

Curriculum Vitae – Prof. Michał Matuszewski

Personal data:

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Professional Experience:

- 2023- Professor at the Center for Theoretical Physics of the Polish Academy of Sciences, Warsaw, Poland.
- 2018-2023 Deputy head of the Division of Theoretical Physics (ON 5) at the Institute of Physics of the Polish Academy of Sciences.
- 2015-2018 Head of the Quantum Optics Group (ON 2.6) at the Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland.
- 2022- Full professor at the Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland.
- 2013-2022 Associate professor (profesor nadzwyczajny, profesor instytutu) at the Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland.
- 2010-2013 Assistant professor (adiunkt) at the Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland.
- 2009-2010 ARC Australian Postdoctoral Fellow (APD) at the Nonlinear Physics Centre, Research School of Physical Sciences and Engineering, Australian National University, Canberra.
- 2007-2008 Postdoctoral Fellow at the Nonlinear Physics Centre, Research School of Physical Sciences and Engineering, Australian National University, Canberra.

Qualifications:

- 2021 Professor title granted by the President of the Republic of Poland.
- 2012 DSc (habilitation) in Theoretical Physics, Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland.
- 2007 PhD in Theoretical Physics, Faculty of Physics, Warsaw University, „Poszukiwanie wielowymiarowych solitonów optycznych przy użyciu metod wariancyjnych”, supervisor: dr hab. Marek Trippenbach.
- 2004-2007 Postgraduate studies at the Warsaw University, Faculty of Physics, Chair for Quantum Optics and Atomic Physics, supervisor: dr hab. Marek Trippenbach.
- 2004 MSc in Theoretical Physics, Faculty of Physics, Warsaw University, „Badanie propagacji impulsów świetlnych w nieliniowych ośrodkach optycznych”, supervisor: dr hab. Marek Trippenbach.
- 1999-2004 Undergraduate studies at the Warsaw University, Individual Inter-faculty Studies in Mathematics and Natural Sciences.
- 2003 BSc in Computer Science at the Faculty of Mathematics, Informatics, and

Mechanics, Warsaw University.

Prizes, Awards, and Fellowships:

- Scholarship for outstanding young scientists, Ministry of Science and Higher Education (2012-2015).
- Stefan Pieńkowski award of the Polish Academy of Sciences in the field of Physics and Astronomy (2011).
- “HOMING PLUS” research fellowship, Foundation for Polish Science, 2010-2012.
- Australian Postdoctoral Fellowship (APD) three-year research fellowship funded by the Australian Research Council (ARC), 2009-2011.
- Oliphant Endowment Fund Postdoctoral Fellowship, two-year research fellowship at the Australian National University, 2008-2009.
- Scholarship for the best young scientists (START), Foundation for Polish Science, 2006 and 2007,
- Scholarship of the Minister of Education of Poland, 1999, 2002-2003 and 2003-2004,
- Bronze medal at the 40th International Mathematical Olympiad, Bucharest (1999),
- Four prizes of polish Mathematics and Physics Olympiads, 1998 and 1999,
- Scholarship from the Polish Childrens’ Fund (1998-99),
- Scholarship from the Prime Minister of Poland (1998).

Research areas:

- Exciton-polaritons in semiconductor microcavities,
- Optical neural networks, machine learning,
- Bose-Einstein condensates, superfluidity,
- Nonequilibrium phase transitions, spontaneous symmetry breaking and defect formation,
- Solitons in continuous and periodic nonlinear media, nonlinear optics.

Other activities:

- Member of Scientific Councils of the Institute of Physics, Polish Academy of Sciences (2019-) and the Center of Theoretical Physics of the Polish Academy of Sciences (2023-).
- Secretary of the Scientific Council of the Institute of Physics of the Polish Academy of Sciences, (2019-2022).
- Member of the selection committee of the Director of the Institute of Physics of the Polish Academy of Sciences (2020).
- Member of the Committee on Assistant and Associate Professors of the Scientific Council of the Institute of Physics of the Polish Academy of Sciences (2019-).
- Secretary of the Committee on Independent Researchers of the Scientific Council of the Institute of Physics of the Polish Academy of Sciences (2023-).
- Member of the organizing committee of the International School and

