RNDr. Denisa Kubániová

Current residence Prague, Czech republic
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SCIENTIFIC IDENTIFIERS and METRICS

ORCID 0000-0003-3565-5878
ScopusID 56530828000
WoS ResearcherID 2521679
Scopus h-index 6 (as on 22.04.2023)
Scopus citations 140 (124 without self-citations)

EDUCATION

Expected in 2023	Ph. D. degree in **Physics of Condensed Matter and Material Research** at CUNI Faculty of mathematics and physics, Prague
2014	Mcs. degree obtained with distinction in **Biophysics and Chemical Physics** at CUNI Faculty of mathematics and physics, Prague
2014	semester ERASMUS Exchange Program stay at VU Faculty of science, Amsterdam, the Netherlands – **Molecular Theoretical Chemistry** group of Prof. Bickelhaupt
2012	Bc. degree in General Physics at CUNI Faculty of mathematics and physics, Prague
2011 - 2012	Bachelor studies in business administration at University of economics, Faculty of business administration, Prague

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COURSES and TRAINING

11/2022	ELMO-LION Educational Learning Modules on Li-ION batteries, Helsinki, Finland
09/2019	EMP Cryocourse, Košice, Slovakia
06/2017	Posnamag, Poznan, Poland
03/2015	14th DESY Research Course on X-ray Science 2015: New Trends in X-ray Scattering and Spectroscopy from Magnetic Materials, Hamburg, Germany
11/2013	TAPPO workshop, Levi, Finland
03/2013	Winter School of Synchrotron Radiation, Liptovský Ján, Slovakia
04/2013	ERASMUS Intensive Program: Physics and Materials Science of Nanostructures Probed by Intensive Particle Beams, KU Leuven, Belgium
07/2008	Summer School of Chemical Engineering, STU Bratislava, Slovakia
07/2007	Socrates Comenius Project: Young Europeans Crossing the Borders, Aizkraukles, Latvia

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RESEARCH INTERESTS and SKILLS

^{57}Fe and ^{119}Sn Mössbauer Spectroscopy (MS), Nuclear Magnetic Resonance (NMR) of Magnetically Ordered Solids, Magnetic Resonance Imaging (MRI), Magnetic Particle Imaging (MPI), Magnetic Particle Spectroscopy (MPS), X-ray Powder Diffraction (XRD), Nuclear Forward Scattering (NFS), other magnetic and structural characterization techniques in material research, ab-initio and DFT computational chemistry, data-driven modelling, experience in wet anorganic chemistry and electronics

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AWARDS

2021	**Josef Hlávka Award** for young talented researchers on the basis of a proposal by CUNI Rector
2021	Best Poster Award at Šimáně conference in Prague

2020	honorary recognition in **Milan Odehnal Prize** by Czech Physical Society for original papers papers in the field of experimental research of magnetic nanoparticles of iron oxides using nuclear spectroscopic methods

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WORK EXPERIENCE

Contracts of services at the Faculty of Sciences of Charles University (*2019 - ongoing)*
Group of Dr. Václav Tyrpekl, Department of Inorganic Chemistry

Junior Researcher at the Institute of Physics of the Czech Academy of Sciences (*09/2018 - ongoing*)
Group of Dr. Oleg Heczko, Department of Magnetic Measurements and Materials

Junior Researcher at the Faculty of Mathematics and Physics of Charles University (*01/2014 - ongoing*)
Group of Dr. Jaroslav Kohout, Department of Low-Temperature Physics

Chemical science technician at the Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences (*04/2012 – 06/2014*)
Group of Prof. Pavel Jungwirth, Molecular Modeling

Contracts of services at the Faculty of Mathematics and Physics of Charles University (*2011 - 2013)*
Group of Dr. Jaroslav Kohout, Department of Low-Temperature Physics

INDUSTRIAL PARTNERS

Chemi S.p.A. (Italy), Teva Pharmaceutical Industries Ltd. (Israel), Pliva Hrvatska d.o.o. (Croatia), Emcure Pharmaceuticals Ltd. (India), Glenmark Pharmaceuticals Ltd. and Glenmark Life Sciences Ltd. (India), Pharmathen S.a. (Greece), Avasya Labs Pvt. Ltd. (India), Lupin Ltd. (India)

ACADEMIC EXPERIENCE

Mechanics and continuum (exercise)
Magnetic nanoparticles (lecture)
Practical course in physics IV for general physics majors (experiments in atomic and nuclear physics for bachelor students)
Experimental methods of biophysics and chemical physics (lecture)
Contemporary problems of low-temperature physics (organization and lectures for students at off-site course in Pec pod Sněžkou, Czech Republic)
Seminar on Mössbauer spectroscopy (presentations)
Supervision of minor research projects (electronics, scripting, Mössbauer spectoscopy, magnetic particle spectroscopy)
International evaluator for MSCA Doctoral hiring at LUT University, Finland

