List of Publications

Francesco Piazza

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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, 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. "Probing and characterizing the growth of a crystal of ultracold bosons and light", S. Ostermann, F. Piazza, H. Ritsch, New Journal of Physics 19, 125002 (2017); arXiv:1710.05577
6. "Quantum-enhanced interferometry with cavity QED-generated non-classical light", K. Gietka, T. Wasak, J. Chwedeczuk, F. Piazza, H. Ritsch, The European Physical Journal D 71, 273 (2017); arXiv:1703.03651
7. "Critical Relaxation with Overdamped Quasi-Particles in Driven-Dissipative Systems", J. Lang, F. Piazza, Phys. Rev. A 94, 033628 (2016); arXiv:1602.05102
8. "Spontaneous crystallization of light and ultracold atoms", S. Ostermann, F. Piazza, H. Ritsch, Physical Review X 6, 021026 (2016); arXiv:1601.04900
9. "Self-organised limit-cycles, chaos and phase-slippage with a superfluid inside an optical resonator", F. Piazza, H. Ritsch, Phys. Rev. Lett. 115, 163601 (2015); arXiv:1507.08644
10. "Self-ordered stationary states of driven quantum degenerate gases in optical resonators", R. M. Sandner, W. Niedenzu, F. Piazza, H. Ritsch, Europhys. Lett. 111, 53001 (2015); arXiv:1507.00271
11. "FFLO strange metal and quantum criticality in two dimensions: theory and experimental evidence in organic superconductors", F. Piazza, W. Zwerger, P. Strack, Physical Review B 93, 085112 (2016); arXiv:1506.08819
12. "Parity Symmetry Breaking and Topological Phases in a Superfluid Ring", X. Zhang, F. Piazza, W. Li, A. Smerzi, Phys. Rev. A 94, 063601 (2016); arXiv:1608.01904
13. "Instability of the superfluid flow as black-hole lasing effect", S. Finazzi, F. Piazza, M. Abad, A. Smerzi, A. Recati, Phys. Rev. Lett. 114, 245301 (2015); arXiv:1409.8068
14. "Phase-slips and vortex dynamics in Josephson oscillations between Bose-Einstein condensates ", M. Abad, M. Guilleumas, R. Mayol, F. Piazza, D. M. Jezek, A. Smerzi, Europhys. Lett. 109, 40005 (2015); arXiv:1409.5598

15. "Quantum kinetics of ultracold fermions coupled to an optical resonator ", F. Piazza and P. Strack, Phys. Rev. A 90, 043823 (2014); arXiv:1407.5642

16. "Umklapp Superradiance with a Collisionless Quantum Degenerate Fermi Gas", F. Piazza and P. Strack, Phys. Rev. Lett. 112, 143003 (2014); arXiv:1309.2714

17. "Bose-Einstein Condensation versus Dicke-Hepp-Lieb Transition in an Optical Cavity", F. Piazza and P. Strack, W. Zwerger, Ann. of Phys. 339, 135 (2013); arXiv:1305.2928

18. "Critical velocity for a toroidal BoseEinstein condensate flowing through a barrier", F. Piazza, L. A. Collins, A. Smerzi, J. Phys. B: At. Mol. Opt. Phys. 46, 095302 (2013); arXiv:1208.0734

19. "Multipath interferometer with ultracold atoms trapped in an optical lattice", J. Chwedeńczuk, F. Piazza, A. Smerzi, Phys. Rev. A 87, 033607 (2013); arXiv:1210.4772

20. "Sub shot-noise interferometry from measurements of the one-body density", J. Chwedeńczuk, P. Hyllus, F. Piazza, A. Smerzi, New J. Phys. 14, 093001 (2012); arXiv:1108.2785

21. "Phase Estimation from Atom Position Measurements", J. Chwedeńczuk, F. Piazza, A. Smerzi, New J. Phys. 13, 065023 (2011); arXiv:1012.3593

22. "Instability and Vortex Rings Dynamics in a Three-Dimensional Superfluid Flow Through a Constriction", F. Piazza, L. A. Collins, A. Smerzi, New J. Phys. 13, 043008 (2011); arXiv:1011.5041

23. "Dynamics of a tunable superfluid junction", L. J. LeBlanc, A. B. Bardon, J. McKeever, M. H. T. Extavour, D. Jervis, J. H. Thywissen, F. Piazza, A. Smerzi, Phys. Rev. Lett. 106, 025302 (2010); arXiv:1006.3550

24. "Phase Estimation With Interfering Bose-Condensed Atomic Clouds", J. Chwedeńczuk, F. Piazza, A. Smerzi, Phys. Rev. A 82, 051601(R) (2010); arXiv:1007.0703

25. "Rabi Interferometry and Sensitive Measurement of the Casimir-Polder Force with Ultra-Cold Gases", J. Chwedeńczuk, L. Pezzé, F. Piazza, A. Smerzi, Phys. Rev. A 82, 032104 (2010); arXiv:0909.0705

26. "Current-phase relation of a Bose-Einstein condensate flowing through a weak link", F. Piazza, L. A. Collins, A. Smerzi, Phys. Rev. A 81, 033613 (2010); arXiv:0912.3209

27. "Critical velocity of superfluid flow through single-barrier and periodic potentials", G. Watanabe, F. Dalfovo, F. Piazza, L. P. Pitaevskii, S. Stringari, Phys. Rev. A 80, 053602 (2009); arXiv:0907.0621

28. "Vortex-induced phase-slip dissipation in a toroidal Bose-Einstein condensate flowing through a barrier", F. Piazza, L. A. Collins, A. Smerzi, Phys. Rev. A 80, 021601(R) (2009); arXiv:0903.2534

29. "Macroscopic Superpositions of Phase States with Bose-Einstein condensates", F. Piazza, L. Pezzé and A. Smerzi, Phys. Rev. A 78, 051601(R) (2008); arXiv:0803.2265

Preprints

1. "Aging dynamics in quenched noisy long-range quantum Ising models", J. C. Halimeh, M. Punk, F. Piazza, arXiv:1803.00280;

2. "Non-Fermi liquid at the FFLO quantum critical point", D. Pimenov, I. Mandal, F. Piazza, M. Punk, arXiv:1711.10514;

Book Contributions

1. F. Piazza, L. A. Collins, and A. Smerzi, chapter contribution to the book "Physics of Quantum Fluids - New Trends and hot topics in atomic and polariton condensates", Springer (2013)

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);