- Conference on the Physics of Semiconductors "Jaszowiec" (2021-).
- Member of the organizing committee of the Wilhelm and Else Heraeus Foundation Seminar “Lattice-based Quantum Simulation”, December 2021.
- Member of program committees of the 10th International Conference on Spontaneous Coherence in Excitonic Systems (ICSCE 10) and the 4th International Conference on Terahertz Emission, Metamaterials and Nanophotonics (TERAMETANANO-4).
- Organizer of the meeting of the international project QuantERA-Interpol, Warsaw, 15-16 January 2020.
- Member of the Science Dissemination committee of the Minister of Science and Higher Education of Poland (2014-2016).
- Member of the Young Researchers Council, advisory committee of the Minister of Science and Higher Education of Poland (2012-2013).
- Co-organizer of the “1st Young Researchers Forum”, April 2013.
- Member of the Committee of the Australian National University Mountaineering Club (2008-2010).
- Elector of the Dean of the Faculty of Physics at the University of Warsaw (representative of PhD students, 2005).

Supervision of students:

- Piotr Stępnicki, MSc, “Polarytony w polu magnetycznym”, co-supervisor together with prof. Witold Bardyszewski, University of Warsaw, 2015.
- Michał Kulczykowski, PhD, “Procesy nierównowagowe i stany zlokalizowane w kondensatach eksytonowo-polarytonowych” (2013-2018).
- Paweł Miętki, PhD, “Exciton-Polariton Condensates with Internal Degrees of Freedom” (2016-2021).
- Andrzej Opala, PhD, “Complex dynamics of nonlinear modes of an exciton-polariton condensate” (2017-2022).
- Supervision of ~10 interns at the MSc level.

Teaching experience:

- Teaching at the Institute of Physics, Polish Academy of Sciences (60h): Lectures “Nonlinear Physics in a nutshell” and “Topological insulators”.
- Teaching at the University of Warsaw (240h): Topological insulators (Lecture, 2022/2023), Physics I, Foundations of Modern Physics, Computer Laboratory, Programming in C++, Nonlinear Optics.
- Lectures for the general public (Festiwal Nauki 2010, 2022).
- Member of the Central Committee of the Polish Physics Olympiad, 2005-2007 and 2010-2012.

Stays in external institutions:

- July-August 2005, visiting student in the group of prof. Wiesław Królikowski, Laser Physics Centre, Australian National University, Canberra.
- November 2010 , visit in the group of prof. Kai Bongs, University of Birmingham, UK.

- January-March 2011, visit in the group of prof. Yuri Kivshar, Australian National University, Canberra.
- June 2011, visit in the group of prof. Alexey Kavokin, University of Southampton, UK.
- October 2011 , visit in the group of prof. Kai Bongs, University of Birmingham, UK.
- February 2012, visit in the group of prof. Alexey Kavokin, University of Southampton, UK.
- February 2013, visit in the group of prof. Jacqueline Bloch, CNRS/LPN, France.
- February 2013, visit in the group of prof. Alberto Bramati, Université Pierre et Marie Curie - Paris 6, France.
- February-March 2014, visit in the group of dr Elena Ostrovskaya, Australian National University, Canberra.
- July 2014, visit in the group of dr Fabrice Laussy, Universidad Autonoma de Madrid.
- August 2015, visit in the group of dr Marzena Szymańska, University College London.
- October 2016, visit in the group of prof. Daniele Sanvitto, Lecce, Italy.
- March 2018, visit in the group of dr Marzena Szymańska, University College London.
- January 2019, visit in the group of dr Marzena Szymańska, University College London.
- February 2019, visit in the group of prof. Marco Fanculli, University of Milano-Bicocca.
- May 2022, one-month visit in the group of prof. Maciej Lewenstein, ICFO, Casteldefels, Spain.
- July-August 2023, two-week visit in the group of prof. Maciej Lewenstein, ICFO, Casteldefels, Spain.

