

PUBLICATION LIST

ALEXIA AUFFÈVES

Peer-reviewed international publications

1. C. Elouard*, B. Besga and **A. Auffèves***, *Probing the state of a mechanical oscillator with an ultra-strongly coupled quantum emitter*, Phys. Rev. Lett. 122, 013602 (2019).
2. J. Monsel*, C. Elouard, **A. Auffèves***, *An autonomous quantum machine to measure the thermodynamic arrow of time*, npj QI 4 :59 (2018).
3. P. Grangier and **A. Auffèves***, *What is quantum in quantum randomness ?*, Phil. Trans. R. Soc. A 376 :2017/0322 (2018).
4. **A. Auffèves** and P. Grangier*, *Extracontextuality and Extravalence in Quantum Mechanics*, Phil. Trans. R. Soc. A 376 :2017/0322 (2018).
5. H. Nguyen, T. Grange, B. Reznichenko, I. Yeo, P.L. De Assis, D. Tumanov, F. Fratini, N. Malik, E. Dupuy, N. Gregersen, **A. Auffèves**, JM. Gérard, J. Claudon, JP. Poizat*, *Giant non-linear interaction between two optical beams via a quantum dot embedded in a photonic wire*, Phys. Rev. B 97, 201106 (R) (2018).
6. F. Tacchino, **A. Auffèves***, M. F. Santos, D. Gerace*, *Steady State Entanglement Beyond the Thermodynamic Limit*, Phys. Rev. Lett. 120, 063604 (2018).
7. D. S. Smirnov, B. Reznichenko, **A. Auffèves**, and L. Lanco*, *Measurement back action and spin noise spectroscopy in a charged cavity QED device in the strong coupling regime*, Phys. Rev. B 96, 165308 (2017).
8. C. Elouard, N. K. Bernardes, A. R. R. Carvalho, M. F. Santos, **A. Auffèves***, *Probing quantum fluctuation theorems in engineered reservoirs*, New Journal of Physics 19, 103011 (2017).
9. N. Cottet, S. Jezouin, L. Bretheau, P. Campagne-Ibarcq, Q. Ficheux, J. Anders, **A. Auffèves**, R. Azouit, P. Rouchon, B. Huard*, *Observing a quantum Maxwell demon at work*, PNAS 114(29) 7561 (2017).
10. C. Elouard, D. Herrera-Martí, B. Huard, **A. Auffèves***, *Extracting work from quantum measurement in Maxwell demon engines*, Phys. Rev. Lett. 118, 260603 (2017), featured in Phys.org <https://phys.org/news/2017-07-maxwell-demon-quantum.html> and Nature Research Highlights <https://www.nature.com/articles/d41586-017-01312-3>
11. T. Grange, N. Somaschi, C. Antón, L. De Santis, G. Coppola, V. Giesz, A. Lemaître, I. Sagnes, **A. Auffèves***, P. Senellart*, *Overcoming phonon-induced decoherence in single-photon sources with cavity quantum electrodynamics*, Phys. Rev. Lett. 118, 253602 (2017).
12. L. de Santis, C. Antón, B. Reznichenko, N. Somaschi, G. Coppola, J. Senellart, C. Gómez, A. Lemaître, I. Sagnes, A. G. White, L. Lanco, **A. Auffèves***, P. Senellart*, *A solid-state single-photon filter*, Nature Nanotechnology 12,663-667 (2017).

