

Benoît Vermersch

Curriculum Vitae

Université Grenoble Alpes
Laboratoire de Physique et Modélisation des Milieux Condensés
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📄 [bvermersch.github.io](https://github.com/bvermersch)

Born August 18th 1986, in Saint Cyr l'École, France.

Current appointment

Sept 2019- **Assistant Professor (Maître de conférences)**, *Laboratoire de Physique et Modélisation des Milieux Condensés (LPMMC)*, Université Grenoble Alpes-CNRS, France.

Research interests and achievements

Measurement protocols for many-body quantum systems.

Quantum Simulation with dipolar systems (Rydberg atoms, dipolar atoms, superconducting quantum circuits).

Theory of quantum networks (Waveguide quantum electrodynamics).

Numerical tensor network methods for quantum many-body systems.

Career and Education

Jun 2017-Aug 2019 **Senior scientist, Quantum optics theory group of Prof. Peter Zoller, IQOQI, University of Innsbruck**, Austria.

Oct 2013-Jun 2017 **Postdoctoral researcher, Quantum optics theory group of Prof. Peter Zoller.**
2010-2013 **PhD thesis under supervision of Jean-Claude Garreau, Université Lille 1**, France.

Dynamics of ultracold interacting bosons in disordered lattices : Effects of interactions on the Anderson localization and transitions.

2009–2010 **Master of Science, Université Paris XI**, Orsay, France.
Laser-matter interactions. Ranked 1st.

2006-2009 **Graduate school, École Polytechnique**, Palaiseau, France.
Major in physics : Lasers, optics, plasmas. Ranked 54th

2004-2006 **Classes préparatoires, Lycée Sainte Geneviève MPSI-PSI***, Versailles, France.
Two-year intensive program in Advanced Mathematics and Physics.

2004 **Scientific baccalauréat**, Rennes, France.
High school diploma with European distinction and Very High Honors.

Five selected Publications (→ [Link to full list of publications and preprint.](#))

- T. Brydges, A. Elben, P. Jurcevic, B. Vermersch, C. Maier, B. P. Lanyon, P. Zoller, R. Blatt, and C. F. Roos, Probing Rényi entanglement entropy via randomized measurements, *Science* **80**. 364, 260 (2019).
- B. Vermersch, A. Elben, L. M. Sieberer, N. Y. Yao, and P. Zoller, Probing Scrambling Using Statistical Correlations between Randomized Measurements *Phys. Rev. X*, **9**, 021061 (2019).
- A. Elben, B. Vermersch, M. Dalmonte, J I. Cirac, and P. Zoller. Rényi Entropies from Random Quenches in Atomic Hubbard and Spin Models. *Phys. Rev. Lett.* **120**, 050406 (2018).
- M. Dalmonte, B. Vermersch, and P. Zoller. Quantum Simulation and Spectroscopy of Entanglement Hamiltonians. *Nature Physics* **14**, 827-831 (2018).

- B. Vermersch, P.-O. Guimond, H. Pichler, and P. Zoller. Quantum State Transfer via Noisy Photonic and Phononic Waveguides. *Phys. Rev. Lett.* **118** 133601 (2017). (Editor's suggestion).

Teaching

- 2019-2020 **Classical mechanics and statistical physics at the university Grenoble-Alpes.**
- 2019 **Course on quantum networks for a PhD summer school at the university of Innsbruck.**
- 2011-2013 **Teaching assistant**, *Institute of technology*. 192 hours, Lille, France. Classical Mechanics.
- 2007–2009 **Oral exams**, *Classes Préparatoires PCSI Lycée Ste Geneviève*, Versailles, France.

Other activities

- **Talks** Presentations at various international workshops and conferences, examples on <https://bvermersch.github.io>
- **Co-supervision of students** Aniket Rath (2020-), Andreas Elben (PhD, 2017-2020), Berit Vogell (PhD, 2017), Azadeh Mazloom (PhD, 2016), Clemens Dlaska (Master, 2016), Florent Scol (Master, 2013), Clément Martinache (Master, 2012).
- **Grants** In charge of the UQUAM ERC Synergy grant and the ARL SciNet project project for the Innsbruck node (2017-2019). Recipient of a independent researcher grant of the Austrian Science Foundation (FWF) (2020-2023).
- **Workshop organization** Second topical UQUAM workshop on entanglement, Innsbruck, 2018., and UQUAM Paris-Innsbruck workshop, 2017.
- **Referee activities** Physical Review Letters, Physical Review X, Physical Review A, Physical Review B, Journal of Physics B (IOP), Annalen der Physik.
- **Patents**
 - US Patent Application 62/875,323 : Verification of preparation of ground states.
 - European Application PCT/EP2019/083701 : Method for comparing quantum states.

Languages

French	native
English	advanced
German	advanced