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I. Research Articles

[1] *Accurate electron-recoil ionization factors for dark matter direct detection in xenon, krypton and argon*,
A. R. Caddell†, V. V. Flambaum, and B. M. Roberts.
(Submitted to Phys. Rev. D) [arXiv:2305.05125].

[2] *Electric-dipole transition amplitudes for atoms and ions with one valence electron*,
B. M. Roberts, C. J. Fairhall†, and J. S. M. Ginges.
Physical Review A (accepted, in press, 2023) [arXiv:2211.11134].

[3] *Experimental and theoretical study of dynamic polarizabilities in the $5S_{1/2}-5D_{5/2}$ clock transition in rubidium-87 and determination of E1 matrix elements*,
R. Hamilton, B. M. Roberts, S. Scholten, C. Locke, A. N. Luiten, J. S. M. Ginges, and C. Perrella.
Physical Review Applied **19**, 054059 (2023). [arXiv:2212.10743].

[4] *QED radiative corrections to electric dipole amplitudes in heavy atoms*,
C. J. Fairhall†, B. M. Roberts, and J. S. M. Ginges.
Physical Review A **107**, 022813 (2023). [arXiv:2212.11490].

[5] *Empirical determination of the Bohr-Weisskopf effect in cesium and improved tests of precision atomic theory in searches for new physics*,
G. Sanamyan*, B. M. Roberts, and J. S. M. Ginges.
Physical Review Letters 130, 053001 (2023). [arXiv:2209.05099].
- Covered in *The Brisbane Times*: *'Unusual' atom helps search for dark matter – and a quicker car ride*, as well as *The Sydney Morning Herald*, *The Age*, and *WA Today*. Also featured in *phys.org* and others

[6] *The Bohr-Weisskopf effect: from hydrogenlike-ion experiments to heavy-atom calculations of hyperfine structure*,
B. M. Roberts, P. G. Ranclaud*, and J. S. M. Ginges.
Physical Review A **105**, 052802 (2022). [arXiv:2111.12954].

[7] *Comment on "New physics constraints from atomic parity violation in ^{133}Cs"*,
B. M. Roberts and J. S. M. Ginges.
Physical Review D **105**, 018301 (2022). [arXiv:2110.11621].

[8] *The hyperfine anomaly in heavy atoms and its role in precision atomic searches for new physics*,
B. M. Roberts and J. S. M. Ginges.
Physical Review A **104**, 022823 (2021). [arXiv:2101.09924].

[9] *Searching for Dark Matter with an Optical Cavity and an Unequal-Delay Interferometer*,
E. Savalle, A. Hees, F. Frank, E. Cantin, P.-E. Pottie, B. M. Roberts, L. Cros, B. T. McAllister, and P. Wolf.
Physical Review Letters 126, 051301 (2021). [arXiv:2006.07055].
- Top 5% by citations for category/year (Scopus)

[10] *Precision measurement noise asymmetry and its annual modulation as a dark matter signature*,
B. M. Roberts, and A. Derevianko.
Universe (Open Access) **7**, 50 (2021). [arXiv:1803.00617].

[11] *Nuclear magnetic moments of francium 207–213 from precision hyperfine comparisons*,
B. M. Roberts and J. S. M. Ginges.
Physical Review Letters 125, 063002 (2020). [arXiv:2001.01907].
- Featured in phys.org: *Improved modelling of nuclear structure in francium aids searches for new physics*

[12] *Search for a variation of the fine-structure around the supermassive Black Hole in our Galactic Center*,
A. Hees, T. Do, B. M. Roberts, Andrea M. Ghez, S. Nishiyama, R. O. Bentley, A. K. Gautam, S. Jia, T. Kara, J. R. Lu, H. Saida, S. Sakai, M. Takahashi, and Y. Takamori.
Physical Review Letters 124, 081101 (2020). [arXiv:2002.11567].
- Editors' Suggestion; Featured in Physics Synopsis (APS) [*Constants Still Constant Near Black Holes*]
- Co-authored with Prof. Andrea Ghez, 2020 Physics Nobel Prize winner
- Top 5% by citations for category/year (Scopus)

† My PhD students, * My honours students (at time of submission)

