

Michał Parniak-Niedojadło

Academic CV, Oct. 2026

Assistant Professor (profesor uczelni), Group Leader

published as “Michał Parniak”

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MAIN RESEARCH PROFILE AND INTERESTS

Quantum-enhanced metrology of electromagnetic fields (microwave, mm-wave and THz) with Rydberg atoms, quantum transduction, imaging and communication protocols using hybrid experimental platforms, including quantum optomechanics, cavity systems, cold and hot atomic ensembles and multimode photonic systems in the single-photon regime, also in the context of quantum imaging; hybrid discrete-/continuous-variable quantum information

EMPLOYMENT

Faculty of Physics, University of Warsaw

Warsaw, Poland

Assistant Professor (profesor uczelni), permanent faculty

2024–present

Centre for Quantum Optical Technologies, University of Warsaw

Warsaw, Poland

Group Leader of the [Quantum Optical Devices Lab](#)

2020–present

Main projects: Quantum metrology and sensing of microwave, mm-wave and THz fields with Rydberg atoms, microwave-to-optical transduction, spectroscopy with quantum light, quantum super-resolution imaging and spectroscopy, quantum communication using quantum memories

Niels Bohr Institute, University of Copenhagen

Copenhagen, Denmark

Postdoctoral Researcher in the [QUANTOP](#) laboratory led by Prof. E. S. Polzik

2018–2023

Main projects: Generation of mechanical Fock states of an ultracoherent membrane resonator and establishment of hybrid entanglement in an atomic-optomechanical system

ICFO - The Institute of Photonic Sciences

Barcelona, Spain

Summer Research Fellow in the [group of Prof. Morgan W. Mitchell](#), working on laser phase injection locking

2013

EDUCATION

University of Warsaw

Warsaw, Poland

Habilitation in physics, awarded with distinction by the Scientific Council for Physical Sciences at UW

2023

Faculty of Physics, University of Warsaw

Warsaw, Poland

PhD in physics, awarded with distinction on May 20, 2019

2015–2019

Thesis: “Multimode Quantum Optics with Spin Waves and Photons” under supervision of Prof. W. Wasilewski in the Quantum Memories

Laboratory, reviewed by Prof. H. de Riedmatten and Prof. R. Ciuryło

Main projects: Cold-atom multimode quantum memory, quantum control of spin waves, quantum-enhanced imaging, single-photon imaging devices

Faculty of Physics, University of Warsaw

Warsaw, Poland

MSc in physics, working on wavelength-convertible four-wave mixing light-atom interface with warm atoms

2013–2015

Faculty of Physics, University of Warsaw

Warsaw, Poland

BSc in physics, working on optical measurements of atomic diffusion for quantum memory applications

2010–2013

SELECTED HONOURS AND AWARDS

Rector Stefan Pieńkowski and Rector Grzegorz Białkowski Award

2025

Nagroda Rzeczypospolitej Cyfrowej

2025

Ministry scholarship for outstanding young scientists

2023

Awarded for years 2023–2026

W. Rubinowicz Prize of the Polish Physical Society (PTF)

2023

Awarded for developing techniques of controlling light-matter interactions at the quantum level

Frank Wilczek Prize, awarded by the Kościuszko Foundation and the Jagiellonian

2022

University

Awarded for achievements in quantum optics and quantum information science

National Centre for Quantum Information (KCIK, University of Gdańsk) PhD Thesis Award <i>Awarded for the best thesis in the field of quantum information</i>	2020
START Scholarship from the Foundation for Polish Science (FNP) <i>Awarded with special distinction to top candidates with “exceptional scientific achievements”</i>	2019
Ministry of Science and Higher Education (MNiSW) scholarship for best doctoral candidates <i>Awarded yearly to 100 best doctoral students in all disciplines</i>	2017
Arkadiusz Piekara Award for the best Master Thesis from the Polish Physical Society (PTF) <i>MSc Thesis: Four-photon nonlinear processes in warm rubidium vapours as a potential light-atom interface</i>	2016
Young scientist at the 73rd Lindau Nobel Laureate Meeting (Physics)	2024

