

# Publications

Alexandre Gauguet

May 15, 2024

1. B. Canuel, F. Leduc, D. Holleville, A. Gauguet, J. Fils, A. Viridis, A. Clairon, N. Dimarcq, Ch. J. Bordé, A. Landragin, and P. Bouyer. Six-Axis Inertial Sensor Using Cold-Atom Interferometry. *Phys. Rev. Lett.*, 97 :010402, Jul 2006.
2. X. Baillard, A. Gauguet, S. Bize, P. Lemonde, Ph. Laurent, A. Clairon, and P. Rosenbusch. Interference-filter-stabilized external-cavity diode lasers. *Optics Communications*, 266(2) :609 ? 613, 2006.
3. A. Gauguet, B. Canuel, F. Leduc, D. Holleville, N. Dimarcq, A. Clairon, and A. Landragin. Caractérisation d'un gyromètre à atomes froids. *J. Phys. IV France*, 135 :357?358, 2006.
4. P. Cheinet, B. Canuel, F. Pereira Dos Santos, A. Gauguet, F. Yver-Leduc, and A. Landragin. Measurement of the Sensitivity Function in a Time-Domain Atomic Interferometer. *Instrumentation and Measurement, IEEE Transactions on*, 57(6) :1141 ?1148, june 2008.
5. A. Gauguet, T.E. Mehlstäubler, T. Lévèque, J. LeGouët, W. Chaibi, B. Canuel, A. Clairon, F. Pereira Dos Santos, and A. Landragin. Off-resonant Raman transition impact in an atom interferometer. *Phys. Rev. A*, 78 :043615, Oct 2008.
6. K. Djerroud, C. Lemarchand, A. Gauguet, C. Daussy, S. Briaudeau, B. Darquié, O. Lopez, A. Amy-Klein, C. Chardonnet, and C.J. Bordé. Measurement of the Boltzmann constant by the Doppler broadening technique at a  $3,8 \times 10^{-5}$  accuracy level. *C. R. Phys.*, 10 :883?893, 2009. LNE and EraNet/IMERA.
7. A. Gauguet, B. Canuel, T. Lévèque, W. Chaibi, and A. Landragin. Characterization and limits of a cold-atom Sagnac interferometer. *Phys. Rev. A*, 80 :063604, Dec 2009.

8. T. Lévèque, A. Gauguet, F. Michaud, F. Pereira Dos Santos, and A. Landragin. Enhancing the Area of a Raman Atom Interferometer Using a Versatile Double-Diffraction Technique. *Phys Rev Lett*, 103 :080405, Aug 2009.
9. T. Lévèque, A. Gauguet, W. Chaibi, and A. Landragin. Low noise amplification of an optically carried microwave signal : application to atom interferometry. *Appl. Phys. B : Lasers Opt.*, 101 :723?729, 2010. [10.1007/s00340-010-4082-y](https://doi.org/10.1007/s00340-010-4082-y).
10. J. D. Pritchard, D. Maxwell, A. Gauguet, K. J. Weatherill, M. P. A. Jones, and C. S. Adams. Cooperative Atom-Light Interaction in a Blockaded Rydberg Ensemble. *Phys Rev Lett*, 105 :193603, Nov 2010.
11. J D Pritchard, A Gauguet, K J Weatherill, and C S Adams. Optical non- linearity in a dynamical Rydberg gas. *J. Phys. B : At., Mol. Opt. Phys.*, 44(18) :184019, 2011.
12. S Sevincli, C Ates, T Pohl, H Schempp, C S Hofmann, G Guenter, T Am- thor, M Weidemueller, J D Pritchard, D Maxwell, A Gauguet, K J Weatherill, M P A Jones, and C S Adams. Quantum interference in interacting three-level Rydberg gases : coherent population trapping and electromagnetically induced transparency. *J. Phys. B : At., Mol. Opt. Phys.*, 44(18) :184018, 2011.
13. M Tanasittikosol, J D Pritchard, D Maxwell, A Gauguet, K J Weatherill, R M Potvliege, and C S Adams. Microwave dressing of Rydberg dark states. *J. Phys. B : At., Mol. Opt. Phys.*, 44(18) :184020, 2011.
14. S. Lepoutre, A. Gauguet, G. Tréneç, M. Büchner, and J. Vigué. He- McKellar-Wilkens Topological Phase in Atom Interferometry. *Phys. Rev. Lett.*, 109 :120404, Sep 2012.
15. J. Gillot, A. Gauguet, M. Büchner, and J. Vigué. Optical pumping of a li- thium atomic beam for atom interferometry. *The European Physical Journal D*, 67(12) :1?11, 2013.
16. J. Gillot, C. Lemarchand, I. Braud, B. Decamps, A. Gauguet, J. Vigué, and M. Büchner. Note : A passively cooled heat pipe for spectroscopy. *Review of Scientific Instruments*, 84(10) :106109, 2013.
17. J. Gillot, S. Lepoutre, A. Gauguet, M. Büchner, and J. Vigué. Measurement of the He-McKellar-Wilkens Topological Phase by Atom Interferometry and Test of Its Independence with Atom Velocity. *Phys. Rev. Lett.*, 111 :030401, Jul 2013.