[13] *Search for transient variations of the fine structure constant and dark matter using fiber-linked optical atomic clocks*,
B. M. Roberts, P. Delva, A. Al-Masoudi, A. Amy-Klein, C. Bærentsen, C. F. A. Baynham, S. Bize, E. Benkler, S. Bilicki, W. Bowden, E. Cantin, J. Calvert, V. Cambier, E. A. Curtis, S. Dörscher, M. Favier, F. Frank, P. Gill, R. M. Godun, G. Grosche, C. Guo, A. Hees, I. R. Hill, R. Hobson, N. Huntemann, J. Kronjäger, S. Koke, A. Kuhl, R. Lange, T. Legero, B. Lipphardt, C. Lisdat, J. Lodewyck, O. Lopez, H. S. Margolis, H. Álvarez-Martínez, F. Meynadier, F. Ozimek, E. Peik, P.-E. Pottie, N. Quintin, C. Sanner, L. De Sarlo, M. Schioppo, R. Schwarz, A. Silva, U. Sterr, Chr. Tamm, R. Le Targat, P. Tuckey, G. Vallet, T. Waterholter, D. Xu, and P. Wolf.
New Journal of Physics **22**, 093010 (2020). [arXiv:1907.02661].
- Featured Article (chosen by the editors for "novelty, significance and potential impact")
- Top 5% by citations for category/year (Reuters Web of Science/Scopus)

[14] *Applying matched-filter technique to the search for dark matter transients with networks of quantum sensors*,
G. Panelli, B. M. Roberts, and A. Derevianko.
EPJ Quantum Technology **7**, 5 (2020). [arXiv:1908.03320].

[15] *Correlation trends in the hyperfine structure for Rb, Cs, and Fr, and high-accuracy predictions for hyperfine constants*,
S. J. Grunefeld, B. M. Roberts, and J. S. M. Ginges.
Physical Review A **100**, 042506 (2019). [arXiv:1907.02657].

[16] *Novel approaches to dark-matter detection using space-time separated clocks*,
E. Savalle, B. M. Roberts, F. Frank, P.-E. Pottie, B. T. McAllister, C. B. Dailey, A. Derevianko, and P. Wolf.
[arXiv:1902.07192].

[17] *Electron-interacting dark matter: Implications from DAMA/LIBRA-phase2 and prospects for liquid xenon detectors and NaI detectors*,
B. M. Roberts and V. V. Flambaum.
Physical Review D **100**, 063017 (2019). [arXiv:1904.07127].
- Top 5% by citations for category/year (Scopus)

[18] *Calculations of the atomic structure for the low-lying states of actinium*,
V. A. Dzuba, V. V. Flambaum, and B. M. Roberts.
Physical Review A **100**, 022504 (2019). [arXiv:1905.02365].

[19] *Search for transient ultralight dark matter signatures with networks of precision measurement devices using a Bayesian statistics method*,
B. M. Roberts, G. Blewitt, C. Dailey*, and A. Derevianko.
Physical Review D **97**, 083009 (2018). [arXiv:1803.10264].

[20] *Search for domain wall dark matter with atomic clocks on board Global Positioning System satellites*,
B. M. Roberts, G. Blewitt, C. Dailey*, M. Murphy, M. Pospelov, A. Rollings, J. Sherman, W. Williams*, and A. Derevianko.
Nature Communications 8, 1195 (2017). [arXiv:1704.06844].
- Covered in Science [doi: 10.1126/science.aal0676], Quanta, NBC News, Cosmos Magazine, MIT Tech. Review, and others
- Top 5% by citations for category/year (Reuters Web of Science/Scopus)

[21] *Comment on "Axion induced oscillating electric dipole moments"*,
V. V. Flambaum, B. M. Roberts, and Y. V. Stadnik.
Physical Review D **95**, 058701 (2017).

[22] *Reply to 'Comment on "Ionization of Atoms by Slow Heavy Particles, Including Dark Matter"'*,
B. M. Roberts, V. V. Flambaum, and G. F. Gribakin.
Physical Review Letters 117, 089302 (2016).