FUNDING

ERC Starting Grant (Horizon Europe), European Research Council (ERC) <i>Project: QURA – quantum sensors of microwave, millimetre-wave and terahertz fields, no. 101303059</i>	2027–2032 PI; 2,000,000 EUR
MAB FENG, European Funds for a Smart Economy (FENG), Foundation for Polish Science (FNP) <i>Project: Quantum Optical Technologies – FENG (QOT-FENG), no. FENG.02.01-IP05-0017/23</i>	2025–2029 Group leader; total funding approx. 30M PLN
OPUS, National Science Centre, Poland (NCN) <i>Project: Three-dimensional Rydberg polaritonics in the quantum regime, no. 2024/53/B/ST2/04040</i>	2025–2029 PI; 2,249,802 PLN
PRELUDIUM, National Science Centre, Poland (NCN) <i>Project: Optical measurements of mmWaves near resonant structures via Rydberg atomic interface, no. 2024/53/N/ST7/02730</i>	2025–2028 Mentor; 209,840 PLN
SONATA, National Science Centre, Poland (NCN) <i>Project: Bridging microwave and optical domains with nonlinear quantum optics enabled by Rydberg atoms, no. 2021/43/D/ST2/03114</i>	2022–2026 PI; 1,720,932 PLN
PRELUDIUM, National Science Centre, Poland (NCN) <i>Project: Atomic magnetometry with bandwidth-mismatched NOON states and spectrally-resolved single-photon detection, no. 2021/41/N/ST2/02926</i>	2022–2026 Mentor; 203,130 PLN
International Research Agendas (MAB), Smart Growth Operational Programme (POIR), Foundation for Polish Science (FNP) <i>Project: Quantum Optical Technologies (QOT), no. MAB/2018/4</i>	2018–2023 Group leader; total funding (5 groups) approx. 35M PLN
PRELUDIUM, National Science Centre, Poland (NCN) <i>Project: Development of quantum imaging techniques in optical and atomic systems, no. 2017/25/N/ST2/01163</i>	2018–2020 PI; 117,600 PLN
Diamantowy Grant, Ministry of Science and Higher Education (MNiSW) <i>Project: Principles of quantum light-atom interface based on four-photon scattering in warm atomic vapors, no. DI2013 011943</i>	2014–2018 PI; 200,000 PLN

PATENTS AND PATENT APPLICATIONS

A system and a method for stabilising NIR-VIS laser to any frequency using cavity transfer lock to frequency shifted C-band stable laser <i>W. Wasilewski, M. Mazelanik, M. Parniak, S. Borówka, L. Tańska, B. Kozłowska-Glinka</i> Filings: EP EP23461571 (pending)	University of Warsaw
System for generating entangled photon pairs of multimode quantum memory for regeneration of a quantum signal at a distance, a method for generating entangled photon pairs of multimode quantum memory for regeneration of a quantum signal at a long distance <i>W. Wasilewski, M. Lipka, M. Mazelanik, M. Parniak-Niedojadło, K. Zdanowski, A. Ostasiuk, A. Leszczyński</i> Filings: PL PAT.241214 (granted); WO WO2021245529 (published); EP EP21745407.3 (pending)	University of Warsaw
System and method of characterization of very weak femtosecond pulses at the single-photon level by second-order interferometry in a time-frequency modulator system <i>W. Wasilewski, M. Lipka, M. Parniak-Niedojadło, M. Jastrzębski, S. Kurzyńska</i> Filings: PL P441074 (published); EP EP23156422 (granted as EP4269965, 2025)	University of Warsaw

