

# LIST OF PUBLICATIONS

David Petrosyan

## *Papers in Refereed Journals* (76)

1. P. A. Kalozoumis, D. Petrosyan, *Self-organized  $PT$ -symmetry of exciton-polariton condensate in a double-well potential*, Appl. Sci. **11**, 7372 (2021)
2. K. Orfanakis, A. F. Tzortzakakis, D. Petrosyan, P. G. Savvidis, and H. Ohadi, *Ultralong temporal coherence in optically trapped exciton-polariton condensates*, Phys. Rev. B **103**, 235313 (2021)
3. A.E. Allahverdyan, K.V. Hovhannisyanyan, D. Petrosyan, *Dynamical symmetrization of the state of identical particles*, Proc. R. Soc. A **477**, 20200911 (2021)
4. A. Curko, P. Domokos, A. Vukics, T. Bækkegaard, N.T. Zinner, J. Fortágh, D. Petrosyan, *Optimal collection of radiation emitted by a trapped atomic ensemble*, EPJ Quantum Technology **8**, 11 (2021)
5. D. Petrosyan, K. Mølmer, *Collective emission of photons from dense, dipole-dipole interacting atomic ensembles*, Phys. Rev. A **103**, 023703 (2021)
6. M. Stecker, R. Nold, L.-M. Steinert, J. Grimm, D. Petrosyan, J. Fortágh, A. Günther, *Controlling the dipole blockade and ionization rate of Rydberg atoms in strong electric fields*, Phys. Rev. Lett. **125**, 103602 (2020)
7. P. A. Kalozoumis, G. M. Nikolopoulos, D. Petrosyan, *Coherent population oscillations and an effective spin-exchange interaction in a  $PT$  symmetric polariton mixture*, EPL (Europhys. Lett.) **129**, 37003 (2020)
8. K. S. Christensen, S. E. Rasmussen, D. Petrosyan, N. T. Zinner, *Coherent router for quantum networks with superconducting qubits*, Phys. Rev. Research **2**, 013004 (2020)
9. T. Bækkegaard, L. B. Kristensen, N. J. S. Loft, C. K. Andersen, D. Petrosyan, N. T. Zinner, *Realization of efficient quantum gates with a superconducting qubit-qutrit circuit*, Sci. Rep. **9**, 13389 (2019)
10. D. Petrosyan, K. Mølmer, J. Fortágh, M. Saffman, *Microwave to optical conversion with atoms on a superconducting chip*, New J. Phys. **21**, 073033 (2019)
11. D. Petrosyan, K. Mølmer, *Deterministic free-space source of single photons using Rydberg atoms*, Phys. Rev. Lett. **121**, 123605 (2018)
12. F. Letscher, D. Petrosyan, *Mobile bound states of Rydberg excitations in a lattice*, Phys. Rev. A **97**, 043415 (2018)
13. L. F. Buchmann, K. Mølmer, D. Petrosyan, *Controllability in tunable chains of coupled harmonic oscillators* Phys. Rev. A **97**, 042111 (2018)
14. L. Sárkány, J. Fortágh, and D. Petrosyan, *Faithful state transfer between two-level systems via an actively cooled finite-temperature cavity*, Phys. Rev. A **97**, 032341 (2018)
15. F. Letscher, D. Petrosyan, M. Fleischhauer, *Many-body dynamics of holes in a driven, dissipative spin chain of Rydberg superatoms* New J. Phys. **19**, 113014 (2017)