[23] *Dark matter scattering on electrons: Accurate calculations of atomic excitations and implications for the DAMA signal*,
B. M. Roberts, Y. V. Stadnik, V. A. Dzuba, V. V. Flambaum, and M. Pospelov.
Physical Review D **93**, 115037 (2016). [arXiv:1604.04559].
- Top 5% by citations for category/year (Scopus)

[24] *Atomic ionization by slow heavy particles, including dark matter*,
B. M. Roberts, V. V. Flambaum, and G. F. Gribakin.
Physical Review Letters 116, 023201 (2016). [arXiv:1509.09044].

[25] *Parity and Time-Reversal Violation in Atomic Systems*,
B. M. Roberts, V. A. Dzuba, and V. V. Flambaum.
Annual Review of Nuclear and Particle Science **65**, 63 (2015). [arXiv:1412.6644].
- Top 5% by citations for category/year in Nuclear and High Energy Physics (Scopus)

[26] *Parity-violating interactions of cosmic fields with atoms, molecules, and nuclei: Concepts and calculations for laboratory searches and extracting limits*,
B. M. Roberts, Y. V. Stadnik, V. A. Dzuba, V. V. Flambaum, N. Leefer, and D. Budker.
Physical Review D **90**, 096005 (2014). [arXiv:1409.2564].
- Editors' Suggestion
- Covered in *Physics Today* [doi: 10.1063/PT.3.2896]
- Top 10% by citations for category/year (Scopus)

[27] *Tests of CPT and Lorentz symmetry from muon anomalous magnetic dipole moment*,
Y. V. Stadnik, B. M. Roberts, V. V. Flambaum.
Physical Review D **90**, 045035 (2014). [arXiv:1407.5728].

[28] *Limiting P-odd interactions of cosmic fields with electrons, protons, and neutrons*,
B. M. Roberts, Y. V. Stadnik, V. A. Dzuba, V. V. Flambaum, N. Leefer, and D. Budker.
Physical Review Letters 113, 081601 (2014). [arXiv:1404.2723].
- Top 10% by citations for category/year (Reuters Web of Science/Scopus)

[29] *Strongly enhanced atomic parity violation due to close levels of opposite parity*,
B. M. Roberts, V. A. Dzuba, and V. V. Flambaum.
Physical Review A **89**, 042509 (2014). [arXiv:1401.6262].

[30] *Nuclear-spin-dependent parity nonconservation in s-$d_{5/2}$ and s-$d_{3/2}$ transitions*,
B. M. Roberts, V. A. Dzuba, and V. V. Flambaum.
Physical Review A **89**, 012502 (2014). [arXiv:1311.2373].

[31] *Double-core-polarization contribution to atomic parity-nonconservation and electric-dipole-moment calculations*,
B. M. Roberts, V. A. Dzuba, and V. V. Flambaum.
Physical Review A **88**, 042507 (2013). [arXiv:1309.3371].

[32] *Parity nonconservation in Fr-like actinide and Cs-like rare-earth-metal ions*,
B. M. Roberts, V. A. Dzuba, and V. V. Flambaum.
Physical Review A **88**, 012510 (2013). [arXiv:1304.7591].

[33] *Quantum electrodynamics corrections to energies, transition amplitudes and parity nonconservation in Rb, Cs, Ba^+, Tl, Fr and Ra^+*,
B. M. Roberts, V. A. Dzuba, and V. V. Flambaum.
Physical Review A **87**, 054502 (2013). [arXiv:1302.0593].
- Top 10% by citations for category/year (Scopus)

[34] *Calculation of the parity-violating $5s$-$6s$ $E1$ amplitude in the rubidium atom*,
V. A. Dzuba, V. V. Flambaum, and B. M. Roberts.
Physical Review A **86**, 062512 (2012). [arXiv:1211.0075].

[35] *Revisiting Parity Nonconservation in Cesium*,
V. A. Dzuba, J. C. Berengut, V. V. Flambaum, and B. M. Roberts.
Physical Review Letters 109, 203003 (2012). [arXiv:1207.5864].
- Top 5% by citations for category/year (Reuters Web of Science/Scopus)

