Curriculum Vitae of Kevin Aguyar Brix

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I am postdoctoral researcher in mathematics based at the University of Wollongong, Australia, and funded by a Carlsberg Foundation Internationalisation Fellowship. In September 2019, I obtained my PhD from the University of Copenhagen as a member of the Centre for Symmetry and Deformation under the supervision of Professor Søren Eilers. My research interests include the study of operator algebras, topological groupoid theory and topological dynamics including shift spaces.

Education:

- ⋆ Doctor of philosophy in Mathematics, University of Copenhagen (2019)
  Title: *Topological dynamics, groupoids and C^*-algebras*,
  Supervisor: Professor Søren Eilers;
- ⋆ Master of Science in Mathematics, University of Copenhagen (2016)
  Supervisor: Professor Søren Eilers;
- ⋆ Bachelor of Science in Mathematics, University of Copenhagen (2014)
  Supervisor: Associate Professor Magdalena Musat.

Employment:

- ⋆ *Postdoc*, University of Wollongong, Australia (Feb. 2020 – Feb 2021)
  Funded by a Carlsberg Foundation Internationalisation Fellowship;
- ⋆ *External lecturer*, University of Copenhagen, Denmark (Sep. 2019 – Feb. 2020)
  Temporary teaching position.

Publications (and preprints):

- ⋆ *C^*-simplicity and representations of topological full groups of groupoids*, (with Eduardo Scarparo), Journal of Functional Analysis **227** (2019), no. 9, 2981–2996.
- ⋆ *Cuntz-Krieger algebras and one-sided conjugacy of shifts of finite type and their groupoids*, (with Toke Meier Carlsen), Journal of the Australian Mathematical Society (2019), doi:10.1017/S1446788719000168.

⋆ *C*-algebras, groupoids and covers of shift spaces*, (with Toke Meier Carlsen), submitted for publication (2019).

⋆ *Balanced strong shift equivalence, balanced in-split and eventual conjugacy*, submitted for publication (2020).

Grants:

Carlsberg Foundation Internationalisation Fellowship, Feb. 2020 – Feb 2021.
Hosted by University of Wollongong, Australia.

Research talks and presentations:

The following is a list of talks scheduled or presented at universities on or around my area of research. The marker (I) indicates an invited talk.

⋆ 2019 November: *Fine structure of* C*-*algebras associated to topological dynamics*, Seminar, Queen Mary University, London, England. (I)

⋆ 2019 November: *Fine structure of* C*-*algebras associated to topological dynamics*, Oberseminar, WWU Münster, Germany. (I)

⋆ 2019 October: *Fine structure of* C*-*algebras associated to topological dynamics*, Analysis seminar, KU Leuven, Belgium. (I)

⋆ 2019 Januar: *Various* $*$-*isomorphisms of (groupoid)* C*-*algebras*, Analysis seminar, University of Glasgow, Scotland. (I)

⋆ 2018 December: *Various* $*$-*isomorphisms of (groupoid)* C*-*algebras*, Danish Operator Algebra Seminar, University of Southern Denmark, Odense, Denmark. (I)

⋆ 2018 September: *Symbolic dynamics and operator algebras*, OA seminar, University of Copenhagen, Denmark. (I)

⋆ 2018 August: *Modelling topological dynamics in groupoids and* C*-*algebras*, YMC*A, KU Leuven, Belgium.

⋆ 2018 June: C*-*simplicity and representations of topological full groups of groupoids*, Workshop in operator algebras and dynamics, University of the Faroe Islands, Faroe Islands. (I)

⋆ 2018 February: *Modelling symbolic dynamics using* C*-*algebras*, Operator algebra seminar, University of Wollongong, Australia. (I)

⋆ 2018 January: *Modelling finite type symbolic dynamics with* C*-*algebras*, University of Western Sydney, Australia. (I)

⋆ 2017 December: *Investigating symbolic dynamics using* C*-*algebras*, AustMS2017, Macquarie University, Sydney, Australia.

- ⋆ 2017 December: *One-sided and two-sided dynamics and Cuntz-Krieger algebras*, AMSSC 2017, University of Wollongong, Australia.
- ⋆ 2017 May: *The* C*-*algebra associated to a symbolic dynamical system*, Universitat Autónoma de Barcelona, Spain. (I)
- ⋆ 2017 January: C*-*algebras associated to symbolic dynamics*, DUC*S, Aarhus University, Denmark.
- ⋆ 2016 September: *A groupoid approach to Cuntz-Krieger algebras*, Ph.D seminar, University of Copenhagen, Denmark. (I)

Languages:

- ⋆ Danish: Fluent (mother tongue)
- ⋆ English: Fluent
- ⋆ Spanish: Fluent
- ⋆ German: Basic

Service to the profession

- ⋆ I help organise the Operator Algebra and NonCommutative Geometry seminar at the University of Wollongong, Australia.
- ⋆ I regularly work as a referee for peer-reviewed mathematics journals,
- ⋆ I helped organise the following conferences/workshops:

  Young Mathematicians in C-Algebra* (YMC*A), 2017 and 2019, University of Copenhagen,

  Rigidity of C*-*algebras associated to dynamics*, 2017, University of Copenhagen,

  Danske Unge C*-*algebraikers Symposium* (DUC*S) 2017, University of Aarhus.

- ⋆ I was the Ph.D and Postdoc representative for the Local Collaboration Committee (lokal samarbejdsudvalg, LSU), January 2017 to January 2019, Department of Mathematical Sciences at the University of Copenhagen.

Teaching

- ⋆ *Postdoc*, University of Wollongong, Feb. 2020 – Jan. 2021:

  MATH151 (general mathematics) 2020, undergraduate level
  Lecturer (online)

- ⋆ *External lecturer*, University of Copenhagen, Sep. 2019 – Jan. 2020:

Mathematical modeling 2019–2020, undergraduate level
Theoretical exercises and Maple programing.

Introduction to numerical analysis 2019, undergraduate level
Theoretical exercises and Python programing.

⋆ *PhD student*, University of Copenhagen, 2016 – 2019:

Supervision of a Master's project (30 ECTS) and a Graduate project (15 ECTS), with Professor Søren Eilers.

Functional Analysis, Master level course 2018–2019
Exercises and occasional lectures.

Differential equations and optimal control, undergraduate level (Copenhagen Business School) 2017 and 2018
Exercises.

Introduction to numerical analysis, undergraduate level, 2016
Theoretical exercises and Python programing.

I completed a 3 ECTS course entitled *Introduction to university pedagogy.*

⋆ *Teaching assistant*, University of Copenhagen, Sep. 2011 – Jan. 2016:

I worked as a teaching assistant in the following courses: Introduction to Mathematics, Linear Algebra, Discrete mathematics, Analysis 0, 1 and 2, Measure and integration theory, Mathematics for biologists (undergraduate biology students), and Philosophy of science.