

Curriculum vitae

PERSONAL INFORMATION

Family name, First name: Kozák, Martin
Researcher unique identifiers: ORCID: 0000-0002-6317-7079, ResearcherID: A-2605-2015,
Scopus Author ID: 15044589200
Date of birth: 1.3.1985
Nationality: Czech
URL for web site: <https://physics.mff.cuni.cz/kchfo/ooe/kozak/>
WOS data: 74 publications, 1110 citations (942 without self-citations), h-index 19

• EDUCATION

2009 – 2013 PhD degree
Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
Thesis: “The study of optical nonlinearities in semiconductors and semiconductor nanostructures”, PhD supervisor: Doc. RNDr. František Trojánek, Ph.D.
2011 RNDr. degree, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic, rigorosum thesis “Time-resolved laser spectroscopy of nanomaterials”
2008-2009 Master degree, thesis “Time-resolved laser spectroscopy of nanomaterials”
Faculty of Mathematics and Physics, Department of Chemical Physics and Optics, Charles University, Prague, Czech Republic, supervisor: Doc. RNDr. František Trojánek, Ph.D.

• CURRENT POSITION(S)

2023 – now Associate professor, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
2023 Habilitation, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
2014,
2017 – 2023 Assistant professor
Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic

• PREVIOUS POSITIONS

2015 – 2017 Postdoctoral researcher in the group of Peter Hommelhoff
Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Physics, Chair of Laser Physics, Erlangen, Germany
2010 – 2014 Junior researcher in the group of Petr Malý
Faculty of Mathematics and Physics, Department of Chemical Physics and Optics, Charles University, Prague, Czech Republic
2012, 2014 Two short-term research fellowships (18 weeks in total), University of Bergen, Department of Physics and Technology, Bergen, Norway

• FIELDS OF INTEREST

Ultrafast laser spectroscopy of semiconductors, dielectrics, 2D crystals and nanomaterials, valleytronics
Nonlinear optics, high harmonic generation and attosecond physics in solids
Ultrafast electron microscopy, free electron-photon interactions

• AWARDS

2023 Prize Neuron for young investigators in the field of physics for contributions in the research of electrons and optical phenomena

- 2022 ERC Starting Grant “Spatio-temporal shaping of electron wavepackets for time-domain electron holography” - eWaveShaper, project number: 101039339, budget: 1.836.000,- €
- 2018 Prize of Bernard Bolzano Endowment Fund, best publication in Physics, “Inelastic ponderomotive scattering of electrons at a high-intensity optical travelling wave in vacuum” published in Nature Physics.
- 2017 Prize of Ioannes Marcus Marci Spectroscopic Society for the best set of publications in 2017, title of the contribution:” Ultrafast control of free electrons using their interaction with electromagnetic fields of femtosecond laser pulses”
- 2014 Milan Odehnal Prize awarded by the Czech Physical Society for the research of ultrafast dynamics of free excitons and electron-hole liquid in monocrystalline diamond

• SUPERVISION OF STUDENTS AND POSTDOCTORAL FELLOWS

- 2014 – 2025 Supervision of 9 bachelor students, 6 master students, 6 PhD students and 2 postdoctoral fellows (defended: 9 bachelors, 5 masters, 1 PhD)
Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
- 2015 – 2017 Participation on supervision of students (2 bachelor, 5 master, 4 PhD), Supervisor: Peter Hommelhoff, Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Physics, Erlangen, Germany, 2 bachelor students obtained Ohm Prize for the best bachelor thesis at Department of Physics of Friedrich-Alexander-Universität Erlangen-Nürnberg
- 2020 – 2025 Supervision of 5 student projects supported by the Grant Agency of Charles University