Leader of research projects:

- “Neuromorphic Polariton Accelerator” (PolArt), Principal investigator, Pathfinder Open, international consortium led by the University of Warsaw, European Comission, 2023-2027.
- “Quantum Optical Networks based on Exciton-polaritons” (Q-ONE), Principal investigator, Pathfinder Challenge, international consortium led by CNR Nanotec Lecce, European Comission, 2023-2027.
- “Quantum effects and physical implementations of optical neural networks”, OPUS scheme grant 2021/43/B/ST3/00752, National Science Center, 2022-2026.
- “Pattern recognition with exciton-polariton lattices”, OPUS scheme grant 2020/37/B/ST3/01657, lead beneficiary: University of Warsaw, National Science Center, 2021-2025.
- “InterPol. Polariton lattices: a solid state platform for quantum simulations of correlated and topological states”, Principal investigator of the international consortium led by prof. Marzena Szymańska from UCL, Quant-ERA scheme grant 2017/25/Z/ST3/03032, National Science Center and European Comission, 2018-2022.
- “New quantum states in polaritonic fluids of light”, SONATA BIS

scheme grant 2016/22/E/ST3/00045, National Science Center, 2017-2022.

- “Nonequilibrium bosonic gases in semiconductors under the influence of external fields”, OPUS scheme grant 2015/17/B/ST3/02273, National Science Center, 2016-2018.
- “Nonlinear phenomena in polariton and exciton superfluids”, grant for PhD holders starting a career in research (SONATA), National Science Center, 2011-2017.
- “Kwantowe stany i przemiany fazowe w kondensatach Bosego-Einstaina ze spinem”, Iuventus Plus, Ministry of Science and Higher Education, 2012-2013.
- “Magnetic interactions in spinor Bose-Einstein condensates”, HOMING PLUS, Foundation for Polish Science, EU funded, 2010-2012.
- Discovery Project „Nonlinear optics in soft matter”, Australian Research Council, 2009-2010.

Participation in research projects:

- European Union project „Nanodesigning of atomic and molecular quantum matter” (NAME-QUAM), 2010-2012.
- Centre of Excellence for Quantum-Atom Optics (ACQAO), Australian Research Council, 2007-2010.
- Grant MNiSW N202 128539 „Dynamiczne zmiany koherencji w gazach kwantowych” (2010-2012).
- Grant KBN 2P03B 04325 „Nieliniowa Optyka Fotonów i Atomów”, Polish Ministry of Science.
- Grant MNII PBZ MIN-008/P03/2003 „Informatyka i inżynieria kwantowa”, Polish Ministry of Science (2006-2007).
- Grant MNII N202 014 31/0567 „Badania solitonów w nieliniowych ośrodkach optycznych i kondensatach Bosego-Einstaina z periodyczną modulacją” (promotorski), Polish Ministry of Science (2006-2007).

Professional memberships:

- European Physical Society,
- Mediterranean Institute of Fundamental Physics.

Referee of journals:

- Nature Photonics,
- Nature Communications,
- Physical Review Letters,
- Physical Review A,
- Physical Review B,
- Physical Review E,
- Optics Letters,
- Journal of Physics B,
- New Journal of Physics,
- Chaos, Solitons, and Fractals,
- Superlattices and Microstructures,

- Acta Physica Polonica A.

Conferences:

- ~20 invited lectures, 10 contributed oral presentations at international conferences and workshops.

Foreign languages:

- English – fluent,
- Spanish – intermediate,
- German – basic.

Refereed research papers:

1. M. Matuszewski, W. Wasilewski, M. Trippenbach, Y. B. Band, "Self-consistent treatment of the full vectorial nonlinear optical pulse propagation equation in an isotropic medium", *Opt. Commun.* **221**, 337-351 (2003). *Impact Factor: 1.58.*
2. M. Trippenbach, M. Matuszewski, E. Infeld, Cao Long Van, R. S. Tasgal, Y. B. Band, "Enhancement of third harmonic generation by wave vector mismatch to counter phase-modulation", *Opt. Commun.* **229**, 391-395 (2004). *Impact Factor: 1.58.*
3. R. S. Tasgal, M. Trippenbach, M. Matuszewski, Y. B. Band, "Highly nonlinear dynamics of third-harmonic generation by focused beams", *Phys. Rev. A* **69**, 013809 (2004). *Impact Factor: 2.9.*
4. M. Matuszewski, M. Trippenbach, B. A. Malomed, E. Infeld, A. A. Skorupski, "Two-dimensional dispersion-managed light bullets in Kerr media", *Phys. Rev. E* **70**, 016603 (2004). *Impact Factor: 2.35.*
5. M. Trippenbach, M. Matuszewski, B. A. Malomed, "Stabilization of three-dimensional matter-waves solitons in an optical lattice", *Europhys. Lett.* **70**, 8-14 (2005). *Impact Factor: 2.12.*
6. M. Matuszewski, E. Infeld, B. A. Malomed, M. Trippenbach, "Fully three dimensional breather solitons can be created using Feshbach resonance", *Phys. Rev. Lett.* **95**, 050403 (2005). *Impact Factor: 7.4.*
7. M. Matuszewski, E. Infeld, M. Trippenbach, "Stability analysis of three dimensional breather solitons in a Bose Einstein Condensate", *Proc. R. Soc. A* **461**, 3561-3574 (2005). *Impact Factor: 1.4.*
8. M. Matuszewski, C. R. Rosberg, D. N. Neshev, A. A. Sukhorukov, A. Mitchell, M. Trippenbach, M. W. Austin, W. Królikowski, Y. S. Kivshar, "Crossover from self-defocusing to discrete trapping in nonlinear waveguide arrays", *Opt. Express* **14**, 254 - 259 (2006). *Impact Factor: 3.8.*
9. M. Matuszewski, E. Infeld, B. A. Malomed, M. Trippenbach, "Stabilization of three-dimensional light bullets by a transverse lattice in a Kerr medium with dispersion management", *Opt. Commun.* **259**, 49-54 (2006). *Impact Factor: 1.58.*
10. P. Ziń, E. Infeld, M. Matuszewski, G. Rowlands, M. Trippenbach, "Method for obtaining exact solutions of the nonlinear Schrödinger equation for a double-square-well potential", *Phys. Rev. A* **73**, 022105 (2006). *Impact Factor: 2.9.*
11. E. Infeld, M. Matuszewski, M. Trippenbach, "A hybrid variational method of describing pulse splitting by dispersion management", *J. Phys. B* **39**, L113-L118 (2006). *Impact Factor: 1.76.*
12. M. Matuszewski, W. Królikowski, M. Trippenbach, Y. S. Kivshar, "Simple and efficient generation of gap solitons in Bose-Einstein condensates", *Phys. Rev. A* **73**, 063621 (2006). *Impact Factor: 2.9.*
13. E. Infeld, M. Matuszewski, C. Shino, M. Trippenbach, "Can a variational approach describe pulse splitting in a dispersion managed system?", *Optica Applicata* **36**, 575 (2006). *Impact Factor: 0.46.*
14. M. Matuszewski, B. A. Malomed, M. Trippenbach, "Spontaneous symmetry breaking of solitons trapped in a double-channel potential", *Phys. Rev. A* **75**, 063621 (2007). *Impact Factor: 2.9.*