16. D. Petrosyan, F. Motzoi, M. Saffman, K. Mølmer, *High-fidelity Rydberg quantum gate via a two-atom dark state* Phys. Rev. A **96**, 042306 (2017); Editors' Suggestion
17. D. Petrosyan, *Dipolar exchange induced transparency with Rydberg atoms*, New J. Phys. **19**, 033001 (2017)
18. L. F. Buchmann, K. Mølmer, D. Petrosyan, *Creation and transfer of non-classical states of motion using Rydberg dressing of atoms in a lattice*, Phys. Rev. A **95**, 013403 (2017); Editors' Suggestion
19. O. Marchukov, A. G. Volosniev, M. Valiente, D. Petrosyan, N. T. Zinner, *Quantum spin transistor in a Heisenberg spin chain*, Nature Commun. **7**, 13070 (2016)
20. N. J. S. Loft, O. V. Marchukov, D. Petrosyan, N. T. Zinner, *Tunable self-assembled spin chains of strongly interacting cold atoms for demonstration of reliable quantum state transfer*, New J. Phys. **18**, 045011 (2016)
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23. L. Sárkány, J. Fortágh, and D. Petrosyan, *Long-range quantum gate via Rydberg states of atoms in a thermal microwave cavity*, Phys. Rev. A **92**, 030303(R) (2015)
24. D. Petrosyan, D. D. Bhaktavatsala Rao and K. Mølmer, *Filtering single atoms from Rydberg blockaded mesoscopic ensembles*, Phys. Rev. A **91**, 043402 (2015)
25. G. Kurizki, P. Bertet, Y. Kubo, K. Mølmer, D. Petrosyan, P. Rabl, and J. Schmiedmayer, *Quantum technologies with hybrid systems*, PNAS **112**, 3866 (2015)
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31. D. Petrosyan, M. Höning and M. Fleischhauer, *Spatial correlations of Rydberg excitations in optically driven atomic ensembles*, Phys. Rev. A **87**, 053414 (2013)
32. D. Petrosyan and K. Mølmer, *Stimulated adiabatic passage in a dissipative ensemble of atoms with strong Rydberg-state interactions*, Phys. Rev. A **87**, 033416 (2013)
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35. D. Petrosyan and M. Fleischhauer, *Electromagnetically induced transparency and photon-photon interactions with Rydberg atoms*, J. Phys. Conf. Ser. **350**, 012001 (2012)
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43. M. Valiente, D. Petrosyan and A. Saenz, *Three-body bound states in a lattice*, Phys. Rev. A **81**, 011601(R) (2010)
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45. M. Valiente and D. Petrosyan, *Scattering resonances and two-particle bound states of the extended Hubbard model*, J. Phys. B **42**, 121001 (2009); Selected for J. Phys. B’s 2009 Highlights
46. D. Petrosyan, G. Bensky, G. Kurizki, I. Mazets, J. Majer and J. Schmiedmayer, *Reversible state transfer between superconducting qubits and atomic ensembles*, Phys. Rev. A **79**, 040304(R) (2009); Selected for Research Highlights, Nature Physics **5**, 376 (2009)
47. M. Valiente and D. Petrosyan, *Two-particle states in the Hubbard model*, J. Phys. B **41**, 161002 (2008); Selected for J. Phys. B’s 2008 Highlights
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54. D. Petrosyan and G. Kurizki, *Quantum computer with dipole-dipole interacting two-level systems*, Quantum Information & Computation **6**, 1 (2006)
55. I. Friedler, D. Petrosyan, M. Fleischhauer and G. Kurizki, *Long-range interactions and entanglement of slow single-photon pulses*, Phys. Rev. A **72**, 043803 (2005)
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**Textbook** (1)

77. P. Lambropoulos and D. Petrosyan, *Fundamentals of Quantum Optics and Quantum Information* (Springer, 2007)

**Contributions to Books** (3)

78. D. Petrosyan and M. Valiente, *Exotic few-body bound states in a lattice*, in *Modern Optics and Photonics, Atoms and Structured Media*, edited by G. Yu. Kryuchkyan, G. G. Gurzadyan and A. V. Papoyan (World Scientific, 2010) pp. 222-236
79. D. Petrosyan, *Deterministic entanglement of single photons via coherently driven atoms*, in *Decoherence, Entanglement and Information Protection in Complex Quantum Systems*, edited by V. M. Akulin, A. Sarfati, G. Kurizki and S. Pellegrin (Springer, 2005) pp. 77-90
80. G. Kurizki, A.G. Kofman and D. Petrosyan, *Photonic crystals: Atomic physics*, in *Encyclopedia of Modern Optics*, edited by B. D. Guenther, D. G. Steel, L. Bayvel (Academic Press/Elsevier, 2004) pp. 113-119

**Editorial** (2)

81. G. Messin, B. C. Sanders, D. Petrosyan and J. Rarity, *Special issue on Few photon optics*, J. Phys. B **42**, 110201 (2009)
82. D. Petrosyan, L.I. Childress, G.Yu. Kryuchkyan, A.I. Lvovsky, Yu.P. Malakyan and Ph. Walther, *Multiatom and Multiphoton Entanglement*, in *Decoherence, Entanglement and Information Protection in Complex Quantum Systems*, edited by V. M. Akulin, A. Sarfati, G. Kurizki and S. Pellegrin (Springer, 2005) pp. 35-39

**Popular articles** (1)

83. D. Petrosyan, *Quantum gates and simulations with strongly interacting Rydberg atoms*, ERCIM News **112**, 31 (2018)