• GRANTS

- 2026 – 2028 Project “Ultrafast nonresonant valleytronics in semiconductors and 2D materials”, Czech Science Foundation (26-21965S), budget: 515.000,- €, PI
- 2024 – 2028 OP JAK Excellent Research: “Teraferroics for ultra-high capacity, speed and energy-efficiency of information technology” (TERAFIT, consortium led by Institute of Physics of the Czech Academy of Sciences), CZ.02.01.01/00/22_008/0004594, total budget of the grant: 20.500.000,- €, research team member with allocated budget of approx. 100.000,- €
- 2023 – 2027 ERC Starting Grant “Spatio-temporal shaping of electron wavepackets for time-domain electron holography” (eWaveShaper), 101039339, budget: 1.835.895,- €, PI
- 2023 – 2025 Project “Role of decoherence in high-order nonlinear optical interactions”, Czech Science Foundation (23-06369S), budget: 294.000,- €, research team member
- 2022 – 2025 Lead Agency project (international project with collaborators from Germany) “Quantum coherent manipulation with free electrons via optical ponderomotive forces”, Czech Science Foundation (22-13001K), budget: 216.000,- €, PI
- 2019 – 2023 Project Primus for young promising scientists “Attosecond phenomena in solids” funded by Charles University, budget: 208.000,- €, role: PI
- 2018 – 2020 Junior project “Ultrafast processes in solids controlled by few-cycle laser pulses” funded by
Czech Science Foundation (18-10486Y), budget: 141.000,- €, PI
- 2015 – 2017 Participation on the international research programme ACHIP (Accelerator on a chip) funded by Gordon and Betty Moore foundation

• COMMUNITY SERVICE

Referee for Nature, Nature Photonics, Nature Communications, Phys. Rev. Lett., ACS Photonics, Phys. Rev. A, Phys. Rev. Appl., Appl. Phys. Lett., Opt. Express, Opt. Lett., etc., WOS data: 72 verified peer reviews

Evaluation of national and international grant applications (AFOSR, ISF, ERC, Talent VUT Brno)

• PUBLICATIONS

Peer-reviewed:

- 1) F. Trojánek, K. Židek, B. Dzurňák, **M. Kozák**, and P. Malý, „Nonlinear optical properties of nanocrystalline diamond,“ *Optics Express* 18, 1349 (2010). IF: 3.753
- 2) **M. Kozák**, F. Trojánek, B. Rezek, A. Kromka, and P. Malý, „Optical harmonic generation in nanocrystalline diamond,“ *Physica E* 44, 1300-1303 (2012). IF: 1.522
- 3) **M. Kozák**, F. Trojánek, B. Dzurňák, and P. Malý, „Two- and three-photon absorption in chemical vapor deposition diamond,“ *J. Opt. Soc. Am. B* 29, 1141-1145 (2012). IF: 2.210
- 4) **M. Kozák**, F. Trojánek, and P. Malý, „Large prolongation of free-exciton photoluminescence decay in diamond by two-photon excitation,“ *Optics Letters* 37, 2049-2051 (2012). IF: 3.385
- 5) J. Preclíková, **M. Kozák**, D. Fregenal, Ø. Frette, B. Hamre, B. T. Hjertaker, J. P. Hansen, L. Kocbach, „Excitation of Rydberg wave packets with chirped laser pulses,“ *Phys. Rev. A* 86, 063418 (2012). IF: 3.042
- 6) **M. Kozák**, F. Trojánek, T. Popelář, and P. Malý, „Dynamics of electron-hole liquid condensation in CVD diamond studied by femtosecond pump and probe spectroscopy,“ *Diamond and Related Materials* 34, 13-18 (2013). IF: 1.572
