

Barbara Kraus

Curriculum Vitae

University of Innsbruck
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Personal Details

Date of birth	December 26, 1975
Place of birth	Innsbruck, Austria
Citizenship	Austria

Education

Oct. 2003	Diploma in Mathematics (with distinction) University of Innsbruck
Feb. 2003	PhD in Physics (with distinction) University of Innsbruck
Sep. 1999	Diploma in Physics (with distinction) University of Innsbruck
1994-1999	Studies of Physics and Mathematics University of Innsbruck

Professional Experience

08/2021-today	Head of the Institute for Theoretical Physics University of Innsbruck
2020-today	Full Professor University of Innsbruck
2013-2020	Associate Professor University of Innsbruck
2010-2013	Assistant Professor University of Innsbruck
2006-2010	Senior Postdoctoral researcher University of Innsbruck
2004-2006	Postdoctoral researcher Group of Applied Physics, University of Geneva (CH)
2003	Postdoctoral researcher Max-Planck-Institute for Quantum Optics, Garching (DE)

Fellowships and Awards

2019	Forschungspreis der Stiftung Südtiroler Sparkasse
2013	Ignaz L. Lieben award of the Austrian Academy of Sciences
2011	Boltzmann prize of the Austrian Physical Society
2010	START price of the FWF (Austrian Science fund) and the BMWF
2006-2010	Senior PostDoc grant Elise Richter of the FWF (Austrian Science Fund) at the Institute of Theoretical Physics, University of Innsbruck
2006	Apart Grant (Austrian Programme for Advanced Research and Technology) – declined by B.K.

Funding

2019	Joint research group with JKU Linz and UNIVIE Title: Multiphoton Experiments with Semiconductor Quantum Dots Amount of funding: approx. 706.000€ for 5 years
2019	FWF Standalone Project Title: Physical approach towards multipartite entanglement Amount of funding: approx. 414.000€ for 4 years
2019 (4+4)	SFB BeyondC (Quantum Information Systems Beyond Classical Capabilities) Speaker: Philip Walther, Deputy Speaker: Barbara Kraus Amount of funding: approx. 5.000.000€ for first funding period (4 years) and 12 PIs
2018-2020	Innovation Fund “Research, Science and Society” of the Austrian Academy of Sciences (ÖAW) Title: Operational Entanglement Amount of funding: approx. 270.000€ for 2 years
2015 (4+4)	Doctoral Programme (Doktoratskolleg) Atoms, Lights, and Molecules (beginning 2016 with positive evaluation 2019)
2010-2016 (3+3)	START FWF Title: Novel Theoretical Tools for Quantum Many Body Systems Amount of funding: approximately 200.000€/year
2009-2013	SFB FoQuS (Foundations and Applications of Quantum Science) Co-Pi (PI Prof. Hans-Jürgen Briegel), Project P12 Amount of funding: approx. 350.000€ for 4 years
2006-2010 (2+2)	Elise-Richter grant FWF Title: Quantum Complexities and Quantum Interfaces Senior PostDoc grant

Referee Activity

Referee for Proceedings of Royal Society A: Mathematical, Physical & Engineering Sciences, Nature Physics, Physical Review Letters, Physical Review A, New Journal of Physics, Journal of Physics A: Mathematical and Theoretical, Quantum Information and Computation, Journal of Complexity, Optics Communications

2012 Outstanding Referee of the Physical Review and Physical Review Letters journals

Membership of Scientific Committees

- Member of the Steering committee QIP 2022: 25th Annual Conference on Quantum Information Processing, California Institute of Technology (Caltech) in Pasadena, CA
- Scientific committee Member (E. Solano (Univ. Basque Country), G. K. Brennen (Macquarie Univ.), B. Kraus (Univ. Innsbruck), Ch. Wilson (IQC), J. I. Latorre (Univ. Barcelona): Quantum Simulation and Computation, Bilbao, Spain, February 2018
- Member of Committee of L'ORÉAL- grant (2016, 2018)
- Member of advisory board of qualification agreement (Mathematics, Informatics and Physics), since 2014
- Program Committee Member: QIP 2014, 17th conference on Quantum Information Processing, Barcelona, February 2014
- Program Committee Member: TQC 2012, 7th Conference on Theory of Quantum Computation, Communication, and Cryptography, Tokyo, Japan, May 2012
- Program Committee Member: QIP 2011, 14th Workshop on Quantum Information Processing, Singapore, January 2011

Further Activities

- Since 2014 member of Young Academy of the Austrian Academy of Science
- 2015-2021 member of editorial board of Physical Review A
- 2016-2019 member of directorial board of the Young Academy of the Austrian Academy of Science