INVITED AND PLENARY CONFERENCE TALKS

“Upconversion radiometry in the mm-wave domain”, New Frontiers in Quantum-Enhanced Sensing and Metrology Workshop, Durham, UK	Sep. 2026
“Quantum metrology with Rydberg atoms”, 8th International Workshop on Rydberg Atoms and Molecules (IWRAM-8), Taiyuan, China	Aug. 2026
“All-optical microwave and THz sensors based on Rydberg atoms”, 15th Light Conference, Changchun, China	June 2026
“Quantum radiometer based on Rydberg atoms”, MASQOT 2026	June 2026
“Quantum technologies: facts, myths and real-world applications in space industry”, Infoshare Gdańsk, Gdańsk, Poland	May 2026
“Radiometry with a Rydberg sensor”, CLEO: Conference on Lasers and Electro-Optics, Charlotte, NC, USA	May 2026
“Error-corrected quantum metrology of microwaves with a Rydberg sensor”, 29th Central European Workshop on Quantum Optics (CEWQO29), Vilnius, Lithuania	June 2025
“Quantum sensing with cold interacting Rydberg atoms”, Polish-French Symposium III: Advances in the physics of ultracold matter, Paris, France	June 2025
“Error-corrected quantum sensing with Rydberg atoms (and applications of Rydberg sensors)”, Optica Quantum 2.0 Conference, San Francisco, CA, USA	June 2025
“Interaction-enhanced quantum sensing with Rydberg atoms”, 827. WE-Heraeus-Seminar: Multiparameter Quantum Sensing and Metrology, Bad Honnef, Germany	Feb. 2025
“Microwave sensing with Rydberg atoms: from applications to fundamentals”, Quantum Innovators 2024, Institute for Quantum Computing, Waterloo, Canada	Nov. 2024
ESA workshop “Rydberg electric field sensors for European Space Missions”, ESTEC, Noordwijk, Netherlands	Nov. 2024
“Rydberg atom sensing of a terahertz frequency comb”, Hot Vapor Workshop 2024, Stuttgart, Germany	Sep. 2024
“Rydberg-atom transducer for sensitive detection of microwaves and mm-waves”, SPIE Sensors + Imaging / Security + Defence, Edinburgh, UK	Sep. 2024
“Rydberg atoms for quantum sensing and transduction”, MASQOT 2024	June 2024
“Continuous counting of microwave photons using room-temperature Rydberg atoms”, CMONS 2023, Warsaw, Poland	Dec. 2023
“Converting microwave photons to infrared via room-temperature Rydberg atomic vapours”, 6th International Workshop on Rydberg Atoms and Molecules (IWRAM-6), online session, Guangzhou, China (online)	Dec. 2023
48th Congress of Polish Physicists (48. Zjazd Fizyków Polskich), Gdańsk, Poland	Sep. 2023
“Tomographic imaging of cold atoms and sensing of external fields in three dimensions”, SPIE Optics + Photonics, San Diego, CA, USA	Aug. 2023
“Atomic ensembles as nodes of classical and quantum optical networks”, 23rd International Conference on Transparent Optical Networks (ICTON 2023), Bucharest, Romania	July 2023
“Continuous-wave microwave-to-optical conversion beyond the blackbody radiation noise using room-temperature atoms”, WE-Heraeus Seminar on quantum control, Bad Honnef, Germany	Mar. 2023
“Precise, super-resolved, and SI-traceable metrology of microwave and optical fields using atoms”, International Metrological Conference “New Trends in Metrology” (NTiM 2022), Lublin, Poland	Oct. 2022
Polish-Slovak-Czech Conference on Quantum and Wave Aspects of Contemporary Optics (PSC 2022), Wojanów, Poland	Sep. 2022
Quantum Optics X, Toruń, Poland	Sep. 2021
“Temporal imaging and super-resolved spectroscopy with a quantum memory”, SPIE Optics + Photonics, San Diego, CA, USA (online)	Aug. 2021
“Optical-domain spectral super-resolution enabled by a quantum memory”, Workshop on Quantum-Inspired Super-Resolution (QISR 2021) (online)	July 2021
KCIK “Trends in Quantum Information” (PhD thesis award lecture) (online)	May 2020
“Multidimensional quantum optics of spin waves”, KCIK Symposium “Quantum Resources” (hosted by Prof. R. Horodecki), Sopot, Poland	June 2018
“Spatially-multimode photonic states generated with warm and cold atomic ensemble quantum memories”, Photons Beyond Qubits 2017 workshop (hosted by Prof. J. Fiurášek), Olomouc, Czech Republic	May 2017
Symposium “Quantum Foundations and Beyond” (hosted by Prof. P. Horodecki), Sopot, Poland	2017

INVITED SEMINARS AND COLLOQUIA (SINCE 2022)

