability**, Canadian Mathematical Society Winter Meeting, Montreal, Canada.
- Feb 2015 **Boundary Quotients of Semigroup C*-algebras**, Workshop on Functional Analysis and Dynamical Systems, Florianópolis, Brazil.
- Feb 2015 **Boundary Quotients of Semigroup C*-algebras**, Fields Workshop on Quantum Groups and Operator Algebras, University of Ottawa, Canada.
- May 2014 **C*-algebras of Partial Isometries**, 3º Colóquio de Matemática da Região Sul, UFSC Florianópolis, Brazil.
- May 2014 **Self-Similar Graph Actions and Partial Crossed Products**, Partial Actions and Representations Symposium, Gramado, Brazil.
- Nov 2013 **The Dynamics of Inverse Semigroups**, Floripadynsys Workshop on Dynamics, Numeration and Tilings, Florianópolis, Brazil.
- Jul 2012 **Finite Group Actions on Aperiodic Tilings**, Workshop on Sofic and Hyperlinear Groups and the Connes Embedding Conjecture, UFSC Florianópolis, Brazil.
- May 2012 **Finite Group Actions on Aperiodic Tilings**, NSF/CBMS Regional Conference in the Mathematical Sciences, University of Louisiana at Lafayette, United States.
- Aug 2011 **Finite Group Actions on C*-algebras Associated to Tilings**, Fields Workshop on Positivity, University of Toronto, Canada.
- Feb 2011 **Finite Group Actions on Substitution Tilings**, Brazilian Operator Algebra Symposium, Florianópolis, Brazil.
- May 2010 **Substitution Tilings and Groupoids**, Fields Workshop on Semigroups and Categories, University of Ottawa, Canada.

Invited Colloquia and Seminar Presentations

- Oct 2016 **Inverse semigroups and C*-algebras**, Operator Algebra Seminar, Fields Institute, Toronto.
- Aug 2016 **Boundary Quotients of Semigroup C*-algebras**, Analysis Seminar, University of Aberdeen, Scotland.
- Aug 2016 **Boundary Quotients of Semigroup C*-algebras**, Analysis Seminar, University of Glasgow, Scotland.
- Jul 2014 **Inverse semigroup C*-algebras and partial crossed products**, C*-algebras seminar, UFSC Florianópolis, Brazil.
- May 2013 **Division Point Measures from Primitive Substitutions**, C*-algebras seminar, UFSC Florianópolis, Brazil.
- Nov 2013 **Semigrupos inversos são objetos dinâmicos**, Colloquium at UFSC, Florianópolis, Brazil.
- Oct 2012 **The Mathematics of Aperiodic Patterns**, Colloquium at the University of Saskatchewan, Canada.

Contributed Presentations

- Dec 2019 **Simplicity of algebras associated to non-Hausdorff groupoids**, Joint Algebra Seminar, Carleton University, Canada.
- Nov 2019 **Aperiodic Tilings**, Joint Colloquium, Carleton University, Canada.

- Sep 2016 **Groupoids**, Analysis Seminar, University of Ottawa, Canada.
- Jun 2016 **C*-algebras generated by partial isometries and amenability**, Canadian Operator Symposium, Centre de Recherches de Mathématiques, Montréal, Canada.
- Mar 2016 **Self-similar groups and their C*-algebras**, Analysis Seminar, University of Ottawa, Canada.
- Jun 2015 **Boundary Quotients of Semigroup C*-algebras**, Canadian Operator Symposium, University of Waterloo, Canada.
- May 2015 **Boundary Quotients of Semigroup C*-algebras**, Classification of C*-algebras, flow equivalence of shift spaces, and graph and Leavitt path algebras, University of Louisiana at Lafayette, United States.
- May 2012 **A Leisurely Walk from Inverse Semigroups to C*-algebras**, Canadian Operator Symposium, Queen's University, Kingston, Canada.
- May 2011 **Finite Group Actions on Substitution Tilings**, Canadian Operator Symposium, University of Victoria, Canada.
- May 2008 **Aperiodic Tilings**, Ottawa Mathematics Conference, University of Ottawa, Canada.
- Jun 2005 **Computation of the Ruelle-Sullivan Map for Substitution Tilings**, Victoria Workshop on Aperiodic Order, University of Victoria, Canada.

Minicourses

- Feb 2012 **Aperiodic Order in Dynamical Systems and Operator Algebras**, 3-day minicourse at UFSC Escola de Verão 2012, Florianópolis, Brazil.

Supervision and Mentoring

- Winter 2020 **Kyle Cheaney**, *Honours Project*, Project TBD.
- Summer 2015 **Alexander McDonald**, *NSERC Undergraduate Research Student*, (Co-supervised with Thierry Giordano), Project: Spectral triples associated to aperiodic tilings.

