

PUBLICATION LIST

ALEXIA AUFFÈVES

Peer-reviewed international publications

1. 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>, accepted in Nature Photonics
2. C. Elouard*, **A. Auffèves*** and G. Haack*, *Single-shot energetic-based estimator for entanglement genesis*, Quantum 3, 166 (2019).
3. 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).
4. J. Monsel*, C. Elouard, **A. Auffèves***, *An autonomous quantum machine to measure the thermodynamic arrow of time*, npj QI 4 :59 (2018).
5. P. Grangier and **A. Auffèves***, *What is quantum in quantum randomness ?*, Phil. Trans. R. Soc. A 376 :2017/0322 (2018).
6. **A. Auffèves** and P. Grangier*, *Extracontextuality and Extravalence in Quantum Mechanics*, Phil. Trans. R. Soc. A 376 :2017/0322 (2018).
7. 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).
8. F. Tacchino, **A. Auffèves***, M. F. Santos, D. Gerace*, *Steady State Entanglement Beyond the Thermodynamic Limit*, Phys. Rev. Lett. 120, 063604 (2018).
9. 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).
10. 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).
11. 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).
12. 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>

13. 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).
14. 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).
15. **A. Auffèves**, P. Grangier*, *Recovering the quantum formalism from physically realistic axioms*, Scientific Reports 43365, (2017).
16. C. Elouard, D. Herrera-Martí, M. Clusel, **A. Auffèves***, *The role of quantum measurement in stochastic thermodynamics*, npj QI 3 :9 (2017).
17. 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).
18. 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).
19. 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).
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21. 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).
22. E. Mascarenhas, M. F. Santos, **A. Auffèves**, D. Gerace*, *A quantum rectifier in a one-dimensional photonic channel*, Phys. Rev. A 86, 013802 (2016).
23. 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).
24. 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).
25. **Alexia Auffèves**, Philippe Grangier*, *Violation of Bell's inequalities in a quantum realistic framework*, International Journal of Quantum Information 13, 1640002 (2016).
26. 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).

27. **A. Auffèves**, *Viewpoint : Nuclear spin points out the arrow of time*, Physics 8, 106 (2015).
28. V. Giesz, S. L. Portalupi, T. Grange, C. Anton, L. De Santis, J. Demory, N. Somaschi, I. Sagnes, A. Lemaître, L. Lanco, **A. Auffèves***, and P. Senellart*, *Cavity-enhanced two-photon interference using remote quantum dot sources*, Phys. Rev. B 92, 161302(R) (2015).
29. **A. Auffèves** and P. Grangier, *Contexts, systems and modalities : A new ontology for quantum mechanics*, Foundations of Physics, 46(2), 121-137 (2015).
30. S. L Portalupi, G. Hornecker, V. Giesz, T. Grange, A. Lemaître, J. Demory, I. Sagnes, N. D. Lanzillotti-Kimura, L. Lanco **A. Auffèves***, P. Senellart*, *Bright Phonon-Tuned Single-Photon Source*, Nanoletters 10.1021 (2015).
31. T. Grange, G. Hornecker, D. Hunger, J.-P. Poizat, J.-M. Gérard, P. Senellart, and **A. Auffèves***, *Cavity-Funnelled Generation of Indistinguishable Single Photons from Strongly Dissipative Quantum Emitters*, Phys. Rev. Lett. 114, 193601 (2015).
32. C. Elouard, M. Richard and **A. Auffèves***, *Reversible work extraction in a hybrid opto-mechanical system*, New J. Physics 17, 055018 (2015).
33. **A. Auffèves** and P. Grangier, *Classical selection and quantum Darwinism*, Physics Today 05/2015 ; 68(5) :8-8. DOI :10.1063/PT.3.2759
34. 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).
35. 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).
36. **A. Auffèves*** and M. Richard*, *Optical driving of macroscopic mechanical motion by a single two-level system*, Physical Review A 90, 023818 (2014).
37. E. Mascarenhas, D. Valente, S. Montangero, **A. Auffèves**, D. Gerace, M. F. Santos*, *A quantum optical diode in a non-linear linear resonator junction*, Europhysics Letters 106, 54003 (2014).
38. I. Yeo, P.L. de Assis, A. Gloppe, E. Dupont-Ferrier, P. Verlot, N. Malik, E. Dupuy, J. Claudon, J.M. Gérard, **A. Auffèves**, G. Nogues, J.P. Poizat, O. Arcizet, M. Richard*, *Strain-mediated coupling in a quantum dot mechanical oscillator hybrid system*, Nature Nanotech. 9, 106 (2014).
39. D. Valente, J. Suffczynski, T. Jakubczyk, A. Dousse, A. Lemaître, I. Sagnes, W. Pacuski, C. Kruse, D. Hommel, Loïc Lanco, P. Voisin, P. Kossacki, **A. Auffèves***, Pascale Senellart*, *Frequency pulling induced by a single semi-conducting quantum dot*, Phys. Rev. B (R)89, 041302 (2014).
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41. I. Diniz, E. Dumur, O. Buisson, **A. Auffèves***, *Ultrafast QND measurements based on diamond-shape artificial atom*, Phys. Rev. A 87, 033837 (2013).
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46. Y. Kubo, I. Diniz, A. Dewes, V. Jacques, A. Dréau, J.-F. Roch, **A. Auffèves**, D. Vion, D. Esteve, and P. Bertet* , *Storage and retrieval of a microwave field in a spin ensemble*, Phys. Rev. A **85**, 012333 (2012).
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48. 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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52. Y. Kubo, F. R. Ong, P. Bertet, D. Vion, V. Jacques, D. Zheng, A. Dréau, J.-F. Roch, **A. Auffèves**, F. Jelezko, J. Wrachtrup, M. F. Barthe, P. Bergonzo, and D. Esteve*, *Strong Coupling of a Spin Ensemble to a Superconducting Resonator*, Phys. Rev. Lett. **105**, 140502 (2010).
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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

- M. Mohammadi, **A. Auffèves**, J. Anders, *Energetic footprints of irreversibility in the quantum regime*, arXiv :1907.06559

— J. Monsel, M. Fellous-Asiani, B. Huard, **A. Auffèves**, *A coherent quantum engine based on bath and battery engineering*, arXiv :1907.00812