II. Conference Proceedings

[36] *Testing Fundamental Physics With Stellar Orbitsat the Galactic Center*,
T. Do, A. Hees, Andrea Ghez, G. D. Martinez, D. S. Chu, S. Jia, S. Sakai, J. R. Lu, A. K. Gautam, K. K. O'Neil, E. E. Becklin, M. R. Morris, K. Matthews, S. Nishiyama, R. Campbell, S. Chappell, Z. Chen, A. Ciurlo, A. Witzel, E. Gallego-Cano, W. E. Kerzendorf, J. E. Lyke, S. Naoz, H. Saida, R. Schödel, M. Takahashi, Y. Takamori, G. Witzel, P. Wizinowich, and B. M. Roberts.
ASP Conference Series: New Horizons in Galactic Center Astronomy and Beyond **528**, 249 (2019)

[37] *DAMNED - DArk Matter from Non Equal Delays New test of the fundamental constants variation*,
E. Savalle, B. M. Roberts, F. Frank, P.-E. Pottie, B. T. McAllister, C. B. Dailey, A. Derevianko, and P. Wolf.
Joint Conference of the IEEE International Frequency Control Symposium and European Frequency and Time Forum (EFTF/IFC) **2019**, 1 (2019).

[38] *Violation of the equivalence principle from light scalar fields: from Dark Matter candidates to scalarized black holes*,
A. Hees, O. Minazzoli, E. Savalle, Y. V. Stadnik, P. Wolf, and B. M. Roberts. Proceedings of the 2019 Gravitation session of the 54th Rencontres de Moriond (available: moriond.in2p3.fr/previous-sessions.html) [arXiv:1905.08524].

[39] *New Atomic Methods for Dark Matter Detection*,
B. M. Roberts, Y. V. Stadnik, V. A. Dzuba, V. V. Flambaum, N. Leefer, and D. Budker.
J. Phys. Conf. Ser. **635**, 022033 (2015).

[40] *Searching for Axion Dark Matter in Atoms: Oscillating Electric Dipole Moments and Spin-Precession Effects*,
B. M. Roberts, Y. V. Stadnik, V. V. Flambaum, and V. A. Dzuba.
Proceedings of the 11th Patras Workshop on Axions, WIMPs and WISPs (doi: 10.3204/DESY-PROC-2015-02/roberts_benjamin) [arXiv:1511.04098].

[41] *Searching for Scalar Dark Matter in Atoms and Astrophysical Phenomena: Variation of Fundamental Constants*,
Y. V. Stadnik, B. M. Roberts, V. V. Flambaum, and V. A. Dzuba.
Proceedings of the 11th Patras Workshop on Axions, WIMPs and WISPs (doi: 10.3204/DESY-PROC-2015-02/roberts_benjamin_axions) [arXiv:1511.04100].

[42] *Atomic Ionization by Dark Matter Particles*,
V. V. Flambaum, V. A. Dzuba, M. Pospelov, A. Derevianko, and B. M. Roberts.
J. Phys. Conf. Ser. **635**, 022012 (2015).

III. Other research outputs: public software projects

[43] AtomicIonisation, A. R. Caddell† and B. M. Roberts (2023). An example C++ and python program to calculate example DM-electron-induced ionisation rates. Also provides tables of high-accuracy atomic ionisation factors (matrix elements), which are required to calculate atomic ionisation rates, including from dark matter electron scattering. github.com/benroberts999/AtomicIonisation
- Companion code to paper: A. R. Caddell, V. V. Flambaum, and B. M. Roberts, *Accurate electron-recoil ionization factors for dark matter direct detection in xenon, krypton and argon*, [arXiv:2305.05125].

[44] AdamsMoulton, B. M. Roberts (2023). A C++ implementation of the Adams-Moulton method for solving general second-order ODEs. github.com/benroberts999/AdamsMoulton

[45] ampsci, B. M. Roberts (2022). A C++ program for high-precision atomic structure calculations of single-valence systems. github.com/benroberts999/ampsci
- Used in many papers, including by other groups; first major publication: B. M. Roberts, C. J. Fairhall†, and J. S. M. Ginges, *Electric dipole transition amplitudes for atoms and ions with one valence electron*, Physical Review A (in press, 2023) [arXiv:2211.11134].

[46] FGRP, B. M. Roberts (2022). A C++ implementation of the Flambaum-Ginges radiative potential method, a method for including radiative quantum electrodynamics effects into calculations of atomic wavefunctions, including finite nuclear size corrections. github.com/benroberts999/FGRP

- Used in: C. J. Fairhall†, B. M. Roberts, and J. S. M. Ginges, *QED radiative corrections to electric dipole amplitudes in heavy atoms*, Physical Review A **107**, 022813 (2023). Also used by other group in: H. B. Tran Tan and A. Derevianko, Physical Review A **107**, 042809 (2023).