- 7) **M. Kozák**, F. Trojánek, T. Popelář, and P. Malý, „Control of condensation and evaporation of electron-hole liquid in diamond by femtosecond laser pulses,“ *Physica Status Solidi-Rapid Research Letters* 7, 278-281 (2013). IF: 2.343
- 8) **M. Kozák**, J. Preclíková, D. Fregenal, and J. P. Hansen, „State-selective Rydberg excitation with femtosecond pulses,“ *Phys. Rev. A* 87, 043421 (2013). IF: 2.991
- 9) **M. Kozák**, F. Trojánek, and P. Malý, „Optical study of carrier diffusion and recombination in CVD diamond,“ *Phys. Status Solidi A* 210, 2008 (2013). IF: 1.525
- 10) M. Kořínek, M. Schnabel, M. Canino, **M. Kozák**, F. Trojánek, J. Salava, P. Löper, S. Janz, C. Summonte, P. Malý, „Influence of boron doping and hydrogen passivation on recombination of photoexcited charge carriers in silicon nanocrystals/SiC multilayers,“ *J. Appl. Phys.* 114, 073101 (2013). IF: 2.185
- 11) **M. Kozák**, M. Kořínek, F. Trojánek, D. Hiller, S. Gutsch, M. Zacharias, P. Malý, „Hot-phonon-induced indirect absorption in silicon nanocrystals,“ *J. Appl. Phys.* 114, 173103 (2013). IF: 2.185
- 12) **M. Kozák**, F. Trojánek, P. Galář, M. Varga, A. Kromka, P. Malý, „Coherent phonon dynamics in micro- and nanocrystalline diamond,“ *Optics Express* 21, 31521 (2013). IF: 3.525
- 13) M. Kořínek, M. Schnabel, M. Canino, **M. Kozák**, F. Trojánek, J. Salava, P. Löper, S. Janz, C. Summonte, and P. Malý, “Erratum: “Influence of boron doping and hydrogen passivation on recombination of photoexcited charge carriers in silicon nanocrystal/SiC multilayers”, *J. Appl. Phys.* 114, 073101 (2013). IF: 2.185
- 14) M. Kořínek, **M. Kozák**, F. Trojánek, D. Hiller, A. Hartel, S. Gutsch, M. Zacharias, P. Malý, „Photoexcited charge carrier dynamics in silicon nanocrystal/SiO₂ superlattices,“ *Physica E* 56, 177 (2014). IF: 2.000
- 15) J. Preclíková, **M. Kozák**, D. Fregenal, and J. P. Hansen, "Optical velocity meter based on Ramsey oscillations in a double-grating setup," *Phys. Rev. A* 89, 043406 (2014). IF: 2.808
- 16) **M. Kozák**, F. Trojánek, P. Malý, „Temperature and density dependence of exciton dynamics in IIa diamond: Experimental and theoretical study,“ *Phys. Status Solidi A*, 1–7 (2014). IF: 1.648
- 17) **M. Kozák**, F. Trojánek, P. Malý, „Hot-carrier transport in diamond controlled by femtosecond laser pulses,“ *New J. Phys.* 17, 053027 (2015). IF: 3.570
- 18) **M. Kozák**, „Electron acceleration in moving laser-induced gratings produced by chirped femtosecond pulses,“ *J. Phys. B: At. Mol. Opt. Phys.* 48, 195601 (2015). IF: 1.833
- 19) J. McNeur, **M. Kozák**, D. Ehberger, N. Schönenberger, A. Tafel, A. Li, and P. Hommelhoff, „A miniaturized electron source based on dielectric laser accelerator operation at higher spatial harmonics and a nanotip photoemitter,“ *J. Phys. B: At. Mol. Opt. Phys.* 49, 034006 (2016). IF: 1.792
- 20) **M. Kozák**, J. McNeur, K. J. Leedle, H. Deng, N. Schönenberger, A. Ruehl, I. Hartl, H. Hoogland, R. Holzwarth, J. S. Harris, R. L. Byer, and P. Hommelhoff, „Transverse and longitudinal characterization of electron beam using interaction with optical near-fields,“ *Opt. Lett.* 41, 3435 (2016). IF: 3.416