15. M. Matuszewski, B. A. Malomed, M. Trippenbach, “Competition between attractive and repulsive interactions in two-component Bose-Einstein condensates trapped in an optical lattice”, Phys. Rev. A **76**, 043826 (2007). *Impact Factor:* 2.9.
16. M. Matuszewski, W. Królikowski, Y. S. Kivshar, “Spatial solitons and light-induced instabilities in colloidal media”, Opt. Express **16**, 1371 (2008). *Impact Factor:* 3.8.
17. M. Trippenbach, E. Infeld, J. Gocalek, M. Matuszewski, M. Oberthaler, B. A. Malomed, “Spontaneous symmetry breaking of gap solitons and phase transitions in double-well traps”, Phys. Rev. A **78**, 013603 (2008). *Impact Factor:* 2.9.
18. M. Matuszewski, T. J. Alexander, Y. S. Kivshar, “Spin-Domain Formation in Antiferromagnetic Condensates” Phys. Rev. A **78**, 023632 (2008). *Impact Factor:* 2.9.
19. M. Matuszewski, W. Królikowski, Y. S. Kivshar, “Soliton interactions and transformations in hard-sphere colloids”, Phys. Rev. A **79**, 023814 (2009). *Impact Factor:* 2.9.
20. M. Matuszewski, W. Królikowski, Y. S. Kivshar, “Bistable solitons in colloidal media”, Photonics Lett. Pol. **1**, 4 (2009).
21. N. V. Hung, M. Matuszewski, M. Trippenbach, “Matter wave soliton collisions in the quasi one dimensional potential”, Physica D **238**, 1449-1455 (2009). *Impact Factor:* 1.74.
22. M. Matuszewski, T. J. Alexander, Y. S. Kivshar, “Excited spin states and phase separation in spinor Bose-Einstein condensates”, Phys. Rev. A **80**, 023602 (2009). *Impact Factor:* 2.9.
23. M. Matuszewski, “Engineering optical soliton bistability in colloidal media”, Phys. Rev. A **81**, 013820 (2010). *Impact Factor:* 2.9.
24. M. Matuszewski, I. L. Garanovich, A. A. Sukhorukov, “Light bullets in nonlinear periodically curved waveguide arrays”, Phys. Rev. A **81**, 043833 (2010). *Impact Factor:* 2.9.
25. M. Matuszewski, T. J. Alexander, Y. S. Kivshar, “Magnetic domains in spinor Bose-Einstein condensates”, Fiz. Nizk. Temp. **36**, 883 (2010). *Impact Factor:* 0.78.
26. M. Matuszewski, “Rotonlike instability and pattern formation in spinor Bose-Einstein condensates”, Phys. Rev. Lett. **105**, 020405 (2010). *Impact Factor:* 7.4.
27. M. Matuszewski, “Ground states of trapped spin-1 condensates in magnetic field”, Phys. Rev. A **82**, 053630 (2010). *Impact Factor:* 2.9.
28. T. Świłocki, M. Matuszewski, “Controlled creation of spin domains in spin-1 Bose-Einstein condensates by phase separation”, Phys. Rev. A **85**, 023601 (2012). *Impact Factor:* 2.9.
29. M. Matuszewski, T. Taylor, A. V. Kavokin, “Exciton supersolidity in hybrid Bose-Fermi mixtures”, Phys. Rev. Lett. **108**, 060401 (2012). *Impact Factor:* 7.4.
30. M. Matuszewski, K. Bongs, J. Kronjäger , “Patterns and excitations in antiferromagnetic spinor condensates”, Phys. Rev. A **85**, 023635 (2012). *Impact Factor:* 2.9.
31. M. Matuszewski, T. C. H. Liew, Y. G. Rubo, and A. V. Kavokin , “Spin-orbital coupling and topology of spin-degenerate cold exciton gases”, Phys. Rev. B **86**, 115321 (2012). *Impact Factor:* 3.7.
32. T. Świłocki, E. Witkowska, J. Dziarmaga, M. Matuszewski, “Double universality of a quantum phase transition in spinor condensates: Modification of the Kibble-Zurek

