

Publication list of Beata Ziaja-Motyka up to 09.05.2022

I. Research with Free-Electron Lasers

Research Articles:

117 I. Inoue et al. (BZ), "*Delayed onset and directionality of x-ray-induced atomic displacements observed on subatomic length scales*",
Phys. Rev. Lett. (2022), accepted.

116 V. Lipp et al. (BZ), "*Density Functional Tight Binding approach utilized to study X-ray-induced transitions in solid materials*",
Sci. Rep. 12, 1551(2022).

115 N. Medvedev et al. (BZ), "*Structural stability and electron-phonon coupling in two-dimensional carbon allotropes at high electronic and atomic temperatures*",
Carbon Trends 5, 100121 (2021).

114 J. E et al. (BZ), "*Effects of radiation damage and inelastic scattering on single-particle imaging of hydrated proteins with an X-ray Free-Electron Laser*",
Sci. Rep. 11(1), 17976 (2021).

113 B. Ziaja et al., "*Tracing X-ray-induced formation of warm dense gold with Boltzmann kinetic equations*",
EPJD 75, 224 (2021).

112 N. Medvedev et al. (BZ), "*Response of free-standing graphene monolayer exposed to ultrashort intense XUV pulse from free-electron laser*", J. Chem. Phys. 154, 204706 (2021).

111 V. Tkachenko et al. (BZ), "*Limitations of Structural Insight into Ultrafast Melting of Solid Materials with X-ray Diffraction Imaging*",
Appl. Sci. 11, 5157 (2021).

110 I. Inoue et al. (BZ), "*Atomic-Scale Visualization of Ultrafast Bond Breaking in X-Ray-Excited Diamond*",
Phys. Rev. Lett. 126, 117403 (2021).

109 Y. Kumagai et al. (BZ), "*Suppression of thermal nanoplasma emission in clusters strongly ionized by hard x-rays*",
J. Phys. B 54(4), 044001 (2021).

108 V. Tkachenko et al. (BZ), "*Effect of Auger recombination on transient optical properties in XUV and soft X-ray irradiated silicon nitride*",
Sci. Rep. 11, 5203 (2021).

107 J. J. Bekx, S.-K. Son, B. Ziaja, R. Santra, "*Electronic-structure calculations for nonisothermal warm dense matter*",

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Sci. Rep. 10(1), 10780 (2020).

105 I. Milov et al. (BZ), "*Two-level ablation and damage morphology of Ru films under femtosecond extreme UV irradiation*"
Appl. Surf. Sci. 528, 146952 (2020).

104 K. Nass et al. (BZ), "*Structural dynamics in proteins induced by and probed with X-ray free-electron laser pulses*",
Nat. Commun. 11(1), 1814 (2020).

103 Y. Kumagai et al. (BZ), "*Real-time observation of disintegration processes within argon clusters ionized by a hard-x-ray pulse of moderate fluence*"
Phys. Rev. A 101(2), 023412 (2020).

102 V. Tkachenko, S. Toleikis, V. Lipp, B. Ziaja, U. Teubner, "*Time-resolved investigation of the optical phase change as a potential diagnostics tool for extreme-ultraviolet free-electron-laser pump and optical probe experiments*",
Opt. Lett. 45(1), 33 - 36 (2020).

101 I. Milov et al. (BZ), "*Similarity in ruthenium damage induced by photons with different energies: From visible light to hard X-rays*"
Appl. Surf. Sci. 501, 143973 (2020).

100 V. Tkachenko et al. (BZ), "*Time-resolved ionization measurements with intense ultrashort XUV and X-ray free-electron laser pulses*",
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99 T.-H. Dinh et al. (BZ), "*Controlled strong excitation of silicon as a step towards processing materials at sub-nanometer precision*",
Commun. Phys. 2(1), 150 (2019).

98 M. Makita et al. (BZ), "*X-ray induced non-thermal transition of bismuth on femtosecond timescales*",
Sci. Rep. 9, 602 (2019).

97 R. Follath et al. (BZ), "*X-ray induced damage of B4C-coated multilayer materials under various irradiation geometries*",
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96 K. Mecseki et al. (BZ), "*Hard X-ray induced fast secondary electron cascading processes in solids*",
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91 M. Toufarová et al (BZ), "Contrasting behavior of covalent and molecular carbon allotropes exposed to extreme ultraviolet and soft x-ray free-electron laser radiation", *Phys. Rev. B* 96, 214101 (2017).