[47] transientDM, B. M. Roberts (2019). A C++ program for searching for transient dark matter signals in data from atomic clock networks. github.com/benroberts999/transientDM
- Companion code to paper: B. M. Roberts *et al.*, *Search for transient variations of the fine structure constant and dark matter using fiber-linked optical atomic clocks*, New Journal of Physics **22**, 093010 (2020). [arXiv:1907.02661].

[48] DM-ClockAsymmetry, B. M. Roberts (2018). A python program for simulating dark matter induced asymmetries in atomic clock data, and their annual modulation. github.com/benroberts999/DM-ClockAsymmetry
- Companion code to paper: B. M. Roberts and A. Derevianko, *Precision measurement noise asymmetry and its annual modulation as a dark matter signature*, Universe **7**, 50 (2021). [arXiv:1803.00617].

[49] InverseNumericalCDF, B. M. Roberts (2017). A C++ program that finds the inverse of numerical cumulative distribution functions. github.com/benroberts999/InverseNumericalCDF
- Used in: B. M. Roberts *et al.*, *Search for domain wall dark matter with atomic clocks on board Global Positioning System satellites*, **Nature Communications 8**, 1195 (2017). [arXiv:1704.06844].

IV. Conferences, invited talks, and presentations

[1] **Invited:** [*upcoming*] 2023 MIAPbP (Munich Institute for Astro-, Particle, and Bio Physics) program: Particle & AMO physicists discussing quantum sensors and new physics 2023), Munich, Germany, September 2023.

[2] [*upcoming*] PATRAS 2023 (18th Patras Workshop on Axions, WIMPs and WISPs), University of Rijeka, Croatia, July 2023.
Talk: *Enlightening the search for dark matter (search for low-mass WIMPs using atomic phenomena)*

[3] [*upcoming*] PhysTeV 2023, Physics at TeV Colliders and Beyond the Standard Model, Les Houches, France, June 2023.

[4] [*upcoming*] DAMOP 2023 (APS Division of Atomic, Molecular and Optical Physics), Spokane, Washington USA, June 2023.
Talk: *Using atomic phenomena to search for GeV scale dark matter*
Talk: *Empirical determination of the hyperfine anomaly in Cs and improved tests of atomic theory in precision atomic searches for new physics*
Poster: *Electric-dipole transition amplitudes for atoms and ions with one valence electron*

[5] AIP2022, Australian Institute of Physics Congress, Adelaide, December 2022.
Talk: *Search for a Variation of the Fine Structure Constant around the Supermassive Black Hole in Our Galactic Centre*
Poster: *High-precision study of E1 transition amplitudes for single-valence atoms and ions* [Poster available]

[6] DSU2022, The Dark Side of the Universe, University of New South Wales, Sydney, Australia, December 2022.
Talk: *Search for a Variation of the Fine Structure Constant around the Supermassive Black Hole in Our Galactic Centre* [Slides available]

[7] **Invited:** APV2022, The International Workshop on Atomic Parity Violation (virtual), November 2022.
Talk: *Study of electric dipole amplitudes for alkali-like atoms and implications for atomic parity violation* [Slides available]

[8] UQ ASA (student society) outreach talk, University of Queensland, Australia, April 2022.
Talk: *Variation of fundamental constants: Search for new physics around a supermassive black hole* [Slides available]

[9] **Invited:** Invited seminar, University of Melbourne, particle physics seminar, March 2022.
Talk: *Dark matter induced atomic ionisation* [Slides available]

[10] Australian Institute of Physics (AIP) Summer Meeting, Queensland University of Technology, Brisbane, December 2021.
Talk: *Search for a variation of the fine-structure constant around the supermassive Black Hole in our Galactic Centre*

[11] ASA2021, Astronomical Society of Australia Science Meeting, University of Melbourne (virtual), July 2021.
Talk: *Search for a variation of the fine-structure constant around the supermassive Black Hole in our Galactic Centre* [Slides available]