- mechanism by a conservation law”, Phys. Rev. Lett. **110**, 045303 (2013). *Impact Factor:* 7.4.
33. E. Witkowska, J. Dziarmaga, T. Świłocki, M. Matuszewski, “Dynamics of the modified Kibble-Żurek mechanism in antiferromagnetic spin-1 condensates”, Phys. Rev. B **88**, 054508 (2013). *Impact Factor:* 3.7.
 34. P. Stępnicki, M. Matuszewski, “Tight-binding model for exciton-polariton condensates in external potentials”, Phys. Rev. A **88**, 033626 (2013). *Impact Factor:* 2.9.
 35. M. Matuszewski, E. Witkowska, “Universality in nonequilibrium condensation of exciton-polaritons”, Phys. Rev. B **89**, 155318 (2014). *Impact Factor:* 3.7.
 36. Y. Xue, M. Matuszewski, “Creation and Abrupt Decay of a Quasistationary Dark Soliton in a Polariton Condensate”, Phys. Rev. Lett. **112**, 216401 (2014). *Impact Factor:* 7.4.
 37. Emilia Witkowska, Tomasz Świłocki, Michał Matuszewski, “Thermal fluctuations and quantum phase transition in antiferromagnetic Bose-Einstein condensates”, Phys. Rev. A **90**, 033604 (2014). *Impact Factor:* 2.9.
 38. N. Bobrovska, E. A. Ostrovskaya, M. Matuszewski, “Stability and spatial coherence of nonresonantly pumped exciton-polariton condensates”, Phys. Rev. B **90**, 205304 (2014). *Impact Factor:* 3.7.
 39. T. C. H. Liew, O. A. Egorov, M. Matuszewski, O. Kyriienko, X. Ma, E. A. Ostrovskaya, “Instability-induced formation and nonequilibrium dynamics of phase defects in polariton condensates”, Phys. Rev. B **91**, 085413 (2015). *Impact Factor:* 3.7.
 40. B. Piętka, D. Zygmunt, M. Król, M. R. Molas, A. A. L. Nicolet, F. Morier-Genoud, J. Szczytko, J. Łusakowski, P. Zięba, I. Tralle, P. Stępnicki, M. Matuszewski, M. Potemski, B. Deveaud, “Magnetic field tuning of exciton-polaritons in a semiconductor microcavity”, Phys. Rev. B **91**, 075309 (2015). *Impact Factor:* 3.7.
 41. P. Stępnicki, B. Piętka, F. Morier-Genoud, B. Deveaud, M. Matuszewski, “Analytical method for determining quantum well exciton properties in a magnetic field”, Phys. Rev. B **91**, 195302 (2015). *Impact Factor:* 3.7.
 42. M. Kulczykowski, N. Bobrovska, M. Matuszewski, “Bright sink-type localized states in exciton-polariton condensates”, Phys. Rev. B **91**, 245310 (2015). *Impact Factor:* 3.7.
 43. N. Bobrovska, M. Matuszewski, “Adiabatic approximation and fluctuations in exciton-polariton condensates”, Phys. Rev. B **92**, 035311 (2015). *Impact Factor:* 3.7.
 44. L. Dominici, M. Petrov, M. Matuszewski, D. Ballarini, M. De Giorgi, D. Colas, E. Cancellieri, B. Silva Fernández, A. Bramati, G. Gigli, A. Kavokin, F. Laussy, D. Sanvitto, “Real-space collapse of a polariton condensate”, Nature Commun. **6**, 8993 (2015). *Impact Factor:* 11.47.
 45. O. Voronych, A. Buraczewski, M. Matuszewski, and M. Stobińska, “Exciton-polariton localized wave packets in a microcavity”, Phys. Rev. B **93**, 245310 (2016). *Impact Factor:* 3.7.
 46. Tomasz Świłocki, Emilia Witkowska, Michał Matuszewski, “Nonadiabatic quantum phase transition in a trapped spinor condensate”, Phys. Rev. A **94**, 043635 (2016). *Impact Factor:* 2.9.
 47. M. Kulczykowski, M. Matuszewski, “Phase ordering kinetics of a nonequilibrium exciton-polariton condensate”, Phys. Rev. B **95**, 075306 (2017). *Impact Factor:* 3.7.