Teaching

- Winter 2020 **MATH4907/5900 – Dynamical Systems**, *Carleton University*.
Evaluations pending
- Fall 2019 **MATH3057 – Complex Analysis**, *Carleton University*.
Average student rating: 5/5
- Fall 2019 **MATH1002 – Calculus and Introductory Analysis I**, *Carleton University*.
Winter 2020 Evaluations pending
- Winter 2019 **MATH3003 – Advanced Differential Calculus**, *Carleton University*.
Average student rating: 4.96/5
- Fall 2018 **MATH5003 – Banach Algebras**, *Carleton University*.
No evaluations due to class size
- Fall 2018 **MATH1002 – Calculus and Introductory Analysis I**, *Carleton University*.
Winter 2019 Average student rating: 4.77/5

- Winter 2018 **MATH3002 – Real Analysis II**, *Carleton University*.
Average student rating: 4.75/5
- Winter 2018 **MATH1007 – Elementary Calculus I**, *Carleton University*.
Average student rating: 4.79/5
- Fall 2017 **MATH3057 – Complex Analysis**, *Carleton University*.
Average student rating: 4.80/5
- Fall 2017 **MATH1007 – Elementary Calculus I**, *Carleton University*.
Average student rating: 4.61/5
- Winter 2017 **MAT1341 – Introduction to Linear Algebra**, *University of Ottawa*.
Average student rating: 4.62/5
- Fall 2016 **MAT1341 – Introduction to Linear Algebra**, *University of Ottawa*.
Average student rating: 4.75/5
- Winter 2016 **MAT1341 – Introduction to Linear Algebra**, *University of Ottawa*.
Average student rating: 4.90/5
- Fall 2015 **MAT1341 – Introduction to Linear Algebra**, *University of Ottawa*.
Average student rating: 4.68/5
- Winter 2015 **MAT1300 – Mathematical Methods I**, *University of Ottawa*.
Average student rating: 4.76/5
- Fall 2012 **MAT1341 – Introduction to Linear Algebra**, *University of Ottawa*.
Average student rating: 4.53/5
- Fall 2012 **MAT1300 – Mathematical Methods I**, *University of Ottawa*.
Average student rating: 4.58/5
- Summer 2012 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.73/5
- Winter 2012 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.69/5
- Fall 2011 **MAT1300 – Mathematical Methods I**, *University of Ottawa*.
Average student rating: 4.53/5
- Summer 2011 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.69/5
- Winter 2011 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.67/5
- Summer 2010 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.40/5
- Winter 2010 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.50/5
- Fall 2009 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.43/5
- Summer 2009 **MAT1318 – Functions**, *University of Ottawa*.
Average student rating: 4.75/5

- Fall 2008 **MAT1300 – Mathematical Methods I**, *University of Ottawa*.
Average student rating: 4.24/5
- Winter 2008 **MAT1341 – Introduction to Linear Algebra**, *University of Ottawa*.
Average student rating: 4.13/5
- Summer 2007 **MAT1341 – Introduction to Linear Algebra**, *University of Ottawa*.
Average student rating: 4.78/5

Grants, Awards, and Fellowships

- April 2016 **Edinburgh Mathematical Society Travel Grant**, £800.
Funds used to facilitate a research visit to Michael Whittaker (Glasgow)
- 2014–2015 **Junior Excellence in Teaching Award**, *University of Ottawa Department of Mathematics and Statistics*.
Awarded to “an exceptional teacher from among all graduate students and postdoctoral fellows”
- 2013–2014 **CNPq (Brazil) Pós-Doutorado Júnior**, BRL 108,000.
Joint award with Ruy Exel to fund postdoctoral studies at UFSC Florianópolis, Brazil
- 2006–2008 **NSERC Postgraduate Scholarship - Doctoral**, *University of Ottawa*, \$41,000 CAD.
- 2006–2008 **President’s Scholarship**, *University of Ottawa*.
- 2003–2010 **NSERC Postgraduate Scholarship - Masters**, *University of Victoria*, \$34,600 CAD.
- 2003 **Jubilee Silver Medal**, *University of Victoria*.
Awarded to the student with the highest graduating GPA in the Faculty of Science
- 2003 **NSERC Undergraduate Research Award**, *University of Victoria*, \$4500 CAD.
Supervisor: Ian Putnam
- 2002 **NSERC Undergraduate Research Award**, *University of Victoria*, \$4500 CAD.
Supervisor: Ahmed Sourour

Organization and Service

- 2018–2020 **Mathematics Program Committee**, *Carleton University*.
Chair (2018–2019), Vice-Chair (2019–2020)
- May 2018 **Canadian Abstract Harmonic Analysis Symposium**, *Carleton University* (Co-organized with Mahmood Alaghmandan, Jason Crann, and Matthias Neufang).
Conference Website: <https://sites.google.com/site/cahas2018ottawa/>
- 2017–2018 **Retention Committee**, *Carleton University*.
- 2019–2020 Member
- 2017–present **Joint Analysis Seminar**, *Carleton University — University of Ottawa* (Co-organized with Thierry Giordano and Aaron Tikuisis).
- May 2016 **Fields Workshop on Dynamical Systems and Operator Algebras**, *University of Ottawa* (Co-organized with Benoît Collins, Thierry Giordano, and Vladimir Pestov).
Conference Website: <http://www.fields.utoronto.ca/activities/15-16/dynamical>
- 2015–2017 **Analysis Seminar**, *University of Ottawa*.
- May 2012 **Ottawa Mathematics Conference**, *University of Ottawa* (Co-organized with Farnoosh Abbas Aghababazadeh, Steven Amelotte, Jan Cannizzo, Aleksandr Gontcharov, Camelia Karimianpour, Joel Lemay, Negin Mehrdad, Babak Moazzez, and Fanny Santamaria) .

Fall 2011 **Graduate Student Seminar**, *University of Ottawa*.

Refereeing Ergodic Theory and Dynamical Systems, Journal of Functional Analysis, Semigroup Forum.