

Curriculum Vitae

Prof. Dr. Peter RABL

Professor for „Applied Quantum Theory“
Technische Universität München

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Birth: 24.11.1978 (Austria)

Nationality: Austria

Education:

- Oct. 2017 Habilitation „*Control and Applications of Nanomechanical Systems in the Quantum Regime*“ (TU Wien)
- Oct. 2006 PhD, University of Innsbruck, Austria (Supervisor: Prof. P. Zoller)
Thesis: “*Towards Hybrid Quantum Processors: Interfacing Quantum Optical and Solid State Qubits*”
- May 2003 Diploma in Theoretical Physics, University of Innsbruck, Austria
- 1998-2003 Study of Physics at the University of Innsbruck, Austria

Scientific career:

- 2023 - Full Professor, TU Munich, Germany
- 2023- Scientific Director, Walther-Meißner Institut, Germany
- 2021 - 2022 Full Professor, TU Wien, Austria
- 2018 – 2021 Associate Professor (tenured) TU Wien, Austria
- 2013 – 2017 Assistant Professor, TU Wien, Austria
- 2011 – 2012 Junior group leader (START project),
IQOQI Innsbruck and TU Wien, Austria
- 2010 – 2011 Senior Scientist,
IQOQI, Austrian Academy of Sciences, Innsbruck, Austria
- 2007 – 2010 Postdoc (ITAMP Postdoctoral Fellowship),
ITAMP, Harvard-Smithsonian Center for Astrophysics, Cambridge, USA

Fellowships & awards:

- 2011 START Prize of the Austrian Ministry of Science and Education (BMWF)
- 2007 Ludwig-Boltzmann Prize of the Austrian Physical Society (ÖPG)
- 2007 ITAMP Postdoctoral Fellowship, Harvard-Smithsonian CfA, USA

Bibliometrics:

- ~ 85 scientific articles in peer-reviewed journals (including Nature, Science, Nature Physics, Physical Review Letters, PNAS, ...)
- > 8300 citations, h-index 45 (ISI Web of Knowledge)
- >150 scientific presentations, >65 invited talks at international conferences

Research interests:

- Quantum optics and theory of open quantum systems.
- Implementation of quantum information processing schemes in AMO, solid-state and hybrid quantum systems.
- Quantum control and applications of opto- and nanomechanical systems.
- Strong optical non-linearities and the design of coherent and dissipative interactions for photons and phonons.
- Non-equilibrium dynamics and phase transitions in open quantum systems.
- Cavity QED, waveguide QED and circuit QED systems in the ultrastrong coupling regime.

Selected publications:

1. *Light-matter interactions in synthetic magnetic fields: Landau-photon polaritons*, D. De Bernardis, Z.-P. Cian, I. Carusotto, M. Hafezi, and P. Rabl, [Phys. Rev. Lett. **126**, 103603 \(2021\)](#).
2. *The Vacua of Dipolar Cavity Quantum Electrodynamics*, M. Schuler, D. De Bernardis, A. M. Läuchli, and P. Rabl, [SciPost Phys. **9**, 066 \(2020\)](#).
3. *Super-correlated radiance in nonlinear photonic waveguides*, Z. Wang, T. Jaako, P. Kirton, and P. Rabl, [Phys. Rev. Lett. **124**, 213601 \(2020\)](#).
4. *Phonon networks with SiV centers in diamond waveguides*, M.-A. Lemonde, S. Meesala, A. Sipahigil, M. J. A. Schuetz, M. D. Lukin, M. Loncar, and P. Rabl, [Phys. Rev. Lett. **120**, 213603 \(2018\)](#).
5. *Intra-city quantum communication via thermal microwave networks*, Z.-L. Xiang, M. Zhang, L. Jiang, and P. Rabl, [Phys. Rev. X **7**, 011035 \(2017\)](#).
6. *Quantum technologies with hybrid systems*, G. Kurizki, P. Bertet, Y. Kubo, K. Molmer, D. Petrosyan, P. Rabl, and J. Schmiedmayer, [PNAS **112**, 3866 \(2015\)](#).
7. *Photon blockade effect in optomechanical systems*, P. Rabl, [Phys. Rev. Lett. **107**, 063601 \(2011\)](#).
8. *A quantum spin transducer based on nano electro-mechanical resonator arrays*, P. Rabl, S. J. Kolkowitz, F. H. Koppens, J. Harris, P. Zoller, and M. Lukin, [Nature Physics **6**, 602 \(2010\)](#).
9. *Hybrid Quantum Processors: Molecular Ensembles as Quantum Memory for Solid State Circuits*, P. Rabl, D. DeMille, J. M. Doyle, M. D. Lukin, R. J. Schoelkopf, and P. Zoller, [Phys. Rev. Lett. **97**, 033003 \(2006\)](#).