13. **A. Auffèves**, P. Grangier*, *Recovering the quantum formalism from physically realist axioms*, Scientific Reports 43365, (2017).
14. C. Elouard, D. Herrera-Martí, M. Clusel, **A. Auffèves***, *The role of quantum measurement in stochastic thermodynamics*, npj QI 3 :9 (2017).
15. P.-L De Assis, I Yeo, A Gloppe, H.A. Nguyen, D Tumanov, E Dupont-Ferrier, N.S. Malik, E Dupuy, J Claudon, J.-M Gérard, **Alexia Auffèves**, O. Arcizet, M. Richard, J.-Ph. Poizat*, *Strain-gradient mapping of semiconductor quantum dots*, Phys. Rev. Lett. 118, 117401 (2017).
16. G. Hornecker, **A. Auffèves**, and T. Grange*, *Influence of phonons on solid-state cavity-QED investigated using nonequilibrium Green's functions*, Phys. Rev. B 95, 035404 (2017).
17. C. Grezes, Y. Kubo, B. Julsgaard, T. Umeda, J. Isoya, H. Sumiya, H. Abe, S. Onoda, T. Ohshima, K. Nakamura, I. Diniz, **A. Auffèves**, V. Jacques, J.-F. Roch, D. Vion, D. Esteve, K. Moelmer, P. Bertet*, *Towards a spin-ensemble quantum memory for superconducting qubits*, Comptes Rendus Physique **17**, 693 (2016).
18. V. Giesz, N. Somaschi, G. Hornecker, T. Grange, B. Reznichenko, L. De Santis, J. Demory, C. Gomez, I. Sagnes, A. Lemaitre, O. Krebs, N. D. Lanzillotti-Kimura, L. Lanco, **A. Auffèves***, P. Senellart*, *Coherent control of a solid-state quantum bit with few-photon pulses*, Nature Communications 7, 11986 (2016).
19. E. Mascarenhas, D. Gerace, H. Flayac, M. F. Santos, **A. Auffèves**, V. Savona*, *A Mesoscopic Laser from a Manybody Correlated Medium*, Phys. Rev. B 93, 205148 (2016).
20. E. Mascarenhas, M. F. Santos, **A. Auffèves**, D. Gerace*, *A quantum rectifier in a one-dimensional photonic channel*, Phys. Rev. A 86, 013802 (2016).
21. J. C. Loredó, N. A. Zakaria, N. Somaschi, C. Anton, L. De Santis, V. Giesz, T. Grange, M. A. Broome, O. Gazzano, G. Coppola, I. Sagnes, A. Lemaitre, **A. Auffèves**, P. Senellart, M. P. Almeida, A. G. White*, *Scalable performance in solid-state single-photon sources*, Optica 3(4), 433-440 (2016).
22. N. Somaschi, V. Giesz, L. De Santis, J. C. Loredó, M. P. Almeida, G. Hornecker, S. L. Portalupi, T. Grange, C. Anton, J. Demory, C. Gomez, I. Sagnes, N. D. Lanzillotti Kimura, A. Lemaitre, **A. Auffèves**, A. G. White, L. Lanco, P. Senellart *, *Near optimal single photon sources in the solid state*, Nature Photonics 10, 340 (2016).
23. **Alexia Auffèves**, Philippe Grangier*, *Violation of Bell's inequalities in a quantum realistic framework*, International Journal of Quantum Information 13, 1640002 (2016).
24. Sam Johnson, Philip Dolan, Thomas Grange, Aurelien Trichet, Gaston Hornecker, Yu-Chen Chen, Laiyi Weng, Gareth Hughes, Andrew Watt, **A. Auffèves** and Jason Smith*, *Tunable cavity coupling of the zero phonon line of a nitrogen-vacancy defect in diamond*, New J. Phys. 17 (2015) 122003 (Fast Track Communication).
25. **A. Auffèves**, *Viewpoint : Nuclear spin points out the arrow of time*, Physics 8, 106 (2015).
26. V. Giesz, S. L. Portalupi, T. Grange, C. Anton, L. De Santis, J. Demory, N. Somaschi, I. Sagnes, A. Lemaitre, L. Lanco, **A. Auffèves***, and P. Senellart*, *Cavity-enhanced two-photon interference using remote quantum dot sources*, Phys. Rev. B 92, 161302(R) (2015).
27. **A. Auffèves** and P. Grangier, *Contexts, systems and modalities : A new ontology for quantum mechanics*, Foundations of Physics, 46(2), 121-137 (2015).