“Rydberg sensing and transduction of mm-waves”, Seminar at ONERA (with PhD defence as reviewer), ONERA / Université Paris-Saclay, Palaiseau, France	June 2026
“Frontier of electromagnetic sensing with Rydberg atoms”, Faculty of Physics, Vilnius University, Vilnius, Lithuania	Mar. 2026
“Interacting atoms in Rydberg ensembles”, Atomic Optics Department, Jagiellonian University, Kraków, Poland	Dec. 2025
“Quantum measurements of radio waves with Rydberg atoms”, Faculty of Physics and Astronomy, Adam Mickiewicz University (“Modern Trends in Physics Research”), Poznań, Poland	Nov. 2025
“Quantum Sensing with Rydberg atoms”, QuRAK joint workshop (University of Stuttgart, CFT PAS, QOT UW), Stuttgart, Germany	Oct. 2025
National University of Singapore (NUS), Singapore, Singapore	Sep. 2025
“Applied quantum sensing with Rydberg atoms”, DSO National Laboratories (DSO Tech Talks, invited), Singapore, Singapore	Sep. 2025
“Extending the coherence time of collective Rydberg qubits”, FIND	Mar. 2025
“Microwave sensing with Rydberg atoms: from applications to fundamentals”, Quantum Optics Seminar, Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark	Dec. 2024
“Microwave sensing with Rydberg atoms: from applications to fundamentals”, Colloquium, Institute of Physics, Nicolaus Copernicus University (invited), Toruń, Poland	Oct. 2024
“Microwave sensing with Rydberg atoms: from applications to fundamentals”, Durham University (invited), Durham, UK	Sep. 2024
“Detection and transduction of microwave and terahertz fields with Rydberg atoms”, Photonics Department seminar, Jagiellonian University, Kraków, Poland	Apr. 2024
“Continuous counting of microwave photons using room-temperature Rydberg atoms”, Physics seminar, Wrocław University of Science and Technology, Wrocław, Poland	Jan. 2024
“Counting of microwave photons through up-conversion based on room-temperature Rydberg atoms”, ID Quantique (invited webinar) (online)	Oct. 2023
“Quantum memories and sensors based on neutral atoms”, University of Colorado Boulder, Boulder, CO, USA	Aug. 2023
“Transduction with hot Rydberg atoms”, NIST Boulder, Boulder, CO, USA	Aug. 2023
“Optical quantum memory with processing capabilities”, Joint Quantum Institute (JQI), University of Maryland, College Park, MD, USA	June 2023
“Memories and sensors based on neutral atoms”, DEVCOM Army Research Laboratory, Adelphi, MD, USA	June 2023
Palacký University Olomouc, Olomouc, Czech Republic	Apr. 2023
“Experimental generation of large entangled states”, Atomic Optics Department, Jagiellonian University, Kraków, Poland	Nov. 2022
“Multimode quantum optics with hybrid systems”, Physics colloquium (Konwersatorium), Jagiellonian University, Kraków, Poland	Nov. 2022
“Super-resolution in the spectral domain”, Office of Naval Research (ONR)	July 2022
“Creating entangled states of atoms, photons, and optomechanics”, Palacký University Olomouc, Olomouc, Czech Republic	May 2022
“Super-resolution spectroscopy using a quantum memory”, Jagiellonian University, Kraków, Poland	Mar. 2022

SUPERVISION

PhD students

Mateusz Mazelanik – as auxiliary supervisor distinction	defended 2023, with
Michał Lipka distinction	defended 2025, with
Sebastian Borówka	ongoing, since 2022
Wiktór Krokosz	ongoing, since 2024
Stanisław Kurzyna	ongoing, since 2024
Marcin Jastrzębski	ongoing, since 2024

OTHER SCIENTIFIC ACTIVITIES

Teaching

Undergraduate classes: Physics Laboratory, Electronics Laboratory, Python programming, Linux 2016–present

Organization

Co-chair, Hot Atom Devices Special Symposium at CLEO 2024 2024

Member of the Organizing and Steering Committees, Quantum Speedup 2021 and 2022 conferences 2021–2022

President of the Optics and Photonics Student Society (OSA and SPIE student chapters) 2014–2016