48. N. Bobrovska, M. Matuszewski, T. C. H. Liew, and O. Kyriienko, “Interactive optomechanical coupling with nonlinear polaritonic systems”, Phys. Rev. B **95**, 085309 (2017). *Impact Factor:* 3.7.
49. R. Mirek, M. Król, K. Lekenta, J.-G. Rousset, M. Nawrocki, M. Kulczykowski, M. Matuszewski, J. Szczytko, W. Pacuski, and B. Piętka, “Angular dependence of giant Zeeman effect for semimagnetic cavity polaritons”, Phys. Rev. B **95**, 085429 (2017) *Impact Factor:* 3.7.
50. O. Voronych, A. Buraczewski, M. Matuszewski, M. Stobińska, “Numerical modeling of exciton–polariton Bose–Einstein condensate in a microcavity”, Computer Phys. Commun. **215**, 246–258 (2017). *Impact Factor:* 3.6.
51. B. Piętka, M. R. Molas, N. Bobrovska, M. Król, R. Mirek, K. Lekenta, P. Stępnicki, F. Morier-Genoud, J. Szczytko, B. Deveaud, M. Matuszewski, and M. Potemski, “ $2s$ exciton-polariton revealed in an external magnetic field”, Phys. Rev. B **96**, 081402(R) (2017). *Impact Factor:* 3.7.
52. B. Piętka, N. Bobrovska, D. Stephan, M. Teich, M. Król, S. Winnerl, A. Pashkin, R. Mirek, K. Lekenta, F. Morier-Genoud, H. Schneider, B. Deveaud, M. Helm, M. Matuszewski, and J. Szczytko, “Doubly Dressed Bosons: Exciton Polaritons in a Strong Terahertz Field”, Phys. Rev. Lett. **119**, 077403 (2017). *Impact Factor:* 8.5.
53. P. Miętki and M. Matuszewski, “Magnetic polarons in a nonequilibrium polariton condensate”, Phys. Rev. B **96**, 115310 (2017). *Impact Factor:* 3.7.
54. A. Gianfrate, L. Dominici, O. Voronych, M. Matuszewski, M. Stobińska, D. Ballarini, M. De Giorgi, G. Gigli, D. Sanvitto, “Superluminal X-waves in a polariton quantum fluid”, Light: Science & Applications **7**, 17119 (2018). *Impact Factor:* 14.6.
55. N. Bobrovska, M. Matuszewski, K. S. Daskalakis, S. A. Maier, S. Kéna-Cohen, “Dynamical Instability of a Nonequilibrium Exciton-Polariton Condensate”, ACS Photonics, **5**, 111 (2018). *Impact Factor:* 6.8.
56. Y. Xue, Y. Jiang, G. Wang, R. Wang, S. Feng, M. Matuszewski, “Creation of stable dark and anti-dark solitons in polariton dyad”, Optics Express **26**, 6267-6275 (2018). *Impact Factor:* 3.3.
57. T. Świślocki, A. Zembrzuski, M. Matuszewski, E. Witkowska, “Dynamic hysteresis from bistability in an antiferromagnetic spinor condensate”, Phys. Rev. A **97**, 033629 (2018). *Impact Factor:* 2.9.
58. A. Opala, M. Pieczarka, N. Bobrovska, M. Matuszewski, “Dynamics of defect-induced dark solitons in an exciton-polariton condensate”, Phys. Rev. B **97**, 155304 (2018). *Impact Factor:* 3.8.
59. Mateusz Król, Rafał Mirek, Katarzyna Lekenta, Jean-Guy Rousset, Daniel Stephan, Michał Nawrocki, Michał Matuszewski, Jacek Szczytko, Wojciech Pacuski, Barbara Piętka, “Spin polarized semimagnetic exciton-polariton condensate in magnetic field”, Scientific Reports **8**, 6694 (2018). *Impact Factor:* 4.8.
60. E. Estrecho, T. Gao, N. Bobrovska, M. D. Fraser, M. Steger, L. Pfeiffer, K. West, T. C. H. Liew, M. Matuszewski, D. W. Snoke, A. G. Truscott & E. A. Ostrovskaya, “Single-shot condensation of exciton polaritons and the hole burning effect”, Nature Communications **9**, 2944 (2018). *Impact Factor:* 12.4.
61. T. Suski, G. Staszczak, K. P. Korona, P. Lefebvre, E. Monroy, P. A. Drozdz, G. Muzioł, C. Skierbiszewski, M. Kulczykowski, M. Matuszewski, E. Grzanka, S. Grzanka, K. Pieniak, K. Gibasiewicz, A. Khachapuridze, J. Smalc-Koziorowska, L. Marona, and P. Perlin, “Switching of exciton character in double InGaN/GaN

- quantum wells”, Phys. Rev. B **98**, 165302 (2018). *Impact Factor: 3.8.*
62. Paweł Miętki, Michał Matuszewski, “Spontaneous formation of spin lattices in semimagnetic exciton-polariton condensates”, Phys. Rev. B **98**, 195303 (2018). *Impact Factor: 3.8.*
63. Andrzej Opala, Maciej Pieczarka, and Michał Matuszewski, “Theory of relaxation oscillations in exciton-polariton condensates”, Phys. Rev. B **98**, 195312 (2018). *Impact Factor: 3.8.*
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