- 21) J. McNeur, **M. Kozák**, N. Schönenberger, A. Li, A. Tafel, and P. Hommelhoff, „Laser-driven acceleration of subrelativistic electrons near a nanostructured dielectric grating: From acceleration via higher spatial harmonics to necessary elements of a dielectric accelerator,“ NIMA 829, 50 (2016). IF: 1.362
- 22) **M. Kozák**, J. McNeur, K. J. Leedle, H. Deng, N. Schönenberger, A. Ruehl, I. Hartl, J. S. Harris, R. L. Byer, and P. Hommelhoff, „Optical gating and streaking of free electrons with sub-optical cycle precision,“ Nat. Commun. 8, 14342 (2017). IF: 12.353
- 23) **M. Kozák**, P. Beck, H. Deng, J. McNeur, N. Schönenberger, C. Gaida, F. Stutzki, M. Gebhardt, J. Limpert, A. Ruehl, I. Hartl, O. Solgaard, J. S. Harris, R. L. Byer, and P. Hommelhoff, „Acceleration of sub-relativistic electrons with an evanescent optical wave at a planar interface,“ Opt. Express 25, 19195 (2017). IF: 3.356
- 24) **M. Kozák**, M. Förster, J. McNeur, N. Schönenberger, K. Leedle, H. Deng, J. S. Harris, R. L. Byer, and P. Hommelhoff, „Dielectric laser acceleration of sub-relativistic electrons by few-cycle laser pulses,“ NIMA 865, 84 (2017). IF: 1.336
- 25) E. Prat, S. Bettoni, M. Calvi, M. Dehler, F. Frei, P. Hommelhoff, **M. Kozák**, J. McNeur, C. Ozkan Loch, S. Reiche, A. Romann, R. Ischebeck, „Outline of a dielectric laser acceleration experiment at SwissFEL,“ NIMA 865, 87 (2017). IF: 1.336
- 26) T. Popelář, F. Trojánek, **M. Kozák**, and P. Malý, „Dynamics of photoexcited carriers in CVD diamond studied by mid-infrared femtosecond spectroscopy,“ Diam. Relat. Mater. 71, 13 (2017). IF: 2.232
- 27) **M. Kozák**, T. Eckstein, N. Schönenberger, and P. Hommelhoff, „Inelastic ponderomotive scattering of electrons at a high-intensity optical travelling wave in vacuum,“ Nat. Phys. 14, 121-125 (2018). IF: 20.113
- 28) **M. Kozák**, N. Schönenberger, and P. Hommelhoff, „Ponderomotive generation and detection of attosecond free-electron pulse trains,“ Phys. Rev. Lett. 120, 103203 (2018). IF: 9.227
- 29) J. McNeur, **M. Kozák**, N. Schönenberger, K. J. Leedle, H. Deng, A. Ceballos, H. Hoogland, A. Ruehl, I. Hartl, R. Holzwarth, O. Solgaard, J. S. Harris, R. L. Byer, and P. Hommelhoff, „Elements of a dielectric laser accelerator,“ Optica 5, 687-690 (2018). IF: 9.263
- 30) **M. Kozák**, M. Zukerstein, F. Trojánek, and P. Malý, „Simple technique for the compression of nanojoule pulses from few-cycle laser oscillator to 1.7-cycle duration via nonlinear spectral broadening in diamond,“ Opt. Lett. 43, 3654 (2018). IF: 3.866
- 31) **M. Kozák**, „Nonlinear inelastic scattering of electrons at an optical standing wave,“ Phys. Rev. A 98, 013407 (2018). IF: 2.907
- 32) **M. Kozák**, J. McNeur, N. Schönenberger, J. Illmer, A. Li, A. Tafel, P. Yousefi, T. Eckstein, and P. Hommelhoff, „Ultrafast scanning electron microscope applied for studying the interaction between free electrons and optical near-fields of periodic nanostructures,“ J. Appl. Phys. 124, 023104 (2018). IF: 2.328
- 33) M. Zukerstein, **M. Kozák**, F. Trojánek, and P. Malý, Experimental observation of anharmonic effects in coherent phonon dynamics in diamond, Diam. Relat. Mater., 90, 202 (2018). IF: 2.290
- 34) P. Yousefi, N. Schönenberger, J. Mcneur, **M. Kozák**, U. Niedermayer, and P. Hommelhoff „Dielectric laser electron acceleration in a dual pillar grating with a distributed Bragg reflector,“ Opt. Lett. 44, 1520 (2019). IF: 3.714
- 35) **M. Kozák**, T. Otobe, M. Zukerstein, F. Trojánek, and P. Malý, „Anisotropy and polarization dependence of multiphoton charge carrier generation rate in diamond,“ Phys. Rev. B 99, 104305 (2019). IF: 3.575
- 36) **M. Kozák**, „All-optical scheme for generation of isolated attosecond electron pulses,“ Phys. Rev. Lett. 123, 203202 (2019). IF: 8.385
- 37) M. Zukerstein, F. Trojánek, B. Rezek, Z. Šobán, **M. Kozák**, and P. Malý, „Coherent phonon dynamics in diamond detected via multiphoton absorption,“ Appl. Phys. Lett. 115, 161104 (2019). IF: 3.597
- 38) H. Deng K. J. Leedle, Y. Miao, D. S. Black, K. E. Urbanek, J. McNeur, **M. Kozák**, A. Ceballos, P. Hommelhoff, O. Solgaard, R. L. Byer, and J. S. Harris, „Gallium Oxide for High-Power Optical Applications,“ Adv. Opt. Mater. 8, 1901522 (2020). IF: 8.286

