Curriculum Vitae
Dr. Francesco Piazza

Date and birthplace:	January 28, 1983, Castel San Pietro Terme (BO), Italy
Citizenship:	Italian
Knowledge of foreign languages:	English and German, fluent in written and spoken language
Work address:	Max-Planck Institute for the Physics of Complex Systems Nöthnitzer Straße 38, 01187 Dresden, Germany
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Research Interests

- *General topic:* quantum many-body open systems
- *Systems:* hybrid light-matter setups in the strong-coupling regime; for example photons coupled to (artificial) atoms or excitons in nanoengineered environments.
- *Approach:* non-equilibrium quantum field theory merging quantum-optics and condensed-matter methods
- *Goals:* collective phenomena and many-body phases; technological applications on quantum metrology and sensing.

Academic career:

2017-:	Research Group Leader Host: Max-Planck Institute for the Physics of Complex Systems (Dresden)
2015-2017:	APART research fellow at the University of Innsbruck Host: Prof. H. Ritsch, Institute of Theoretical Physics
2013-2014:	Post-doc at the TU Munich. Group of Prof. W. Zwerger
2011-2013:	Alexander Von Humboldt Fellow. Host: Prof. W. Zwerger, TU Munich
2007-2011:	Ph.D. in Physics, INO-CNR BEC Center and University of Trento, Italy
2002-2007:	Degree in Physics, University of Bologna, Italy

Selected conference talks

- "Supersolids with Light-Mediated Interactions",
  Invited Talk at the APS-March-Meeting, Los Angeles, 2018
- "Interaction-Induced Transparency for Polaritons in Photonic Crystal Waveguides",
  Conference: Quantum Optics IX, Danzig 2017
- "Non-equilibrium Many-Body Physics with Strongly Coupled Atoms and Photons",
  Conference: Max-Planck Society Symposium, Berlin 2016
- "A Crystal of Atoms and Photons in Free Space",
  Conference: Winter Colloquium - Physics of Quantum Electronics, Snowbird(UTAH) 2016
- "Dynamical Self-Ordering of Superfluids and Light",
  Conference: Quantum Optics, Obergurgl, 2016

Reviewer for:

- Physical Review Letters
- Physical Review A
- Europhysics Letters
- New Journal of Physics
- European Journal of Physics B
- European Journal of Physics D
- Annals of Physics
- Nature - Scientific Reports

Editor for:

- PLOS One

Financed Projects and Awards

1) *Max-Planck Research Group Leader ("Centrally Announced Group").*
   Awarded in 2016 from the Max-Planck Society.
   Few hundreds applicants worldwide, candidates from chemistry, physics and technology,
   ~ 6 awarded.
2) *APART Fellowship.*
   Awarded in 2014 from the Austrian Academy of Science.
   Title: "Strongly Correlated Atoms Inside an Optical Resonator".
   Awarded as the only theoretical physicist.
3) *Von Humboldt Fellowship.*
   Awarded in 2011 from the Alexander Von Humboldt Foundation.
   Title: "Many-Body Physics with Atoms inside Optical Cavities".

External Collaborations

- Darrick Chang, ICFO Barcelona, Spain
  Collaborating on strongly interacting photons
- Jan Chwedenczuk, University of Warsaw
  Collaborating on quantum metrology with hybrid light-matter systems
- Farokh Mivehvar, ITP Innsbruck, Austria.
  Collaborating on topological crystals of light and matter
- Matthias Punk, LMU Munich, Germany
  Collaborating on strongly correlated electrons
- Helmut Ritsch, ITP Innsbruck, Austria.
  Collaborating on crystals of light and matter, quantum metrology
- Wilhelm Zwerger, TU Munich, Germany
  Collaborating on non-equilibrium quantum field theory, strongly correlated electrons

Scientific Supervision

- Kieran Fraser, MPIPKS Dresden, Germany
  Supervising Ph.D. activity on crystals of light and matter
- Jad Halimeh, MPIPKS Dresden, Germany
  Supervising PostDoc activity on non-equilibrium quantum correlated matter
- Johannes Lang, TU Munich, Germany
  Supervising Ph.D. activity on non-equilibrium quantum field-theory and strongly interacting photons
- Stefan Ostermann, ITP Innsbruck, Austria
  Co-supervising Ph.D. activity on crystals of light and matter
- Karol Gietka, University of Warsaw, Poland
  Co-supervising Ph.D. activity on quantum metrology in cavity QED
- Michael Rips, TU Munich, Germany
  Supervised Master thesis on crystals of light and matter

PhD-Thesis Referee

- J. Lebreuilly, BEC-Center, University of Trento, 2017
- A. Morales, ETH, Zurich, 2018

Teaching Experience

- Thermalization and its absence in closed and open systems, TU Dresden (2018).
  Advanced course - full semester.
- Quantum Mechanics, TU Munich (2014).
  Teaching coordinator ("Übungsleiter"). Occasionally teaching substitute ("Lehrvertretung").
- Theoretical Solid State Physics, TU Munich (2013-2014).
  Teaching coordinator ("Übungsleiter"). Occasionally teaching substitute ("Lehrvertretung").

Selection of recent publications

For publications statistics please visit Google Scholar:
http://scholar.google.it/citations?sortby=pubdate&hl=it&user=oLqiPjEAAAAJ&view_op=list_works

1. "Driven-Dissipative Supersolid in a Ring Cavity", F. Mivehvar, S. Ostermann, F. Piazza, H. Ritsch, Physical Review Letters 120, 123601 (2018); arXiv:1801.00756
2. "Disorder-Driven Density and Spin Self-Ordering of a Spinor Bose-Einstein Condensate in a Cavity", F. Mivehvar, F. Piazza, H. Ritsch, Physical Review Letters 119, 063602 (2017); arXiv:1705.06382
3. "Superradiant Topological Peierls Insulator inside an Optical Cavity", F. Mivehvar, H. Ritsch, and F. Piazza, Physical Review Letters 118, 073602 (2017); arXiv:1611.04876
4. "Collective excitations and supersolid behavior of bosonic atoms inside two crossed optical cavities", J. Lang, F. Piazza, W. Zwerger, New Journal of Physics 19, 123027 (2017); arXiv:1707.00017
5. "Critical Relaxation with Overdamped Quasi-Particles in Driven-Dissipative Systems", J. Lang and F. Piazza, Phys. Rev. A 94, 033628 (2016); arXiv:1602.05102
6. "Spontaneous crystallization of light and ultracold atoms", S. Ostermann, F. Piazza and H. Ritsch, Physical Review X 6, 021026 (2016); arXiv:1601.04900
7. "Self-organised limit-cycles, chaos and phase-slippage with a superfluid inside an optical resonator", F. Piazza and H. Ritsch, Phys. Rev. Lett. 115, 163601 (2015); arXiv:1507.08644
8. "Quantum kinetics of ultracold fermions coupled to an optical resonator ", F. Piazza and P. Strack, Phys. Rev. A 90, 043823 (2014); arXiv:1407.5642
9. "Umklapp Superradiance with a Collisionless Quantum Degenerate Fermi Gas", F. Piazza and P. Strack, Phys. Rev. Lett. 112, 143003 (2014); arXiv:1309.2714

Highlights

1. Synopsis on "APS-Physics" May 24, 2016
2. Cover page of "Physical Review Letters", Volume 115, Issue 16 (2015)
3. Research Highlights on "Nature Physics", Nat. Phys. 4, 903 (2008);