[12] DAMOP, Portland, Oregon, USA (held virtually), June 2020.
Talk: *Electron-interacting dark matter: prospects for liquid xenon detectors and NaI detectors*
Poster: *Do constants remain constant around a Supermassive Black hole?*
[Slides available: meetings.aps.org/Meeting/DAMOP20/Session/J07.10, Poster available: .../E01.155]

[13] **Invited:** ATMOP (AIP) Summer Workshop, Australian National University, Canberra, February 2020.
Invited talk: *Signatures of GeV-scale dark matter in iquid xenon experiments due to scattering off electrons and atomic ionisation*

[14] **Invited:** Frontiers in Quantum Matter Workshop: Electric Dipole Moments, Australian National University (ANU), Canberra, November 2019.
Invited talk: *Dark matter signatures in EDM and precision physics experiments*

[15] CHEP 2019, 24th International Conference on Computing in High Energy and Nuclear Physics, Adelaide, Australia, November 2019.
Talk: *Searching for dark matter signatures in 20 years of GPS atomic clock data*

[16] **Invited:** 7th International Colloquium on Scientific and Fundamental Aspects of GNSS, ESA (European Space Agency), ETH Zürich, Zurich, Switzerland, September 2019.
Invited talk: *Searching for dark matter and exotic physics with space and ground-based atomic clocks*

[17] Rencontres de Moriond, Gravitation Session, La Thuile, Valle d'Aosta, Italy, March 2019.
Talk: *Search for dark matter and transient variations in α using fibre-linked optical atomic clocks*
[Slides available: moriond.in2p3.fr/2019/Gravitation/Program.html]

[18] AIP2018, Australian Institute of Physics Congress, University of Western Australia, Perth, December 2018.
Talk: *Searching for transient dark matter signatures with atomic clock networks*
Talk: *Ionisation signatures of GeV–scale dark matter due to absorption and scattering off electrons*

[19] ACES Workshop, Technical University of Munich, Germany, October 2018.
Talk: *Searching for transient dark matter signatures with atomic clock networks*

[20] **Invited:** MG15 – Fifteenth Marcel Grossmann Meeting, University of Rome, La Sapienza, Rome, July 2018.
Invited talk: *Searching for transient dark matter signatures with atomic clocks*

[21] NASA Fundamental Physics Workshop, La Jolla, CA, USA, April 2018.
Talk: *Searching for dark matter and exotic physics with atomic clocks and GPS*
[Slides available: https://icpi.nasaprs.com/fpws2018]

[22] **Invited:** New Directions in Dark Matter and Neutrino Physics, Perimeter Institute for Theoretical Physics, Waterloo, Canada, July 2017.
Invited talk: *Searching for dark matter with GPS and global networks of atomic clocks* [Recording and slides available: PIRSA Number: 17070027]

[23] DAMOP (APS Division of Atomic, Molecular and Optical Physics), Sacramento Convention Center, CA, USA, June 2017.
Talk: *Searching for dark matter and exotic physics with atomic clocks and the GPS constellation*
Poster: *Electron-interacting WIMPs: Can dark matter scattering on electrons explain the DAMA annual modulation signal?* [Slides available at doi:10.13140/RG.2.2.11038.95045]

[24] APS April Meeting, Marriott Wardman Park, Washington DC, USA, January 2017.
Poster: *Electron-interacting WIMPs: Can dark matter scattering on electrons explain the DAMA annual modulation signal?* [Poster available at doi:10.13140/RG.2.2.11038.95045]
Talk: *First Results of the GPS.DM Observatory: Search for Dark Matter and exotic Physics with Atomic Clocks and GPS Constellation*
- Talk was the focus of an article in *Science* Magazine [10.1126/science.aal0676].