Expert roles

Expert for the European Commission, final review of the EU project Stormytune (GA 899587), Paderborn 2024

Reviewer of a PhD thesis at ONERA / Université Paris-Saclay 2026

Refereeing

Nature, Physical Review Letters, Physical Review A, Optica, Communications Physics, Optics Express, Optics Letters, ... 2016–present

MAJOR PUBLICATIONS

- [1] S. Borówka, U. Pylypenko, M. Mazelanik, **M. Parniak**, “Continuous wideband microwave-to-optical converter based on room-temperature Rydberg atoms”, *Nature Photonics* **18**, 32-38 (2024), [arXiv:2302.08380](#)
- [2] S. Borówka, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Optically-biased Rydberg microwave receiver enabled by hybrid nonlinear interferometry”, *Nature Communications* **16**, 8975 (2025), [arXiv:2403.05310](#)
- [3] B. Niewelt, M. Jastrzębski, S. Kurzyna, J. Nowosielski, W. Wasilewski, M. Mazelanik, **M. Parniak**, “Experimental Implementation of the Optical Fractional Fourier Transform in the Time-Frequency Domain”, *Physical Review Letters* **130**, 240801 (2023), [arXiv:2303.13305](#)
- [4] M. Mazelanik, A. Leszczyński, **M. Parniak**, “Optical-domain spectral super-resolution via a quantum-memory-based time-frequency processor”, *Nature Communications* **13**, 691 (2022), [arXiv:2106.04450](#)
- [5] M. Lipka, **M. Parniak**, “Single-Photon Hologram of a Zero-Area Pulse”, *Physical Review Letters* **127**, 163601 (2021), [arXiv:2105.02795](#)
- [6] R. A. Thomas, **M. Parniak**, C. Østfeldt, C. B. Møller, C. Bærentsen, Y. Tsaturyan, A. Schliesser, J. Appel, E. Zeuthen, E. S. Polzik, “Entanglement between distant macroscopic mechanical and spin systems”, *Nature Physics* **17**, 228-233 (2021), [arXiv:2003.11310](#)
- [7] **M. Parniak**, M. Mazelanik, A. Leszczyński, M. Lipka, M. Dąbrowski, W. Wasilewski, “Quantum Optics of Spin Waves through ac Stark Modulation”, *Physical Review Letters* **122**, 063604 (2019), [arXiv:1804.05854](#), selected for the cover of issue 6
- [8] **M. Parniak**, M. Dąbrowski, M. Mazelanik, A. Leszczyński, M. Lipka, W. Wasilewski, “Wavevector multiplexed atomic quantum memory via spatially-resolved single-photon detection”, *Nature Communications* **8**, 2140 (2017), [arXiv:1706.04426](#)
- [9] **M. Parniak**, S. Borówka, K. Boroszko, W. Wasilewski, K. Banaszek, R. Demkowicz-Dobrzański, “Beating the Rayleigh Limit Using Two-Photon Interference”, *Physical Review Letters* **121**, 250503 (2018), [arXiv:1803.07096](#)

