

Bert Lindenhovius

Karl-Wiser-Straße 29/5

4020 Linz

Austria

+43 0670 552 1204

✉ albertus.lindenhovius@jku.at

Personal information

Full name **Albertus Johannis Lindenhovius.**
Date of birth **October 20, 1984.**
Place of birth **Den Helder, the Netherlands.**
Nationality **Netherlands.**

Languages

Dutch Native
English Highly proficient *CAE certificate 2010*
German Basic communication skills
Spanish Basic communication skills

Employment

2021–present **Postdoctoral Fellow**, *Johannes Kepler Universität Linz, Institut für Mathematische Methoden in Medizin und Datenbasierter Modellierung.*
2016–2020 **Postdoctoral Fellow**, *Tulane University New Orleans, Department of Computer Science.*
2011–2015 **PhD candidate**, *Radboud University Nijmegen, Institute for Mathematics, Astrophysics and Particle Physics.*
2010 **Teaching Assistent**, *University of Amsterdam, Department of Mathematics..*

Education

2016 **PhD Mathematics**, *Radboud University Nijmegen*, Thesis: $\mathcal{C}(A)$, Advisor: Prof. N.P. Landsman.
2011 **MSc Mathematical Physics**, *University of Amsterdam*, Thesis: *Instantons and the ADHM construction*, Advisor: Prof. R.H. Dijkgraaf.
2010 **BSc Mathematics**, *Free University Amsterdam*, Thesis: *De Onvolledigheidsstelling van Gödel*, Advisor: Prof. J.J. Dijkstra.
2006 **BSc Physics**, *Free University Amsterdam*, Thesis: *The Unruh Effect*, Advisor: Dr. D. Boer.
2002 **Gymnasium**, *Studiehuis Molenplein, Den Helder.*

Funded projects

- 2021–present **The many facets of orthomodularity**, FWF/GAČR project under supervision of Dr. Thomas Vetterlein at Johannes Kepler University, Linz.
- 2016–2020 **Semantics, Formal Reasoning, and Tool Support for Quantum Programming**, Department of Defence Multi-University Research Initiative (DoD-MURI) under supervision of Prof. Dr. M. Mislove at Tulane University, New Orleans.
- 2011–2015 **The logic of composite quantum systems**, NWO TOP-GO project under supervision of Prof. Dr. B. Jacobs, Prof. Dr. N.P. Landsman, and Prof. Dr. I. Moerdijk at Radboud University, Nijmegen.

Teaching Experience

- Fall 2019 **Introduction to Discrete Math.**
- Spring 2019 **Introduction to Discrete Math.**
- Spring 2018 **Operator Algebras.**
- Spring 2017 **Calculus III.**
- Fall 2013 **Introduction to Functional Analysis**, *Teaching Assistant.*
- Fall 2012 **The Structure of Spacetime**, *Teaching Assistant.*
- Spring 2012 **Rings and Fields 1**, *Teaching Assistant.*
- Fall 2011 **Operator Algebras**, *Teaching Assistant.*
- Fall 2010 **Calculus 1**, *Teaching Assistant.*

Supervising

- 2018 **Evert-Jan M. Hekkelman**, BSc thesis '*Properties of the Lattice $\mathcal{O}(\Sigma_A)$ Concerning Intuitionistic Quantum Logic*', Main supervisor: Prof. Dr. N.P. Landsman.
- 2018 **Quinten Rutgers**, BSc thesis '*Intuitionistic quantum logic*', Main supervisor: Prof. Dr. N.P. Landsman.

Management

- 2003–2006 **Member of the Programme Committee Physics**, Free University Amsterdam.
- 2013 **Co-organizer Nederlands Mathematisch Congres (Dutch Mathematical Congress).**

Publication list

- 2022 A. Kornell, B. Lindenhovius, M. Mislove, *A category of quantum posets*, Indagationes Mathematicae, to appear. Preprint available via arXiv:2101.11184;
- 2022 J. Harding, B. Lindenhovius, *Orthogeometries and AW*-algebras*, the Houston Journal of Mathematics, to appear. Preprint available via arXiv:1908.11401v1
- 2021 B. Lindenhovius, M. Mislove, V. Zamdzhiev, *LNL-FPC: The Linear/Non-linear Fixpoint Calculus*, Logical Methods in Computer Science, Vol. 17, Issue 2, Pages 9:1 – 9:61 (2021), extended version of *Mixed linear and non-linear recursive types*, Proceedings of the ACM on Programming Languages archive Volume 3 Issue ICFP, Article No. 111 (2019);