90 C. Fortmann-Grote et al. (BZ), "Start-to-end simulation of single particle imaging using ultrashort pulses at the European X-ray Free Electron Laser", *IUCrJ* 4, 560 (2017).

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83 C. H. Yoon, M. V. Yurkov, E. A. Schneidmiller, L. Samoylova, A. Buzmakov, Z. Jurek, B. Ziaja, R. Santra, N. D. Loh, T. Tschentscher, A. P. Mancuso, "A comprehensive simulation framework for imaging single particles and biomolecules at the European X-ray Free-Electron Laser", *Sci. Rep.* 6 (2016) 24791.

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- 81** V. Tkachenko, N. Medvedev, Z. Li, P. Piekarz, B. Ziaja , "*Transient optical properties of semiconductors under femtosecond x-ray irradiation* ",
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- 80** V. Saxena, B. Ziaja , "*Hydrodynamic model for expansion and collisional relaxation of x-ray laser-excited multi-component nanoplasma* ",
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- 77** T. Tachibana et al. (BZ), "*Nanoplasma formation by high intensity hard x-rays* ",
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- 75** B. Ziaja, Z. Jurek, N. Medvedev, V. Saxena, S-K. Son, R. Santra, "*Towards realistic simulations of macromolecules irradiated under the conditions of coherent diffraction imaging with an X-ray Free-Electron Laser* ",
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- 74** N. Medvedev, Z. Li, B. Ziaja , "*Thermal and nonthermal melting of silicon under femtosecond x-ray irradiation* ",
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- 73** N. Medvedev, V. Tkachenko, B. Ziaja , "*Modeling of nonthermal solid-to-solid phase transition in diamond irradiated with femtosecond X-ray FEL pulse* ",
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- 71** S.-K. Son, R. Thiele, Z. Jurek, B. Ziaja, R. Santra , "*Quantum-mechanical calculation of Ionization-potential lowering in dense plasmas*",
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- 70** Z. Jurek, B. Ziaja, R. Santra, "*Applicability of the classical molecular dynamics method to study x-ray irradiated molecular systems*",
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- 67** J. Gaudin, N. Medvedev et al. (B. Ziaja), "*Photon energy dependence of graphitization threshold for diamond irradiated with intense XUV FEL pulse*",
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- 66** L. Mueller, C. Gutt, B. Pfau, S. Schaffert, J. Geilhufe, F. Buettner, J. Mohanty, S. Flewett, R. Treusch, S. Duesterer, H. Redlin, A. Al-Shemmary, M. Hille, A. Kobs, R. Froemter, H. P. Oepen, B. Ziaja, N. Medvedev, S.-K. Son, R. Thiele, R. Santra, B. Vodungbo, J. Luening, S. Eisebitt, G. Gruebel , "*Breakdown of the X-Ray resonant magnetic scattering signal during intense pulses of extreme ultraviolet free-electron-laser radiation*" ,
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- 65** N. Medvedev, B. Ziaja, M. Cammarata, M. Harmand, S. Toleikis
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- 64** R. Riedel, A. Al-Shemmary, M. Gensch, T. Golz, M. Harmand, N. Medvedev, M. J. Prandolini, K. Sokolowski-Tinten, S. Toleikis, U. Wegner, B. Ziaja, N. Stojanovic, F. Tavella , "*Single-shot pulse duration monitor for extreme ultraviolet and X-ray free-electron lasers*" ,
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- 63** M. Harmand, R. Coffee, M. R. Bionta, M. Chollet, D. French, D. M. Fritz, H. T. Lemke, N. Medvedev, B. Ziaja, S. Toleikis, M. Cammarata , "*Achieving few-femtosecond time-sorting at hard X-ray free electron lasers*" ,
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II. High Energy Physics

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Habilitation Thesis

1 B. Ziaja, "*Analiza spolaryzowanego rozpraszania głębokonieelastycznego w obszarze małych wartości zmiennej x Bjorkena z uwzględnieniem resumacji poprawek logarytmicznych, $\ln^2(1/x)$.*", Rep. 1922/PH of the INP, Krakow, April 2003, 23 pages. Thesis (in Polish) was written in partial fulfillment of the requirements for the degree of Doctor Habilitatus at the Institute of Nuclear Physics in Krakow. The English translation of the title is: "*Analysis of the polarized deep inelastic scattering at low values of Bjorken x , including the resummation of logarithmic corrections, $\ln^2(1/x)$.*".