Supervision of Doctoral Theses

- Kai Hong Li (2020-ongoing)
- David Gunn (2018-ongoing)
- Matthias Englbrecht (2018-ongoing)
- Martin Hebenstreit (2016-2020)
- David Sauerwein (2015-2019)
- Katharina Schwaiger (2014-2018)
- Walter Boyajian (2012-2016)
- Cornelia Spee (2012-2016)
- Tatjana Carle (2009-2013)

Supervision of Master Theses

- Michael Hämmerle (2021-ongoing)
- Thomas Klüter (2021-ongoing)
- Marc Langer (July 2021)
- Eda Harmanci (February 2021)
- Albert Rico (October 2020)

- Leonhard Czarnetzki (March 2019)
- Raphael Brieger (May 2018)
- Yaiza Aragones (April 2018)
- Martin Hebenstreit (December 2015)
- David Sauerwein (December 2014)
- Katharina Schwaiger (September 2013)
- Clemens Streitberger (January 2013)
- Co-Supervision: David Gschliesser (Supervisor: Univ. Prof. Dr. Hans. J. Briegel, 2009)

Supervision of Bachelor Theses

- Florian Langgartner (2019)
- Callum Carver (2019)
- Benjamin Stütz (2018)
- Elias Starchl (2018)
- David Drexler (2017)
- Rene Lampert (2017)
- Sandro Huber (2016)
- Alexander Prantner (2015)
- Benjamin Seethaler (2015)
- Eve Partoll (2013)
- Christian Romen (2011)
- Thomas Förg-Rob (2011)

(Co)-Organized Conferences

- Workshop: “Quantum Information Theory”, Seefeld, Austria, June 2020 (postponed).
Organizers: W. Dür, A. Neven, B. Kraus (Innsbruck), M. Skotiniotis (Barcelona, Spain)
- Workshop: “Entanglement in Action”, Benasque, Spain, May 2020 (postponed).
Organizers: G. Gour (Calgary, Canada), B. Kraus (Innsbruck, Austria), J. I. Latorre (Barcelona, Spain), K. Zyczkowski (Kraków, Poland)
- Workshop: “Quantum Information Theory”, Seefeld, Austria, June 2018.
Organizers: W. Dür, M. Hebenstreit, B. Kraus (Innsbruck), M. Skotiniotis (Barcelona, Spain)
- Workshop: “Multipartite Entanglement”, Benasque, Spain, May 2018.
Organizers: G. Gour (Calgary, Canada), B. Kraus (Innsbruck, Austria), J. I. Latorre (Barcelona, Spain), K. Zyczkowski (Kraków, Poland)
- 3rd Science Day of the young academy of Austria (ÖAW), Innsbruck, 16.2.-17.2. 2017
Organizers: B. Kraus, K. Stöckl, G. Weihs (Innsbruck)
- Workshop: “Quantum Information Theory”, Seefeld, Austria, June 2016.
Organizers: W. Dür, B. Kraus, M. Skotiniotis, C. Spee (Innsbruck)
- Workshop: “Multipartite Entanglement”, Benasque, Spain, May 2016.
Organizers: G. Gour (Calgary, Canada), B. Kraus (Innsbruck, Austria), J. I. Latorre (Barcelona, Spain), K. Zyczkowski (Kraków, Poland)
- Workshop: “Quantum Information Theory”, Seefeld, Austria, July 2014. Organizers: M. Skotiniotis, W. Dür, B. Kraus (Innsbruck), M. Van den Nest (MPQ Garching)
- Group retreat, Nürnberg, Germany, December 2012
- Conference “Quantum Information meets Statistical Mechanics”, Innsbruck, Austria, September 2012; Organizers: H. J. Briegel (Innsbruck) and M. A. Martin-Delgado (Madrid), local organizers: W. Dür, B. Kraus, M. Tiersch (Innsbruck)
- Workshop: “Quantum Information Theory”, Seefeld, Austria, July 2012. Organizers: J. de Vicente, W. Dür, B. Kraus (Innsbruck), M. Van den Nest (MPQ Garching)

- SFB Workshop: "Foundations and Applications of Quantum Science", Innsbruck, Austria, February 2011. Organizers: W. Dür (Innsbruck), B. Kraus
- SFB workshop on the *Foundations and Applications of Quantum Science*, Innsbruck, Austria, 29.1.-31.1. 2009. Organizers: M. Arndt (Vienna), J. Hecker Denschlag (Innsbruck), B. Kraus (Innsbruck)
- QICS Workshop on *Foundational Structures for Quantum Information and Computation*, Obergurgl, Austria, 14.9.-20.2. 2008, Organizers: H. J. Briegel (Innsbruck), B. Coecke (Oxford), local organizers: W. Dür, A. Miyake, B. Kraus (Innsbruck)
- QUROPE Winter School on Quantum Information: *Ensemble based Quantum Information Processing*, Obergurgl, Austria, 18.2.-24.2. 2007; Organizers: K. Hammerer, B. Kraus (Innsbruck)