- 39) **M. Kozák**, M. Martínek, T. Otake, F. Trojánek, and P. Malý, „Observation of ultrafast impact ionization in diamond driven by mid-infrared femtosecond pulses,” *J. Appl. Phys.* 128, 015701 (2020). IF: 2.286
- 40) M. Zukerstein, F. Trojánek, P. Koutenský, M. Varga, A. Kromka, **M. Kozák**, and P. Malý, „Sub-picosecond electron dynamics in polycrystalline diamond films,” *Diam. Relat. Mater.* 108, 107935 (2020). IF: 2.650
- 41) **M. Kozák**, „Electron Vortex Beam Generation via Chiral Light-Induced Inelastic Ponderomotive Scattering,” *ACS Photonics* 8, 431 (2021). IF: 6.864
- 42) M. Zukerstein, **M. Kozák**, F. Trojánek, and P. Malý, „Multiphoton-excited exciton molecules in diamond,” *J. Lumin.* 231, 117774 (2021). IF: 3.280
- 43) **M. Kozák**, P. Peterka, J. Dostál, F. Trojánek, and P. Malý, Generation of few-cycle laser pulses at 2 μm with passively stabilized carrier-envelope phase characterized by f-3f interferometry, *Opt. Laser Technol.* 144, 107394 (2021). IF: 3.867
- 44) T. Chlouba, R. Shiloh, P. Forsberg, M. Hamberg, M. Karlsson, **M. Kozák**, and P. Hommelhoff, „Diamond-based dielectric laser acceleration,” *Opt. Express* 30, 505-510 (2022). IF: 3.894
- 45) **M. Kozák**, T. Ostatnický, „Asynchronous Inelastic Scattering of Electrons at the Ponderomotive Potential of Optical Waves,” *Phys. Rev. Lett.* 129, 024801 (2022). IF: 8.6
- 46) P. Suthar, F. Trojánek, P. Malý, T. J.-Y. Derrien, **M. Kozák**, „Role of Van Hove singularities and effective mass anisotropy in polarization-resolved high harmonic spectroscopy of silicon,” *Commun. Phys.* 5, 288 (2022). IF: 5.5
- 47) A. O. Slobodeniuk, P. Koutenský, M. Bartoš, F. Trojánek, P. Malý, T. Novotný, M. Kozák, „Semiconductor Bloch equation analysis of optical Stark and Bloch-Siegert shifts in monolayer WSe₂ and MoS₂,” *Phys. Rev. B* 106, 235304 (2022). IF: 3.7
- 48) P. Peterka, A. O. Slobodeniuk, T. Novotný, P. Suthar, M. Bartoš, F. Trojánek, P. Malý, **M. Kozák**, „High harmonic generation in monolayer MoS₂ controlled by resonant and near-resonant pulses on ultrashort time scales,” *APL Photonics* 8, 086103 (2023). IF: 5.4
- 49) A. O. Slobodeniuk, P. Koutenský, M. Bartoš, F. Trojánek, P. Malý, T. Novotný, **M. Kozák**, „Ultrafast valley-selective coherent optical manipulation with excitons in WSe₂ and MoS₂ monolayers,” *npj 2D Mater. Appl.* 7, 17 (2023). IF: 9.2
- 50) P. Koutenský, A. Slobodeniuk, M. Bartoš, F. Trojánek, P. Malý, **M. Kozák**, „Ultrafast Dynamics of Valley-Polarized Excitons in WSe₂ Monolayer Studied by Few-Cycle Laser Pulses,” *Nanomaterials* 13, 1207 (2023). IF: 4.4
- 51) P. Peterka, Z. Šobán, F. Trojánek, P. Malý, **M. Kozák**, „High harmonic generation enhanced by magnetic dipole resonance in an amorphous silicon metasurface,” *Opt. Express* 31, 6401 (2023). IF: 3.2
- 52) N. Laštovičková Streshkova, P. Koutenský, **M. Kozák**, „Electron vortex beams for chirality probing at the nanoscale,” *Phys. Rev. Applied* 22, 054017 (2024). IF: 4.4
- 53) N. Laštovičková Streshkova, P. Koutenský, T. Novotný, **M. Kozák**, „Monochromatization of electron beams with spatially and temporally modulated optical fields,” *Phys. Rev. Lett.* 133, 213801 (2024). IF: 9.0
- 54) P. Suthar, F. Trojánek, P. Malý, T. J.-Y. Derrien, **M. Kozák**, „Momentum-dependent intraband high harmonic generation in a photodoped indirect semiconductor,” *Commun. Phys.* 7, 104 (2024). IF: 5.8
- 55) P. Peterka, F. Trojánek, P. Malý, **M. Kozák**, „Noncollinear phase-matching of high harmonic generation in solids,” *APL Photonics* 9, 116110 (2024). IF: 5.3
- 56) M. C. Chirita Mihaila, N. Laštovičková Streshkova, **M. Kozák**, „Light-Based Chromatic Aberration Correction of Ultrafast Electron Microscopes,” *Phys. Rev. Lett.* 134, 203802 (2025). IF: 9.0
- 57) A. Gindl, P. Suthar, F. Trojánek, P. Malý, Thibault J.-Y. Derrien, **M. Kozák**, „Attosecond Control of Solid-State High Harmonic Generation Using $\omega-3\omega$ Fields,” *Phys. Rev. Lett.* 134, 176903 (2025). IF: 9.0

