Tron Omland

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Education

2008-2013	PhD in Mathematics, Norwegian University of Science and Technology (NTNU) Date of disputation: June 4, 2013
2006-2008	MSc in Mathematics, University of Oslo, Norway
2002-2006	BSc in Computational Science and Mathematics, University of Oslo, Norway

Employment history

2019-	Research Scientist, Norwegian National Security Authority (NSM)
2023-	Adjunct Associate Professor, University of Oslo, Norway
2021-2022	Visiting Professor, Naval Postgraduate School, USA
2018-2019	Associate Professor, Oslo Metropolitan University, Norway
2015-2018	Postdoctoral Fellow, University of Oslo, Norway
2013-2015	Visiting Assistant Professor, Arizona State University, USA
2008-2013	PhD Candidate, Norwegian University of Science and Technology (NTNU)
2006-2008	Teaching Assistant, University of Oslo, Norway

Grant

Personal post-doctoral research fellowship with the Research Council of Norway, 2015-2018, through FRIPRO/FRINATEK. Project Title: Structure of C^*-algebras arising from groups.
URL: https://prosjektbanken.forskningsradet.no/en/project/FORISS/240913

Organizing

Facets of Irreversibility: Inverse Semigroups, Groupoids, and Operator Algebras.
International workshop at the University of Oslo, December 2017.
http://www.mn.uio.no/facets/

Research interests

Functional analysis, operator algebras, C^*-algebras, in particular dynamical systems by actions and coactions, group theory and projective representations of groups, and twisted group C^*-algebras.

More recent interests include algebraic number theory, combinatorics, cryptography, and quantum information.

List of publications

Articles in refereed journals

22. S. Kaliszewski, Tron Omland, John Quigg, and Jonathan Turk. Strong Pedersen rigidity for coactions of compact groups. *Internat. J. Math.*, to appear.
21. Erik Bédos and Tron Omland. C^*-irreducibility for reduced twisted group C^*-algebras. *J. Funct. Anal.*, 284(5):109795, 31 pp., 2023.
20. Ulrik Enstad, Mads S. Jakobsen, Franz Luez, and Tron Omland. Deformations and Balian–Low theorems for Gabor frames on the adeles. *Adv. Math.*, 410(B):108771, 46 pp., 2022.
19. S. Kaliszewski, Tron Omland, and John Quigg. Rigidity theory for C^*-dynamical systems and the "Pedersen rigidity problem", II. *Internat. J. Math.*, 30(8):1950038, 22 pp., 2019.
18. Xin Li, Tron Omland, and Jack Spielberg. C^*-algebras of right LCM one-relator monoids and Artin-Tits monoids of finite type. *Comm. Math. Phys.*, 381:1263–1308, 2021.
17. Tron Omland. Free nilpotent groups are C^*-superrigid. *Proc. Amer. Math. Soc.*, 148(1):283–287, 2020.
16. Rasmus S. Bryder, Nikolay A. Ivanov, and Tron Omland. C^*-simplicity of HNN extensions and groups acting on trees. *Ann. Inst. Fourier*, 70(4):1497–1543, 2020.
15. S. Kaliszewski, Tron Omland, and John Quigg. Rigidity theory for C^*-dynamical systems and the "Pedersen rigidity problem". *Internat. J. Math.*, 29(3):1850016, 18 pp., 2018.
14. Tron Omland. Dynamical systems and operator algebras associated to Artin's representation of braid groups. *J. Operator Theory*, 83(1):55–72, 2020.
13. Erik Bédos and Tron Omland. On reduced twisted group C^*-algebras that are simple and/or have a unique trace. *J. Noncomm. Geom.*, 12(3):947–996, 2018.
12. Nikolay A. Ivanov and Tron Omland. C^*-simplicity of free products with amalgamation and radical classes of groups. *J. Funct. Anal.*, 272(9):3712–3741, 2017.
11. Tron Omland. How many Pythagorean triples with a given inradius? *J. Number Theory*, 170:1–2, 2017.
10. Selçuk Barlak, Tron Omland, and Nicolai Stammeier. On the K-theory of C^*-algebras arising from integral dynamics. *Ergodic Theory Dynam. Systems*, 38(3):832–862, 2018.
9. S. Kaliszewski, Tron Omland, and John Quigg. Dualities for maximal coactions. *J. Aust. Math. Soc.*, 102(2):224–254, 2017.
8. S. Kaliszewski, Tron Omland, and John Quigg. Destabilization. *Expo. Math.*, 34(1):62–81, 2016.
7. S. Kaliszewski, Tron Omland, and John Quigg. Three versions of categorical crossed-product duality. *New York J. Math.*, 22:293–339, 2016.
6. Erik Bédos and Tron Omland. On twisted group C^*-algebras associated with FC-hypercentral groups and other related groups. *Ergodic Theory Dynam. Systems*, 36(6):1743–1756, 2016.
5. Tron Omland. C^*-algebras generated by projective representations of free nilpotent groups. *J. Operator Theory*, 73(1):3–25, 2015.
4. S. Kaliszewski, Tron Omland, and John Quigg. Cuntz-Li algebras from a-adic numbers. *Rev. Roumaine Math. Pures Appl.*, 59(3):331–370, 2014.
3. Tron Omland. Primeness and primitivity conditions for twisted group C^*-algebras. *Math. Scand.*, 114(2):299–319, 2014.
2. Erik Bédos and Tron Omland. Primitivity of some full group C^*-algebras. *Banach J. Math. Anal.*, 5(2):44–58, 2011.
1. Erik Bédos and Tron Omland. The full group C^*-algebra of the modular group is primitive. *Proc. Amer. Math. Soc.*, 140(4):1403–1411, 2012.