18. S. Lepoutre, A. Gauguet, M. Büchner, and J. Vigué. Test of the He-McKellar-Wilkens topological phase by atom interferometry. I. Theoretical discussion. *Phys. Rev. A*, 88 :043627, Oct 2013.
19. S. Lepoutre, J. Gillot, A. Gauguet, M. Büchner, and J. Vigué. Test of the He-McKellar-Wilkens topological phase by atom interferometry. II. The experiment and its results. *Phys. Rev. A*, 88 :043628, Oct 2013.
20. D. Maxwell, D. J. Szwer, D. Paredes-Barato, H. Busche, J. D. Pritchard, A. Gauguet, K. J. Weatherill, M. P. A. Jones, and C. S. Adams. Storage and Control of Optical Photons Using Rydberg Polaritons. *Phys. Rev. Lett.*, 110 :103001, Mar 2013.
21. Brynle Barrett, Rémy Geiger, Indranil Dutta, Matthieu Meunier, Benjamin Canuel, Alexandre Gauguet, Philippe Bouyer, and Arnaud Landragin. The Sagnac effect : 20 years of development in matter-wave interferometry. *Comptes Rendus Physique*, 16(3), 2014.
22. Jonathan Gillot, Steven Lepoutre, Alexandre Gauguet, Jacques Vigué, and Matthias Büchner. Measurement of the Aharonov-Casher geometric phase with a separated-arm atom interferometer. *The European Physical Journal D*, 68(6), 2014.
23. D. Maxwell, D. J. Szwer, D. Paredes-Barato, H. Busche, J. D. Pritchard, A. Gauguet, M. P. A. Jones, and C. S. Adams. Microwave control of the interaction between two optical photons. *Phys. Rev. A*, 89 :043827, Apr 2014.
24. B. Decamps, J. Gillot, J. Vigue, A. Gauguet, M. Buchner, Observation of Atom-Wave Beats Using a Kerr Modulator for Atom Waves. *Phys. Rev. Lett.*, 116 : 053004, Feb 2016.
25. B. Decamps, A Gauguet, J Vigue, M Buchner, Pancharatnam phase: A tool for atom optics, *Phys. rev. a* 96 :013624 (2017).
26. J. Alibert, B. Décamps, M. Bordoux, B. Allard, and A. Gauguet, A millimeter magnetic trap for a dual ( $85\text{Rb}$  and  $87\text{Rb}$ ) species atom interferometer, *RSI* 88, 113115 (2017).
27. B. Decamps, J. Gillot, A. Gauguet, J. Vigue and M. Buchner, Phase modulation of atom waves: theory and experiment using the atom optics analogue of the Kerr effect, *EPJD* 71 (12), pp.734 (2017).

28. B. Décamps, M. Bordoux, J. Alibert, B. Allard and A. Gauguet, Phase response of atom interferometers based on sequential Bragg diffractions *J. Phys. B: At. Mol. Opt. Phys.* 52 015003 (2019).
29. El-Neaj, et al. AEDGE: Atomic Experiment for Dark Matter and Gravity Exploration in Space. *EPJ Quantum Technol.* 7, 6 (2020).
30. B. Décamps, J. Vigué, A. Gauguet, M. Büchner, Measurement of the 671-nm tune-out wavelength of  $^7\text{Li}$  by atom interferometry. *Phys. Rev. A*, 101, 033614 (2020).
31. A. Béguin, T. Rodzinka, J. Vigué, B. Allard, A. Gauguet, Characterization of an atom interferometer in the quasi-Bragg regime. *Phys. Rev. A*, 105, 033302 (2022).
32. S. Abend et al. Technology roadmap for cold-atoms based quantum inertial sensor in space, *AVS Quantum Sci* 5, 019201 (2023).
33. A. Béguin, T. Rodzinka, L. Calmels, B. Allard, A. Gauguet, Atom interferometry with coherent enhancement of Bragg pulse sequences. *Phys. Rev. Lett.*, 131, 143401 (2023).
34. B. Décamps, J. Vigué, A. Gauguet, M. Büchner, Decoherence of a matter wave by blackbody radiation. *Phys. Rev. A* 109, 053306 (2024).
35. S. Abend, et al. Terrestrial very-long-baseline atom interferometry: Workshop summary. *AVS Quantum Sci.* 6, 024701 (2024).