Curriculum Vitae of Nikita Medvedev, Ph.D.

First Name	Nikita
Family Name	Medvedev
Date of birth	December 26, 1983
Place of birth	Aktyubinsk
Nationality	Russian
Marital Status	Married; 1 child
Current position	Group leader

Institute of Physics and Institute of Plasma Physics,
Academy of Science of Czech Republic,
Na Slovance 1999/2, 18221 Prague 8,
Czech Republic

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ORCID: https://orcid.org/0000-0003-0491-1090
ResearcherID: https://publons.com/researcher/F-4089-2011/
ResearchGate: https://www.researchgate.net/profile/Nikita_Medvedev
Google-scholar: http://scholar.google.ru/citations?hl=en&user=ZSsgwYcAAAAJ

Education

2007 – 2011 **PhD student, graduated on March 23, 2011**
at Technical University of Kaiserslautern. Germany.
Thesis: "*Excitation and relaxation of the electronic subsystem of materials after high energy deposition*",
https://kluedo.ub.uni-kl.de/frontdoor/index/index/docId/2764
Defended with the final results of 1.1 (Sehr Gut; Magna Cum Laude)

2005 –2007 **Master of Science, graduated on June 28, 2007**
at Moscow Engineering Physics Institute (StateUniversity). Russia.
Speciality: Applied Mathematics and Physics.
Thesis: "*Monte-Carlo modeling of excitation and relaxation of electronic subsystem of dielectric in tracks of swift heavy ions*"
Defended with the final result "excellent"

2001 –2005 **Bachelor of Science, graduated on August 29, 2005**
at Moscow Engineering Physics Institute (State University).Russia.
Speciality: Applied Mathematics and Physics.
Thesis: "*Analysis of ionization equilibrium conditions in tracks of swift heavy ions*"
Defended with the final result "excellent"

1990 – 2001 **Secondary Comprehensive School No. 5**, Kirzhach,Vladimirskaya obl., Russia.
Graduated with distinction (silver medal) on June 22, 2001.

1991 – 1998 **Music School No. 3**, Kirzhach, Vladimirskaya oblast, Russia. Speciality: Piano

Work experience

04/2016 – up to now
Group leader (and deputy group leader)
Institute of Physics and Institute of Plasma Physics,
Academy of Science of Czech Republic,
Na Slovance 1999/2, 18221 Prague 8,
Czech Republic
(department of Prof. L. Juha)

04/2014 –03/2016
PostDoctoral researcher
Centre for Free-Electron Laser Science
CFEL-DESY Theory Division, Hamburg, Germany
(research group of Prof. B. Ziaja-Motyka, Prof. R. Santra)

08/2015 –08/2015
Visiting researcher (invited)
Argonne National Laboratory, Argonne, IL, USA
(research group of Prof. K.-J. Kim)

06/2015 –06/2015
Visiting researcher (invited)
SLAC National Accelerator Laboratory, Stanford, CA, USA
(research group of Prof. S. Glenzer)

04/2011 –04/2014
PostDoctoral researcher
Centre for Free-Electron Laser Science, DESY, Hamburg, Germany
(research group of Prof. B. Ziaja-Motyka, Prof. R. Santra)

09/2007 –03/2011
Doctoral researcher
Fachbereich Physik, Technical University of Kaiserslautern, Germany
(research group of Prof. B. Rethfeld)

02/2004 – 09/2007
Student scientific practice (Bachelor and Master theses)
Institute of General and Nuclear Physics, Russian Research Centre
'Kurchatov Institute'. Moscow, Russia
(research group of Dr. A.E. Volkov)

06/2006 – 12/2006
Invited researcher. Experimental and theoretical studies
of general aspects of swift heavy ion tracks formation
Material Research Department, GSI, Darmstadt, Germany
(research group of Prof. K. Schwartz, Prof. R. Neumann)

08/2005– 10/2005
Summer student program. Participation in experiments.
Material Research Department, GSI, Darmstadt, Germany
(group of Dr. M. Lang, Prof. K. Schwartz, Prof. R. Neumann)

Honors / Awards

2021
Shared First Prize in the section "IV. Applied Physics Research" of JINR annual prizes for best papers in the fields of scientific research, methodology, research and technology, and applied research. http://www.jinr.ru/posts/jinr-prizes-for-2020/

2018 – 2023	Representative of the Czech Republic in COST Action CA17126 "Towards understanding and modelling intense electronic excitation", Managing Committee Member
2013 – 2015	Incentive bonuses from DESY for top employees
2004 – 2007	Annual grants for Junior Scientists of RRC 'Kurchatov Institute' (researcher)
2005	Award of the annual competition of Student Researches of RRC 'Kurchatov Institute'

Science metrics

Published peer-reviewed papers: 122
Not-peer-reviewed papers (conference proceedings): 12
Book chapters: 2
(For the full list of publications, see a separate document)

According to **Web of science**:
Sum of times cited: 2,103
H-index: 25

According to **Google-scholar**:
Total citations: 3222
h-index: 32
i10-index: 80

Editorial work

1) Book: "Tools for investigating electronic excitation: experiment and multi-scale modelling"
Instituto de Fusión Nuclear "Guillermo Velarde", Universidad Politécnica de Madrid. November 24, 2021.
Editors: T. Apostolova, J. Kohanoff, N. Medvedev, E. Oliva, A. Rivera.
ISBN: 978-84-09-36032-1. DOI: 10.20868/UPM.book.69109

2) Guest editor of the Special Issue "Electron-Phonon Coupling of Metals" in Materials (ISSN 1996-1944)

Organization of conferences

- Organizing committee member, SHIM-2022, Helsinki, Finland 06/2022.
- Organizing committee member, SHIM-2020, Helsinki, Finland 06/2020 (Postponed to 2022 due to COVID19).
- Theory seminars at PALS for the Plasma Physics Institute, Prague, Czech Republic. Monthly recurring since 03/2017-2020.
- Session organizer at: SPIE Optics + Optoelectronics 2017: Damage to VUV, EUV, and X-ray Optics (XDam), Prague, Czech Republic. 04/2017.
- Chairman at: High Power Laser Oblation (HPLA) Conference, Santa Fe, New Mexico, USA. 05/2012.