Preprints

1. Tron Omland and Pantelimon Stănică. Permutation rotation-symmetric S-boxes, liftings and affine equivalence.

Article in refereed conference proceedings

2. S. Kaliszewski, Tron Omland, and John Quigg. The Pedersen rigidity problem. *Rev. Colombiana Mat.*, 53(supl.):237-244, 2019.
1. Tron Omland. C^*-algebras associated with a-adic numbers. In "Operator Algebra and Dynamics", *Springer Proc. Math. Stat.*, 58:223–228, 2013.

Doctoral thesis

1. On the structure of certain C^*-algebras arising from groups. Doctoral thesis, NTNU, advisor: Magnus B. Landstad, co-advisor: Toke Meier Carlsen, date of disputation: 4 June 2013.

Selected talks and seminars

Newest talks

- C^*-algebra seminar, Arizona State University and Embry-Riddle Aeronautical University, USA, August 2022: *Open quantum walks.*
- Discrete Math Seminar and Number Theory and Algebra Seminar, Arizona State University, USA, April 2022: *Shift-invariant bijections.*
- C^*-algebra seminar, Arizona State University and Embry-Riddle Aeronautical University, USA, November 2021: *C^*-irreducibility for twisted group C^*-algebras.*

Invited talks

- Interactions Between Semigroups and Operator Algebras, Newcastle, Australia, July 2017: *C^*-algebras arising from integral and rational dynamics.*
- Applications of operator algebras: order, disorder and symmetry, ICMS, Edinburgh, UK, June 2017: *C^*-simplicity and radical classes of groups.*
- Workshop on classification and discrete structures, Mittag-Leffler Institute, Stockholm, Sweden, January 2016: *C^*-algebras arising from integral dynamics.*
- West Coast Operator Algebra Seminar, University of Denver, Colorado, USA, November 2014: *On simplicity and uniqueness of trace for reduced twisted group C^*-algebras.*
- Mini-workshop: Commutative subalgebras, ideals and actions, Lunds Universitet, Sweden, July 2012: *Primitivity and primeness of twisted group C^*-algebras.*

Contributed talks

- Danish-Norwegian operator algebra workshop, Lysebu, Oslo, Norway, January 2017: *Rigidity theory for C^*-dynamical systems and the "Pedersen Rigidity Problem".*
- Norwegian operator algebras meeting, NTNU, Trondheim, Norway, November 2015: *C^*-algebras arising from integral dynamics.*
- Great Plains Operator Theory Symposium, Purdue University, Indiana, USA, May 2015: *On the K-theory of certain Cuntz-Li algebras.*
- Great Plains Operator Theory Symposium, Kansas State University, USA, May 2014: *Simple reduced twisted group C^*-algebras with unique trace.*
- Great Plains Operator Theory Symposium, University of Houston, Texas, USA, May 2012: *Primeness and primitivity conditions for twisted group C^*-algebras.*
- Operator algebras and dynamics, NordForsk Network Closing Conference, Faroe Islands, May 2012: *Cuntz-Li algebras from a-adic numbers.*
- Danish-Norwegian workshop on operator algebras, Lysebu, Oslo, Norway, December 2011: *Primitivity conditions for twisted group C^*-algebras.*
- Joint Oslo-Trondheim operator algebra seminar, NTNU, Trondheim, Norway, May 2011: *Primitivity conditions for twisted group C^*-algebras.*

Invited seminar speaker

- Mathematics colloquia, SDU, Odense, Denmark, April 2017: *C^*-simplicity and radical classes of groups.*
- Operator algebra seminar, University of Copenhagen, Denmark, November 2016: *C^*-simplicity of free products with amalgamation and radical classes of groups.*
- Oberseminar C^*-algebren, WWU Münster, Germany, June 2013: *Cuntz-Li algebras from a-adic numbers.*
- Operator theory seminar, University of Victoria, Canada, March 2012: *Primitivity and primeness of twisted group C^*-algebras.*