[25] GPMFC Workshop (Topical Group on Precision Measurement & Fundamental Constants Pre-Meeting Workshop: Ultralight Dark Matter), Marriott Wardman Park, Washington DC, USA, January 2017.
Poster: *GPS.DM: Search for Dark Matter and Exotic Physics with Atomic Clocks and GPS Constellation*

[26] CosPA (13th Conference in the Symposium on Cosmology and Particle Astrophysics), Sydney Nanoscience Hub, University of Sydney, Australia, December 2016.
Talk: *First Results of the GPS.DM Observatory: Search for Dark Matter and Exotic Physics with Atomic Clocks and GPS Constellation*

[27] DAMOP 2016 (APS Division of Atomic, Molecular and Optical Physics), Rhode Island Convention Center, Providence, RI, USA, May 2016.
Talk: *Atomic ionization from dark matter–electron scattering: Implications for DAMA and XENON interpretation*
Poster: *GPS.DM: Search for Dark Matter and Exotic Physics with Atomic Clocks and GPS Constellation*

[28] PATRAS (11th Patras Workshop on Axions, WIMPs and WISPs), Universidad de Zaragoza, Spain, June 2015.
Talk: *Axion and WIMP phenomena in atomic systems* [Slides available at doi:10.13140/RG.2.1.4458.8963]
Talk: *New Effects of Dark Matter which are Linear in the Interaction Strength (on behalf of Victor Flambaum)* [Slides available at doi:10.13140/RG.2.1.2130.5448]
Poster: *Axion Dark Matter: New atomic detection schemes*

[29] **Invited:** The Ultra-Light Frontier, Mainz Institute for Theoretical Physics, Johannes Gutenberg University, Mainz, Germany, June 2015.
Invited talk: *Axion-induced EDMs in paramagnetic systems* [Slides available at doi:10.13140/RG.2.1.3410.3204]

[30] SSP (6th International Symposium on Symmetries in Subatomic Physics), Victoria BC, Canada, June 2015.
Talk: *Atomic Methods for Dark Matter Detection* [Slides available at doi:10.13140/RG.2.1.2623.8880]
Poster: *Axion Dark Matter: New atomic detection schemes*
Poster: *Atomic Symmetry Violation: New applications for tests of fundamental physics*

[31] CosPA (10th Conference in the Symposium on Cosmology and Particle Astrophysics Series), University of Auckland, New Zealand, December 2014.
Talk: *Manifestations of dark matter and cosmic fields in atomic phenomena*
[Slides available at doi:10.13140/2.1.1158.8167]

[32] AIP2014, Australian Institute of Physics Congress, Australian National University, Canberra, December 2014.
Talk: *Violations of fundamental symmetries in atoms and tests of unification theories*
[Slides available at doi:10.13140/2.1.3829.4083]
Poster: *Limits on P-odd interactions of cosmic fields with electrons, protons and neutrons*

[33] Australian Institute of Physics Congress, UNSW Australia, December 2012.
Poster: *Parity nonconservation in cesium and the search for physics beyond the standard model*

V. Selected coverage in popular press

[1] *'Unusual' atom helps search for dark matter – and a quicker car ride*,
Stuart Layt. The Brisbane Times, 28 February 2023. *"Queensland researchers have used an "unusual" atom of caesium to reveal the fundamental forces at work in the universe..."*

[2] *Improved modelling of nuclear structure in francium aids searches for new physics*, phys.org, 5 August 2020. *"...By combining precision experiments in atoms with high-precision atomic theory, we get a powerful way to search for new physics"*

[3] *This fundamental constant of nature remains the same even near a black hole*,
Emily Conover. Science News, 28 March 2020. *"...The work is very important because it denotes the beginning of a new type of study"*

[4] *Constants Still Constant Near Black Holes*,
M. Stephens. Physics (APS) Synopsis, 26 February 2020.
"...A spectral analysis of stars at our Galaxy's center sets the first constraints on how much the fine-structure constant varies in the vicinity of a supermassive black hole."

[5] *Is This A Good Time To Start Looking For Dark Matter?*,
C. Orzel. Forbes, 4 June 2018.
"...Other experiments, like the GPS-based dark matter search developed by Andrei Derevianko's group, don't even require new apparatus. They're looking through years of records from the clocks on the Global Positioning system satellites..."

[6] *Ultra-Accurate Clocks Lead Search for New Laws of Physics*,
G. Popkin. Quanta, 16 April 2018.
"...reported in fall 2017 that they had found no dark matter-induced hiccups in 16 years' worth of GPS data, tightening the lid on theories of such "topological" dark matter by a factor of 10^3 to 10^5..."

[7] *GPS satellites "the largest dark matter detector ever built"*,
R. A. Lovett. Cosmos, 10 November 2017.
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