OTHER PEER-REVIEWED PUBLICATIONS

- [10] S. Kurzyna, B. Niewelt, M. Mazelanik, W. Wasilewski, R. Demkowicz-Dobrzański, **M. Parniak**, “Microwave-field quantum metrology with inherent robustness against detection losses enabled by Rydberg interactions”, *Nature Communications* **17**, 9013 (2026), [arXiv:2505.01506](#)
- [11] G. Ko, W. Krokosz, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Background-free calibrated electric-field imaging with Rydberg-state fluorescence and Autler-Townes splitting”, *Optics Express* **34**, 25823 (2026), [arXiv:2604.19311](#)
- [12] S. Kurzyna, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Hybrid quantum memory leveraging slow light and gradient echo duality”, *Physical Review A* **113**, 063720 (2026), [arXiv:2509.02810](#)
- [13] W. Krokosz, J. Nowosielski, B. Kasza, S. Borówka, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Electric-field metrology of a terahertz frequency comb using Rydberg atoms”, *Optica* **12**, 1854 (2025), [arXiv:2508.20698](#)
- [14] J. Nowosielski, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Superheterodyne Rydberg S-band receiver with a multi-tone local oscillator based on an atomic transition loop”, *Applied Optics* **64**, 5813 (2025), [arXiv:2501.11418](#)
- [15] B. Kasza, S. Borówka, W. Wasilewski, **M. Parniak**, “Atomic-optical interferometry in fractured loops: A general solution for Rydberg radio-frequency receivers”, *Physical Review A* **111**, 053718 (2025), [arXiv:2412.07632](#)
- [16] I. Galinskiy, G. Enzian, **M. Parniak**, E. S. Polzik, “Nonclassical Correlations between Photons and Phonons of Center-of-Mass Motion of a Mechanical Oscillator”, *Physical Review Letters* **133**, 173605 (2024), [arXiv:2312.05641](#)
- [17] S. Borówka, W. Krokosz, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Rydberg-atom-based system for benchmarking millimeter-wave automotive radar chips”, *Physical Review Applied* **22**, 034067 (2024), [arXiv:2406.04021](#)
- [18] M. Lipka, **M. Parniak**, “Super-resolution of ultrafast pulses via spectral inversion”, *Optica* **11**, 1226 (2024), [arXiv:2403.12746](#)
- [19] J. Nowosielski, M. Jastrzębski, P. Halavach, K. Łukanowski, M. Jarzyna, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Warm Rydberg atom-based quadrature amplitude-modulated receiver”, *Optics Express* **32**, 30027 (2024), [arXiv:2405.02901](#)