Conference participations / talks

Delivered 240 presentations in conferences, workshops and reports, among which:
45 Invited talks
105 as the presenting author (135 as a coauthor)
135 oral presentations (105 posters)
(itemized list is available upon request)

Scientific interests

- Electron kinetics
- Interaction of ultrashort laser pulses with matter, free-electron lasers
- Interaction of ion beams with matter
- Effects of radiation on solids, evolution of material properties under irradiation
- Highly excited and nonequilibrium states of matter, Warm Dense Matter

Language proficiency

- Russian (perfect, mother tongue)
- English (fluent, full working proficiency)
- German (intermediate)

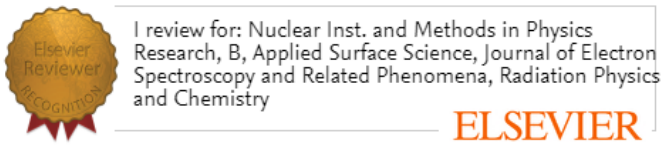
Computer skills

- (visual) FORTRAN, C/C++, Object-oriented programming
- Maple, LaTeX, Mathematica, Linux
- Some knowledge of MatLab, HTML, Java, Javascript

Developed codes / software

- **TREKIS**: Time-Resolved Electron Kinetics in SHI Irradiated Solids. A Monte Carlo simulation describing swift heavy ion penetration in matter, electronic excitation and transport, secondary electrons kinetics, energy transfer to the lattice, Auger-decays of core holes, valence holes transport, radiative core holes decay, photon transport, and electron emission.
- **XCASCADE**: X-ray-induced electron Cascades in solids. A Monte Carlo code for tracing X-ray photoabsorption or an electron impact, secondary electron cascades, and Auger-decays of core holes, within the atomic approximation, combined with the Drude model for evaluation of the evolution of the optical properties of irradiated materials.
- **XTANT**: X-ray-induced Thermal And Nonthermal Transitions. A hybrid code consisting of tight binding molecular dynamics describing atomic motion on evolving potential energy surface and transient electronic band structure; Monte Carlo simulation of photoabsorption, high-energy nonequilbirium electron kinetics, and Auger decays of core holes; rate equations and thermodynamics for evolution of low-energy electrons; Boltzmann collision integrals describing energy exchange between electrons and ions; and random phase approximation for calculations of optical properties.

Reviewing



- Awarded with

- "*Certificate of Recognized Contribution in Reviewing*", November 2018, Journal of Electron Spectroscopy (Elsevier)

- "*Certificate of Outstanding Contribution in Reviewing*", October 2018, Radiation Physics and Chemistry (Elsevier)

- "*Certificate of Recognized Contribution in Reviewing*", September 2017, Nuclear Inst. And Methods B (Elsevier)

- "*Certificate of Recognized Contribution in Reviewing*", November 2014, Applied Surface Science (Elsevier)

- Reviewer for the following journals: Nature Physics; Physical Review Letters; Physical Review B; Physical Review E; New Journal of Physics; Journal of Physics: Condensed Matter; Journal of Applied Physics; Applied Surface Science; Nuclear Inst. and Methods B; Physica Scripta; AIP Conf. Proc

- Publon verified reviews: https://publons.com/author/1178589/nikita-medvedev#profile

Seminars / Invited lectures for students

- "Brief introduction to XTANT", School of Physics, Peking University, China (distant lecture). 07/2020
- "Thermal and nonthermal processes in FEL irradiated matter", SFEL2019 – School of XFEL and Synchrotron Radiation Users, Liptovski Jan, Slovakia. 11/2019.
- "Monte Carlo methods", 1st TUMIEE Training School, Rethymno, Greece. 09/2019.
- "Introduction into warm dense matter (WDM)". Prague, Czechia. 03/2017.
- "FEL-induced electronic and atomic kinetics in solids". Hamburg, Germany. 01/2015.
- "Ultrafast electron kinetics and structural changes within FEL irradiated materials". Hamburg, Germany. 11/2013.
- "Nonthermal graphitization of diamond induced by a femtosecond X-ray laser pulse". Hamburg, Germany. 10/2013.
- "Ultrafast nonthermal processes in FEL irradiated solids". Hamburg, Germany. 05/2013.
- "Ultrafast phase transitions within FEL irradiated solids". Hamburg, Germany. 05/2013.
- "Ultrafast electron kinetics in SiO_2 under X-ray femtosecond irradiation". Hamburg, Germany. 03/2013.
- "Transient optical changes in SiO_2 irradiated with FEL". Hamburg, Germany. 07/2012.
- "Tight binding models for excited solids". Hamburg, Germany. 06/2011.
- "Extended Multiple Rate Equation". Kaiserslautern, Germany. 12/2009.
- "Monte Carlo Simulation of Electronic Excitation after Swift Heavy Ion Irradiation". Kaiserslautern, Germany. 05/2008.
- "Material Excitation in Swift Heavy Ion Tracks". Kaiserslautern, Germany. 09/2007.
- "Monte Carlo simulations of electronic excitations in swift heavy ions tracks in dielectrics". Darmstadt, Germany. 12/2006.