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RESEARCH EXPERIENCE

2022 - 2024	GAUK 410622 - Hyperfine interactions and charge distribution in magnetite below Verwey temperature
2019 - 2021	GAČR 19-02584S - Modification of Néel and Brownian relaxation properties of nanoparticles for magnetic imaging methods
2019 - 2021	GAČR 19-00925S - Magnetic and magnetoacustic properties of high-anisotropic intermetallic alloys
2017 - 2020	GAČR 17-00062S - Explanation of modulated structures of Heusler alloys
2016 - 2018	GAČR 16-04340S - Oxide nanomagnets, their properties and interactions with biological systems
2015 - 2017	shifts during several experiments at large-scale synchrotron facilities (NFS, XRD in DESY Hamburg, XANES and EXAFS in ESRF Grenoble)
2014 - 2016	GAČR 14-12449S - Impact of radiation on distinctive physical properties of advanced materials for nuclear facilities
2013 - 2015	GAUK 8313 - Hyperfine interactions in multiferroics

2014	minor research project – Investigation of luminescent organometallic Au(I) hydrogelators (supervised by Dr. Célia Fonseca Guerra)
2011 - 2014	GAČR P204/10/0035 - Hyperfine interactions in nanosized and low-dimensional iron oxides
2011	minor research project - Characterization of magnetic properties by vector magnetometry (supervised by Dr. Martin Veis)

FIRST AUTHOR PUBLICATIONS

1. Kubániová D., Kubíčková L., Kmječ T., Závěta K., Nižňanský D., Brázda P., Klementová M., Kohout J.: *Hematite: Morin temperature of nanoparticles with different size*, J. Magn. Magn. Mater. **475** (2019) 611-619 (IF 3.097, cited 21)
2. Kubániová D., Brázda P., Závěta K., Kmječ T., Klementová M., Kohout J.: *Identification of ferric oxide polymorphs in nanoparticles prepared by sol-gel method and maximization of ε-Fe_2O_3 content*, J. Magn. Magn. Mater. **472** (2019) 96-103 (IF 3.097, cited 20)
3. Kubániová D., Cesnek M., Milkovič O., Kohout J., Miglierini M.: *Composition of α-Fe nanoparticles precipitated from CuFe alloy studied by hyperfine interactions*, Hyperfine Interact. **237** (2016) 136 (IF 0.329, cited 2)

CO-AUTHOR PUBLICATIONS

1. Kmječ T., Adamec M., Kubániová D., Argymbek B., Plocek J., Dopita M., Cejpek P., Chlan V., Hraníček J., Kichanov S.E., Závěta K., Detlefs B., Cesnek M., Veverka M., Štěpánková H., Kohout J.: *Magnetic phase diagram, phase transitions, and cation distribution in $Pb_{1-x}Ba_x(Fe_{0.5}Nb_{0.5})O_3$ perovskites*, Mater. Sci. Eng. B: Solid-State Mater. **278** (2022) 115627 (IF 3.407, cited 0)
2. Kaman O., Kubániová D., Knížek K., Kubíčková L., Klementová M., Kohout J., Jirák Z.: *Structure and magnetic state of hydrothermally prepared Mn-Zn ferrite nanoparticles*, J. Alloys Compd. **888** (2021) 161471 (IF 6.371, cited 7)
3. Sanna Angotzi M., Mameli V., Zákutná D., Kubániová D., Cara C., Cannas C.: *Evolution of the magnetic and structural properties with the chemical composition in oleate-capped $Mn_xCo1- xFe_2O_4$ nanoparticles*, J. Phys. Chem. C **125**(37) (2021) 20626–20638 (IF 4.177, cited 6)
4. Herynek V., Babič M., Kaman O., Charvátová H., Veselá M., Buchholz O., Vosmanská M., Kubániová D., Kohout J., Hofmann U.G., Šefc L.: *Maghemite nanoparticles coated by methacrylamide-based polymer for magnetic particle imaging*, J. Nanoparticle Res. **23**(2) (2021) 52 (IF 2.533, cited 5)
5. Kubíčková L., Kaman O., Veverka P., Herynek V., Brázda P., Vosmanská M., Kmječ T., Dvořák P., Kubániová D., Kohout J.: *The ε-$Al_xFe_{2-x}O_3$ nanomagnets as MRI contrast agents: Factors influencing transverse relaxivity*, Colloid. Surf. A Physicochem. Eng. Asp. **589** (2020) 1244232 (IF 5.518, cited 4)
6. Kmječ T., Adamec M., Kubániová D., Plocek J., Dopita M., Cesnek M., Chlan V., Bednarčík J., Závěta K., Maryško M., Kohout J.: *^{57}Fe-enriched perovskites $M(Fe_{0.5}\ Nb_{0.5}\ )O_3$ (M – Pb, Ba) studied by Mössbauer spectroscopy, NMR and XRD in the wide temperature range 4.2–533 K*, J. Magn. Magn. Mater. **475** (2019) 334-344 (IF 3.097, cited 13)
7. Kaman O., Kuličková J., Maryško M., Veverka P., Jirák Z., Herynek V., Havelek R., Královec K., Kubániová D., Kohout J., Dvořák P.: *Mn-Zn ferrite nanoparticles with silica and titania coatings: Synthesis, transverse relaxivity and cytotoxicity*, IEEE Trans. Magn. **53**(11) (2017) 5300908 (IF 1.848, cited 9)
8. Cesnek M., Kubániová D., Kohout J., Křišťan P., Štěpánková H., et al.: *Hyperfine interactions in nanocrystallized NANOPERM-type metallic glass containing Mo*, Hyperfine Interact. **237** (2016) 132 (IF 0.329, cited 3)
9. Kubíčková L., Kohout J., Brázda P., Veverka M., Kmječ T., Kubániová D., et al.: *Impact of silica environment on hyperfine interactions in ε-Fe_2O_3 nanoparticles*, Hyperfine Interact. **237** (2016) 159 (IF 0.329, cited 6)
10. Kohout J., Brázda P., Závěta K., Kubániová D., Kmječ T., Kubíčková L., et al.: *The magnetic transition in ε-Fe_2O_3 nanoparticles: Magnetic properties and hyperfine interactions from Mössbauer spectroscopy*, J. App. Phys. **117** (2015) 17D505 (IF 2.877, cited 41)
11. Kohout J., Křišťan P., Kubániová D., Kmječ T., et al.: *Low temperature behavior of hyperfine fields in amorphous and nanocrystalline FeMoCuB*, J. App. Phys. **117** (2015) 17B718 (IF 2.877, cited 3)