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29. T. Grange, G. Hornecker, D. Hunger, J.-P. Poizat, J.-M. Gérard, P. Senellart, and **A. Auffèves***, *Cavity-Funneled Generation of Indistinguishable Single Photons from Strongly Dissipative Quantum Emitters*, Phys. Rev. Lett. 114, 193601 (2015).
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31. **A. Auffèves** and P. Grangier, *Classical selection and quantum Darwinism*, Physics Today 05/2015 ; 68(5) :8-8. DOI :10.1063/PT.3.2759
32. F. Fratini, E. Mascarenhas, L. Safari, J.P. Poizat, D. Valente, **A. Auffèves**, M. Santos*, *Fabry-Perot interferometer with quantum mirrors : non-linear light transport and rectification*, Phys. Rev. Lett. 113, 243601(2014).
33. P. Campagne-Ibarcq, L. Bretheau, E. Flurin, **A. Auffèves**, F. Mallet, B. Huard*, *Observing Interference between Past and Future Quantum States in Resonance Fluorescence* Physical Review Letters 112, 180402 (2014).
34. **A. Auffèves*** and M. Richard*, *Optical driving of macroscopic mechanical motion by a single two-level system*, Physical Review A 90, 023818 (2014).
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38. E. Mascarenhas, D. Gerace, M.F. Santos, **A. Auffèves***, *Cooperativity of a few quantum emitters in a single mode cavity*, Phys Rev A 88, 063825 (2013).
39. I. Diniz, E. Dumur, O. Buisson, **A. Auffèves***, *Ultrafast QND measurements based on diamond-shape artificial atom*, Phys. Rev. A 87, 033837 (2013).
40. D. Valente, Y. Li, J. P. Poizat, J. M. Gérard, K. L. Chuan, M. F. Santos, **A. Auffèves***, *Universal optimal photon cloning and entanglement creation in one-dimensional atoms*, Phys. Rev. A 86, 022333 (2012).
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46. Y. Kubo, C. Grezes, A. Dewes, T. Umeda, J. Isoya, H. Sumiya, N. Morishita, H. Abe, S. Onoda, T. Ohshima, V. Jacques, A. Dréau, J.-F. Roch, I. Diniz, **A. Auffèves**, D. Vion, D. Esteve, and P. Bertet*, *Hybrid Quantum Circuit with a Superconducting Qubit Coupled to a Spin Ensemble*, Phys. Rev. Lett. **107**, 220501 (2011).
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Broad audience journals

- "Qu'est ce que le hasard quantique", A. Auffèves, to appear in Carnets de Science du CNRS, May 2018
- "Qu'est ce que le hasard quantique", A. Auffèves, The Conversation, November 1, 2017, <https://theconversation.com/quest-ce-que-le-hasard-quantique-85358>
- "Manifeste pour un nouveau réalisme quantique", A. Auffèves, N. Farouki and P. Grangier, La Recherche, February 2017.
- "Libérons le chat de Schrödinger", Interview of A. Auffèves by L. Mangin, Dossier Pour La Science, October-December 2016
http://www.pourlascience.fr/ewb_pages/a/article-liberons-le-chat-de-schrodinger-37676.php
- "Donner du sens à la mécanique quantique", Interview of A. Auffèves and P. Grangier by S. Guilbaud, Journal du CNRS and Carnets de Science du CNRS, March 2016
<https://lejournal.cnrs.fr/articles/donner-du-sens-a-la-mecanique-quantique>
- Comment on "Classical selection and quantum Darwinism", A. Auffèves and P. Grangier, Physics Today 05/2015; 68(5) :8-8. DOI :10.1063/PT.3.2759

Submitted work

- J. C. Loredó*, C. Antón*, B. Reznichenko, P. Hilaire, A. Harouri, C. Millet, H. Ollivier, N. Somaschi, L. De Santis, A. Lemaître, I. Sagnes, L. Lanco, **A. Auffèves**, O. Krebs, P. Senellart*, *Generation of non-classical light in a photon-number superposition*, <https://arxiv.org/abs/1810.05170>
- C. Elouard*, **A. Auffèves** and G. Haack*, *Single-shot energetic-based estimator for entanglement genesis*, <https://arxiv.org/abs/1807.02487>