- 2021 X. Jia, B. Lindenhovius, M. Mislove and V. Zamdzhiev, *Commutative Monads for Probabilistic Programming Languages*, 36th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS), pp. 1-14 (2021)
- 2020 A. Kornell, B. Lindenhovius, M. Mislove, *Quantum CPOs*, Proceedings of the 17th International Conference on Quantum Physics and Logic 174–187 (2020)
- 2019 J. Harding, C. Heunen, B. Lindenhovius, M. Navara, *Boolean Subalgebras of Orthoalgebras*, Order, Volume 36, Issue 3, pp 563–609, (2019)
- 2019 C. Heunen, B. Lindenhovius, *Domains of commutative C^* -subalgebras*, Mathematical Structures in Computer Science, 29(7):972–1006, (2019), extended version of *Domains of commutative C^* -subalgebras*, Proceedings of the 30th annual ACM/IEEE symposium on Logic in Computer Science 450-461 (2015)
- 2018 B. Lindenhovius, M. Mislove, V. Zamdzhiev, *Enriching a Linear/Non-linear Lambda Calculus: A Programming Language for String Diagrams*, Proceeding LICS '18 Proceedings of the 33rd Annual ACM/IEEE Symposium on Logic in Computer Science Pages 659-668 (2018)
- 2018 K. Landsman, B. Lindenhovius, *Symmetries in Exact Bohrification*. In: Ozawa M., Butterfield J., Halvorson H., Rédei M., Kitajima Y., Buscemi F. (eds) Reality and Measurement in Algebraic Quantum Theory. NWW 2015. Springer Proceedings in Mathematics & Statistics, vol 261. Springer, (2018)
- 2015 A.J. Lindenhovius, *Classifying finite-dimensional C^* -algebras by posets of their commutative C^* -subalgebras*, International Journal of Theoretical Physics: Volume 54, Issue 12, 4615-4635 (2015)
- 2014 B. Lindenhovius, *Grothendieck topologies on a poset*, arXiv:1405.4408 (2014)

Program Committees

- 2022 PLanQC 2022. PC member Third International Workshop on Programming Languages for Quantum Computing 2022.
- 2021 ACT 2021. PC member for the international conference on Applied Category Theory in 2021.

Reviewing

Journals ACM Transactions on Quantum Computing
 International Journal of Theoretical Physics
 Order
 Proceedings of the Royal Society A

Research Visits

- 2018 Schloss Dagstuhl – Leibniz Center for Informatics (Wadern, Germany). Quantum Programming Languages (16.09.2018 – 21.09.2018)
- 2018 Lorentz Center (Leiden, The Netherlands). Logical Aspects of Quantum Information (30.07.2018 - 3.08.2018)
- 2016 Simons Institute for the Theory of Computing (UC Berkeley). Logical Structures in Computation (17.10.2016 - 16.11.2016)

Talks and Conferences

- July 1, 2022 *A characterisation of orthomodular spaces by Sasaki maps*, Fifteenth Biennial International Quantum Structure Conference 2022 (IQSA)
- June 27, 2022 *Quantizing partially ordered structures*, Fifteenth Biennial International Quantum Structure Conference 2022 (IQSA)
- June 10, 2022 *Quantizing partially ordered structures*, 39th Linz Seminar on Fuzzy Set Theory
- September 5, 2021 *Posets of Boolean subalgebras*, Workshop on General Algebra and Ordered Sets 2021, Karolinka, Czech Republic
- July 10, 2020 *Quantum CPOs*, Applied Category Theory, keynote talk
- June 4, 2020 *Quantum CPOs*, QPL
- January 18, 2020 *Quantum CPOs and semantics of PQM*, Muri Project meeting, Tulane University, New Orleans, United States
- March 8, 2019 *Recursion in circuit description languages*, Muri project meeting, University of Maryland, Baltimore, United States
- January 7, 2019 *Recursive types for linear/non-linear quantum programming*, Loria, University of Lorraine, France
- March 19, 2018 *Posets of Commutative C^* -subalgebras*, Combining Viewpoints in Quantum Theory workshop, University of Edinburgh, United Kingdom
- October 29, 2017 *Categorical models of circuit description languages*, Category Theory Oktoberfest, Carnegie Mellon University, Pittsburgh, United States
- August 18, 2017 *Reconstructing an orthomodular poset from its poset of Boolean subalgebras*, BLAST, Vanderbilt University, United States
- July 4, 2017 *Projections and Posets of Commutative C^* -subalgebras*, IQSA, Radboud University Nijmegen, the Netherlands
- October 20, 2016 *Posets of Commutative C^* -subalgebras*, Simons Institute, University of California Berkeley, United States
- July 16, 2015 *Dcpo's of commutative C^* -subalgebras*, Quantum Physics and Logic (QPL), Oxford, United Kingdom
- July 8, 2015 *Domains of commutative C^* -subalgebras*, Logic in Computer Science (LiCS), Kyoto, Japan
- April 15, 2015 *Reconstructing C^* -algebras from their posets of commutative C^* -subalgebras*, Netherlands Mathematisch Congres (Dutch Mathematical Congress), Leiden, the Netherlands
- June 23, 2014 *Reconstructing a C^* -algebra from its Poset of Commutative C^* -subalgebras*, Biennial International Quantum Structures Association Conference (IQSA), Olomouc, Czech Republic

Collaborations

John Harding College of Arts & Sciences, Department of Mathematical Sciences, New Mexico State University, USA

Chris Heunen, University of Edinburgh, UK

Xiaodong Jia, Hunan University, Changsha, China

Andre Kornell, Tulane University, New Orleans, USA

Michael Mislove, Tulane University, New Orleans, USA

Mirko Navara, Czech Technical University, Prague, Czech Republic

Thomas Vetterlein, Johannes Kepler University, Linz, Austria

Vladimir Zamdzhiev, Inria/ University of Lorraine , Nancy, France

About me

My main fields of interest are Operator Algebras, Orthomodular Lattices, Domain Theory and Category Theory. I am especially interested in mathematical problems that are inspired by questions from other fields such as physics and computer science. In my free time, I like to play viola.