- 58) K. Moriová, P. Koutenský, M. C. Chirita Mihaila, **M. Kozák**, „Temporal characterization of femtosecond electron pulses inside ultrafast scanning electron microscope“, *Rev. Sci. Instrum.* 96, 063706 (2025). IF: 1.7
- 59) A. Gindl, M. Čmel, F. Trojánek, P. Malý, **M. Kozák**, „Ultrafast room-temperature valley manipulation in silicon and diamond“, *Nat. Phys.* 21, 947–952 (2025). IF: 18.4
- 60) M. Kuchař, K. Moriová, **M. Kozák**, „Analysis of electron spectra dynamics in a moving periodical ponderomotive potential“, *J. Phys. B: At. Mol. Opt. Phys.* 58, 055401 (2025). IF: 1.5
- 61) M. C. Chirita Mihaila, **M. Kozák**, „Design for light-based spherical aberration correction of ultrafast electron microscopes“, *Opt. Express* 33, 758–775 (2025). IF: 3.3
- 62) F. J. García de Abajo, A. Polman, C. I. Velasco, M. Kociak, L. H. G. Tizei, O. Stéphan, S. Meuret, T. Sannomiya, K. Akiba, Y. Auad, A. Feist, C. Ropers, P. Baum, J. H. Gaida, M. Siviš, H. Lourenço-Martins, L. Serafini, J. Verbeeck, A. Konečná, N. Talebi, B. M. Ferrari, C. J. R. Duncan, M. G. Bravi, I. Ostroman, G. M. Vanacore, E. Nussinson, R. Ruimy, Y. Adiv, A. Niedermayr, I. Kaminer, V. Di Giulio, O. Kfir, Z. Zhao, R. Shiloh, Y. Morimoto, **M. Kozák**, P. Hommelhoff, F. Barantani, F. Carbone, F. Chahshouri, W. Albrecht, S. Rey, T. Coenen, E. Kieft, H. L. Lalande Robert, F. de Jong, and M. Solà-Garcia, „Roadmap for quantum nanophotonics with free electrons“, *ACS Photonics* 12, 4760 (2025). IF: 6.7
- 63) P. Koutenský, N. Laštovičková Streshkova, K. Moriová, M. C. Chirita Mihaila, A. Knápek, D. Burda, **M. Kozák**, „Ultrafast 4D Scanning Transmission Electron Microscopy for Imaging of Localized Optical Fields“, *ACS Photonics* 12, 4452–4459 (2025). IF: 6.7
- 64) M. C. Chirita Mihaila, P. Koutenský, K. Moriová, **M. Kozák**, „Light-based electron aberration corrector“, *Nat. Photonics* 19, 1309–1314 (2025). IF: 32.9