- [20] S. Kurzyna, B. Niewelt, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Long-lived collective Rydberg excitations in atomic gas achieved via ac-Stark lattice modulation”, *Quantum* **8**, 1431 (2024), [arXiv:2402.06513](#)
- [21] M. Lipka, **M. Parniak**, “Ultrafast electro-optic time-frequency fractional Fourier imaging at the single-photon level”, *Optics Express* **32**, 9573 (2024), [arXiv:2307.01141](#)
- [22] W. Krokosz, M. Mazelanik, M. Lipka, M. Jarzyna, W. Wasilewski, K. Banaszek, **M. Parniak**, “Beating the spectroscopic Rayleigh limit via post-processed heterodyne detection”, *Optics Letters* **49**, 1001 (2024), [arXiv:2311.10574](#)
- [23] M. Jastrzębski, S. Kurzyna, B. Niewelt, M. Mazelanik, W. Wasilewski, **M. Parniak**, “Spectrum-to-position mapping via programmable spatial dispersion implemented in an optical quantum memory”, *Physical Review A* **109**, 012418 (2024), [arXiv:2308.01793](#)
- [24] Y. He, M. Han, Q. Li, Z. Jia, B. Chen, L. Wang, **M. Parniak**, Y. Peng, “Enhanced coherent microwave-to-optics conversion based on second-order nonlinearity”, *Optics Communications* **545**, 129639 (2023)
- [25] Z. Yin, Q. Li, X. Song, Z. Jia, **M. Parniak**, X. Lu, Y. Peng, “Microwave Electrometry with Multi-Photon Coherence in Rydberg Atoms”, *Sensors* **23**, 7269 (2023), [arXiv:2302.07424](#)
- [26] M. Han, H. Hao, X. Song, Z. Yin, **M. Parniak**, Z. Jia, Y. Peng, “Microwave electrometry with bichromatic electromagnetically induced transparency in Rydberg atoms”, *EPJ Quantum Technology* **10**, 28 (2023)
- [27] M. Mazelanik, A. Leszczyński, T. Szawełło, **M. Parniak**, “Coherent optical two-photon resonance tomographic imaging in three dimensions”, *Communications Physics* **6**, 165 (2023), [arXiv:2210.12110](#)
- [28] S. Kurzyna, M. Jastrzębski, N. Fabre, W. Wasilewski, M. Lipka, **M. Parniak**, “Variable electro-optic shearing interferometry for ultrafast single-photon-level pulse characterization”, *Optics Express* **30**, 39826 (2022), [arXiv:2207.14049](#)
- [29] S. Borówka, U. Pylypenko, M. Mazelanik, **M. Parniak**, “Sensitivity of a Rydberg-atom receiver to frequency and amplitude modulation of microwaves”, *Applied Optics* **61**, 8806 (2022), [arXiv:2206.11829](#)
- [30] F. Albarelli, M. Mazelanik, M. Lipka, A. Streltsov, **M. Parniak**, R. Demkowicz-Dobrzański, “Quantum Asymmetry and Noisy Multimode Interferometry”, *Physical Review Letters* **128**, 240504 (2022), [arXiv:2107.11057](#)
- [31] R. A. Thomas, C. Østfeldt, C. Bærentsen, **M. Parniak**, E. S. Polzik, “Calibration of spin-light coupling by coherently induced Faraday rotation”, *Optics Express* **29**, 23637 (2021), [arXiv:2103.11729](#)
- [32] M. Mazelanik, A. Leszczyński, M. Lipka, W. Wasilewski, **M. Parniak**, “Real-time ghost imaging of Bell-nonlocal entanglement between a photon and a quantum memory”, *Quantum* **5**, 493 (2021), [arXiv:2102.11805](#)
- [33] M. Lipka, **M. Parniak**, “Fast imaging of multimode transverse-spectral correlations for twin photons”, *Optics Letters* **46**, 3009 (2021), [arXiv:2101.03120](#)
- [34] M. Lipka, M. Mazelanik, **M. Parniak**, “Entanglement distribution with wavevector-multiplexed quantum memory”, *New Journal of Physics* **23**, 053012 (2021), [arXiv:2007.00538](#)
- [35] M. Lipka, M. Mazelanik, A. Leszczyński, W. Wasilewski, **M. Parniak**, “Massively-multiplexed generation of Bell-type entanglement using a quantum memory”, *Communications Physics* **4**, 46 (2021), [arXiv:2103.08269](#)
- [36] **M. Parniak**, I. Galinskiy, T. Zwerdtler, E. S. Polzik, “High-frequency broadband laser phase noise cancellation using a delay line”, *Optics Express* **29**, 6935 (2021), [arXiv:2012.08806](#)
- [37] I. Galinskiy, Y. Tsaturyan, **M. Parniak**, E. S. Polzik, “Phonon counting thermometry of an ultracoherent membrane resonator near its motional ground state”, *Optica* **7**, 718 (2020), [arXiv:2005.14173](#)
- [38] M. Mazelanik, A. Leszczyński, M. Lipka, **M. Parniak**, W. Wasilewski, “Temporal imaging for ultra-narrowband few-photon states of light”, *Optica* **7**, 203 (2020), [arXiv:1911.03995](#)
- [39] Y. L. Len, C. Datta, **M. Parniak**, K. Banaszek, “Resolution limits of spatial mode demultiplexing with noisy detection”, *International Journal of Quantum Information* **18**, 1941015 (2020), [arXiv:1911.04744](#)
- [40] M. Mazelanik, A. Leszczyński, M. Lipka, W. Wasilewski, **M. Parniak**, “Superradiant parametric conversion of spin waves”, *Physical Review A* **100**, 053850 (2019), [arXiv:1907.09001](#)
- [41] M. Lipka, A. Leszczyński, M. Mazelanik, **M. Parniak**, W. Wasilewski, “Spatial Spin-Wave Modulator for Quantum-Memory-Assisted Adaptive Measurements”, *Physical Review Applied* **11**, 034049 (2019), [arXiv:1902.07255](#)
- [42] M. Mazelanik, **M. Parniak**, A. Leszczyński, M. Lipka, W. Wasilewski, “Coherent spin-wave processor of stored optical pulses”, *npj Quantum Information* **5**, 22 (2019), [arXiv:1808.00927](#)
- [43] M. Dąbrowski, M. Mazelanik, **M. Parniak**, A. Leszczyński, M. Lipka, W. Wasilewski, “Certification of high-dimensional entanglement and Einstein-Podolsky-Rosen steering with cold atomic quantum memory”, *Physical Review A* **98**, 042126 (2018), [arXiv:1711.08948](#)
- [44] M. Lipka, **M. Parniak**, W. Wasilewski, “Microchannel plate cross-talk mitigation for spatial autocorrelation measurements”, *Applied Physics Letters* **112**, 211105 (2018), [arXiv:1805.04106](#)
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