

CURRICULUM VITAE

Contact Information

Name Igor Boettcher
Affiliation Department of Physics
University of Alberta
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Academic positions

since Jul 2025 **Quantum Horizons Alberta**, Canada
Associate Faculty Member
since Jul 2025 **University of Alberta**, Canada
Associate Professor (tenured)
since Jul 2023 **Theoretical Physics Institute**, University of Alberta, Canada
Director
Feb 2021 – Jun 2025 **University of Alberta**, Canada
Assistant Professor
Oct 2018 – Jan 2021 **University of Maryland**, USA
Postdoctoral Fellow with Alexey Gorshkov
Oct 2015 – Sep 2018 **Simon Fraser University**, Canada
Postdoctoral Fellow with Igor Herbut
Dec 2014 – Sep 2015 **Heidelberg University**, Germany
Postdoctoral Fellow with Christof Wetterich

Education

Aug 2011 – Dec 2014 **Heidelberg University**, Germany
PhD in Physics (summa cum laude–highest distinction)
Thesis: *Dimensional BCS-BEC crossover in ultracold Fermi gases*
Supervisor: Christof Wetterich
Oct 2006 – Jul 2011 **Heidelberg University**, Germany
Diploma in Physics (overall grade 1.0, with distinction)
Thesis: *Precision observables for ultracold quantum gases*
Supervisor: Christof Wetterich

PUBLICATION LIST

Highlights:

- 47 publications and preprints
- 1 Science
- 2 Nature Communications
- 12 Physical Review Letters
- 1 Physical Review Letters On the Cover
- 1 Physical Review A Rapid Communication
- 1 Physical Review A Letter
- 3 Featured in “Physics”
- 8 Editors’ suggestions
- 15 first author, 4 single author, 11 last author

Total citations: 2700+, h-index: 29 (Google Scholar)

Ten most important publications

- 10 S Dey, A Chen, P Basteiro, A Fritzsche, M Greiter, M Kaminski, PM Lenggenhager, R Meyer, R Sorbello, A Stegmaier, R Thomale, J Erdmenger, **I Boettcher**
Simulating Holographic Conformal Field Theories on Hyperbolic Lattices
Phys. Rev. Lett. **133**, 061603 (2024), **Editors’ Suggestion**
- 9 A Chen, H Brand, T Helbig, T Hofmann, S Imhof, A Fritzsche, T Kießling, A Stegmaier, LK Upreti, T Neupert, T Bzdušek, M Greiter, R Thomale, **I Boettcher**
Hyperbolic matter in electrical circuits with tunable complex phases
Nature Communications **14**, 622 (2023)
- 8 **I Boettcher**, AV Gorshkov, AJ Kollár, J Maciejko, S Rayan, R Thomale
Crystallography of hyperbolic lattices
Phys. Rev. B **105**, 125118 (2022), **Editors’ Suggestion**
- 7 **I Boettcher**, P Bienias, R Belyansky, AJ Kollár, AV Gorshkov
Quantum simulation of hyperbolic space with circuit quantum electrodynamics: From graphs to geometry
Phys. Rev. A **102**, 032208 (2020), **Editors’ Suggestion**
Featured in Physics: Physics **13**, s114 (2020)

6 **I Boettcher**

Interplay of topology and electron-electron interactions in Rarita-Schwinger-Weyl semimetals
Phys. Rev. Lett. **124**, 127602 (2020), **On the Cover**

5 **I Boettcher**, IF Herbut

Unconventional Superconductivity in Luttinger Semimetals: Theory of Complex Tensor Order and the Emergence of the Uniaxial Nematic State
Phys. Rev. Lett. **120**, 057002 (2018)

4 PA Murthy, M Neidig, R Klemt, L Bayha, **I Boettcher**, T Enss, M Holten, G Zürn, PM Preiss, S Jochim

High temperature pairing in a strongly interacting two-dimensional Fermi gas
Science **359**, 452 (2018)

3 **I Boettcher**, L Bayha, D Kedar, PA Murthy, M Neidig, MG Ries, AN Wenz, G Zürn, S Jochim, T Enss

Equation of State of Ultracold Fermions in the 2D BEC-BCS Crossover Region
Phys. Rev. Lett. **116**, 045303 (2016), **Editors' Suggestion**
Featured in Physics: Physics **9**, 10 (2016)

2 PA Murthy, **I Boettcher**, L Bayha, M Holzmann, D Kedar, M Neidig, MG Ries, AN Wenz, G Zürn, S Jochim

Observation of the Berezinskii-Kosterlitz-Thouless Phase Transition in an Ultracold Fermi Gas
Phys. Rev. Lett. **115**, 010401 (2015), **Editors' Suggestion**

1 MG Ries, AN Wenz, G Zürn, L Bayha, **I Boettcher**, D Kedar, PA Murthy, M Neidig, T Lompe, S Jochim

Observation of Pair Condensation in the Quasi-2D BEC-BCS Crossover
Phys. Rev. Lett. **114**, 230401 (2015), **Editors' Suggestion**
Featured in Physics: Physics **8**, 53 (2015)