CONFERENCES

Šimáne 2021 (Prague, Czech Republic) - Silica coated Zn-substituted magnetite nanoparticles: Biocompatible contrast agents for MRI and their perspective use in MPI (poster)

Šimáne 2019 (Prague, Czech Republic) - Contrast agents for MR imaging: Enhanced T2 relaxivity of Zn-doped maghemite-magnetite nanoparticles (poster)

ICFSMA 2019 (Prague, Czech Republic) - Martensitic transformation in $Fe_{44}Mn_{25}Ga_{31}$ Heusler alloy studied by Mössbauer spectroscopy (poster)

ICMF 2019 (Paris, France) - Silica coated Zn-substituted magnetite nanoparticles: Biocompatible contrast agents for MRI and their perspective use in MPI (poster)

JEMS 2018 (Mainz, Germany) - Magnetic properties of Fe_2O_3 nanoparticles in silica matrix (poster)

MSMS 2018 (Prague, Czech Republic) - Hyperfine parameters of pure and metal-substituted orthorhombic ε-$M_xFe_{2-x}O_3$ from DFT calculations (oral)

Šimáne 2017 (Prague, Czech Republic) - Transversal relaxivity of iron oxide nanoparticles with zinc coated by amorphous silicon dioxide (oral)

PM 2017 (Poznan, Poland) - Influence of synthesis on Fe^{2+} relative content in nanoparticles of non-stoichiometric magnetite with various mean diameter (poster)

TNT 2017 (Dresden, Germany) - Contrast agents for MR imaging: Enhanced T_2 relaxivity of Zn-doped maghemite-magnetite nanoparticles (poster)

Hyperfine 2016 (Leuven, Belgium) - Hyperfine interactions in nanocrystallized NANOPERM-type metallic glass containing Mo (poster)

MSMS 2016 (Liptovský Ján, Slovakia) - Zn-substituted magnetite nanoparticles studied by Mössbauer spectroscopy (oral)

ICM 2015 (Barcelona, Spain) - Charge order in magnetite below the Verwey transition studied by combination of ^{57}Fe NMR and Mössbauer spectroscopy (poster)

Week of Doctoral Students 2015 (Prague, Czech Republic) - Mössbauer spectrometry of magnetic iron-oxide–based nanoparticles (oral)

MMM 2014 (Honolulu, USA) - Low temperature behavior of hyperfine fields in amorphous and nanocrystalline FeMoCuB (poster)

ICAME 2013 (Opatija, Croatia) - Magnetic properties of Fe_2O_3 nanoparticles in silica matrix (poster)

JEMS 2013 (Rhodes, Greece) - Mössbauer studies of iron oxides produced by alkaliphilic bacteries (poster)

CSMAG 2013 (Košice, Slovakia) - Phase composition of ferric oxide in Fe_2O_3/SiO_2 system (oral)

MSMS 2012 (Olomouc, Czech Republic) - Phase composition of ferric oxide in Fe_2O_3/SiO_2 system (oral)