Popularization:

- 1) **M. Kozák**, „Attosekundové elektronové pulzy pro zobrazování ultrarychlých procesů v nanosvětě“, *Československý časopis pro fyziku* 68, 286 (2018).
- 2) **M. Kozák**, „Stimulované nepružné interakce volných elektronů se světlem“, *Čs. čas. fyz.* 73 (4), 267 (2023).
- 3) **M. Kozák**, „Attosekundová fyzika – elektrony surfují na světelných vlnách“, *Čs. čas. fyz.* 73 (6), 438 (2023).
- 4) J. Preclíková, **M. Kozák**, Nobelova cena za fyziku 2023 – výprava do světa attosekund, *Pokroky matematiky, fyziky a astronomie* 69, 1–14 (2024).

Conference proceedings:

- 1) M. Kořínek, **M. Kozák**, F. Trojánek, D. Hiller, A. M. Hartel, S. Gutsch, M. Zacharias, P. Malý, „Effect of temperature on photoexcited charge carrier dynamics in Si-NCs/SiO₂ superlattices“, *Proc. of SPIE* 8807, 88070V-1 (2013).
- 2) M. Pokorný, **M. Kozák**, F. Trojánek, J. Pangráč, A. Hospodková, „InAs Quantum Dots Covered by GaAsSb Strain Reducing Layer“, DOI: 10.1007/978-94-017-9133-5_63 Conference: INTERNATIONAL SCHOOL OF ATOMIC AND MOLECULAR SPECTROSCOPY, Erice, Italy, July 2013.
- 3) M. Pokorný, **M. Kozák**, F. Trojánek, J. Pangráč, A. Hospodková, „Type-I InAs quantum dots covered by GaAsSb strain reducing layer“, DOI: 10.1117/12.2061749, Conference: SPIE Optics + Photonics 2014.
- 4) H. Hoogland, J. McNeur, **M. Kozák**, P. Hommelhoff, R. Holzwarth, „Compact Ultrashort Pulsed 2.05 μm All-PM Fiber Laser For Dielectric Laser Acceleration of Non-relativistic Electrons“, DOI: 10.1364/CLEO_SI.2016.SF1I.7 Conference: CLEO: Science and Innovations, January 2016.
- 5) **M. Kozák**, T. Higuchi, J. McNeur, R. Shiloh, Ch. Heide, T. Paschen, P. Yousefi, C. Sturm, A. Li, J. Illmer, S. Meier, N. Schönenberger, P. Dienstbier, A. Tafel, P. Weber, R. Zimmermann, M. Seidling, A. Mittelbach, J. Heimerl, T. Eckstein, M. Hundhausen, J. Ristein and P. Hommelhoff, „From strong-field physics in and at nanoscale matter to photonics-based laser accelerators“, *The European Physical Journal Conferences* 205, 08009 (2019).

- 6) U. Niedermayer, A. Adelmann, S. Bettoni, M. Calvi, M. Dehler, E. Ferrari, F. Frei, D. Hauenstein, B. Hermann, N. Hiller, R. Ischebeck, C. Lombosi, E. Prat, S. Reiche, L. Rivkin, R. Aßmann, U. Dorda, I. Hartl, W. Kuropka, F. Lemery, B. Marchetti, F. Mayet, H. Xuan, J. Zhu, D. S. Black, P. N. Broaddus, R. L. Byer, A. Ceballos, H. Deng, S. Fan, J. Harris, T. Hirano, T. W. Hughes, Y. Jiang, T. Langenstein, K. Leedle, Y. Miao, A. Ody, A. Pigott, N. Sapra, O. Solgaard, L. Su, S. Tan, J. Vuckovic, K. Yang, Z. Zhao, O. Boine-Frankenheim, T. Egenolf, E. Skär, D. Cesar, P. Musumeci, B. Naranjo, J. Rosenzweig, X. Shen, B. Cowan, R. J. England, Z. Huang, H. Cankaya, M. Fakhari, A. Fallahi, F. X. Kärtner, T. Feurer, P. Hommelhoff, J. Illmer, A. Li, A. Mittelbach, J. McNeur, N. Schönenberger, R. Shiloh, A. Tafel, P. Yousefi, **M. Kozák**, M. Qi, Y. J. Lee, Y. C. Huang, and E. Simakov, "Challenges in simulating beam dynamics of dielectric laser acceleration," *Int. J. Mod. Phys. A* 34, (2019).

Invited talks at international conferences:

- 1) M. Kozák, F. Trojánek, P. Malý, „Exciton diffusion and recombination in monocrystalline CVD diamond,“ 2013 JSAP-MRS Joint Symposia, Kjóto, Japonsko, 16.-20.9.2013 (invited talk).
- 2) M. Kozák, F. Trojánek, P. Malý, „Time-resolved spectroscopy of excitons in diamond,“ Hasselt Diamond Workshop 2014 – SBDD XIX, Hasselt, Belgie, 19.-21.2.2014 (invited talk).
- 3) M. Kozák, J. McNeur, N. Schönenberger, A. Li, A. Tafel, and P. Hommelhoff, „Dielectric laser acceleration of sub-relativistic electrons – towards realization of accelerators on chip,“ Outlook on Wake Field Acceleration: the Next Frontier, Geneve, 15-16.10.2015 (invited talk).
- 4) M. Kozák, J. McNeur, N. Schönenberger, A. Li, A. Tafel, and P. Hommelhoff, „Dielectric laser acceleration of sub-relativistic electrons – recent experimental progress,“ Physics and Applications of High Brightness Beams 28.3.-1.4.2016, Havana, Cuba (invited talk).
- 5) M. Kozák, J. McNeur, N. Schönenberger, A. Li, A. Tafel, J. Illmer and P. Hommelhoff, „Nanotip electron sources for dielectric laser acceleration,“ Photocathode Physics for Photoinjectors (P3), October 17-19, 2016, Newport News, VA (invited talk).
- 6) M. Kozák (on behalf of P. Hommelhoff), „Photoemission of electrons from sharp needle tips driven by femtosecond laser pulses: a tutorial,“ Photocathode Physics for Photoinjectors (P3), October 17-19, 2016, Newport News, VA (invited talk).
- 7) M. Kozák, P. Hommelhoff, Electron-matter interaction at short times, StEM Workshop at Ringberg Castle, Lake Tegernsee, Germany, January 18 - 20, 2017 (invited talk).
- 8) M. Kozák, N. Schönenberger, P. Hommelhoff, „Generation of attosecond electron pulses by inelastic ponderomotive scattering at an optical traveling wave,“ Photocathode Physics for Photoinjectors Workshop (P3), Santa Fe, New Mexico, USA, October 15-17, 2018 (invited talk).
- 9) M. Kozák, N. Schönenberger, P. Hommelhoff, „Ponderomotive generation and detection of attosecond electron pulses,“ Tenth International Conference on Charged Particle Optics (CPO-10), Key West, Florida, USA, October 17 to 21, 2018 (invited talk).
- 10) M. Kozák, T. Eckstein, N. Schönenberger, and P. Hommelhoff, „Acceleration and compression of electrons via two-color ponderomotive scattering,“ Physics and applications of high brightness beams, Aquila Rithymna Hotel, Rethimno, Crete, April 8-12, 2019 (invited talk).
- 11) M. Kozák, „Sub-cycle control of electrons for ultrafast imaging experiments,“ Science with coherent XUV sources, HHG&MAC workshop, ELI Beamlines, Dolní Břežany, Prague, Czech Republic, 6-7 May 2019 (invited talk).
- 12) M. Kozák, M. Zugerstein, M. Martínek, F. Trojánek and P. Malý, „Interaction of strong optical fields with diamond - towards ultrafast control of electronic excitations,“ ALT19, Hotel Olšanka, Prague, Czech Republic, 16.-20.9.2019 (invited talk).
- 13) M. Kozák, Interaction of strong optical fields with diamond – towards ultrafast control of electronic excitations, 4th BIATRI Workshop, 9.–10. 12. 2020, HILASE, Prague. (online meeting, invited talk)
- 14) M. Kozák, Optical strong-field phenomena in crystalline solids driven by few-cycle mid-infrared laser pulses, UltrafastLight-2021, Lebedev Physical Institute, Moscow, 5.10.2021. (online talk)

- 15) M. Kozák, Optical ponderomotive control of free electrons – from inelastic scattering to quantum coherent interactions, Quantum Electron Optics, 770. WE-Heraeus-Seminar, Nahsholim Beach Resort, Izrael, 27.-30.6.2022. (invited talk)
- 16) M. Kozák, Electron-photon interactions for advanced electron microscopy, 21. konferencia českých a slovenských fyziků, Bratislava, 5.9.2023. (invited talk)
- 17) M. Kozák, Inelastic interaction of electrons with ponderomotive potential of light – towards complex shaping of free-electron wavefunction, IMC20, Busan, Korea, 10.9.2023. (invited talk)
- 18) M. Kozák, *Electron-photon interactions for advanced electron microscopy*, OPTO2024, Prague, Czech Republic, 22.-26. 7. 2024. (invited talk)
- 19) M. Kozák, *Electron-photon interactions for advanced electron microscopy*, MRS Fall Meeting & Exhibit 2024, Boston, MA, USA, 1.-6.12.2024. (invited talk)
- 20) M. Kozák, Electron wave shaping in space and time using structured light, EBSN 2025, ICFO, Barcelona, Spain, 29-31.10.2025 (invited talk).