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Education and academic degrees:

1997 PhD (Dr.) in Condensed Matter Physics and Materials Science, Charles University, Prague, Faculty of Mathematics and Physics in cooperation with State Research Centre in Finland, *Thesis: "Structural and Magnetic Properties of Amorphous and Nanocrystalline Materials and Their Compacts"*.

1991 MSc in Solid State Physics (Mgr.) Charles University, Prague, Faculty of Mathematics and Physics, *Master Thesis "Creep-Induced Anisotropy in Amorphous and Nanocrystalline Alloys"*.

1987 MSc in Applied Mechanics (Ing.), Czech Technical University, Prague, Faculty of Mechanical Engineering, *Diploma thesis "An Enhancement of Heat Transfer by Oscillating Air Flow"* in Czech.

Further training

1991-92 Materials Science Course (one year), Tampere University of Technology.

1997- 98 Postdoctoral fellowship of Royal Society London at University of Salford, UK (prof. R. Gerber).

Professional career and employment:

2008 – now **Institute of Physics, Czech Academy of Sciences (FZU CAV), Prague, Czech Republic**

1.9. 2017 Head of Department of Magnetic Measurements and Materials formed by joining groups pursuing research of various aspects of magnetism from applied magnetism toward basic understanding the physics of magnetic materials, mainly Heusler and 4f compounds. We are also responsible for Joint Laboratory of Magnetic Studies (shared with Faculty of Mathematics and Physics, CU), now part of Large Research Infrastructure (MGML.eu).

1.1. 2013 Deputy head of Department of Functional Material, which consisted of four groups; shape memory materials, magnetic materials, functional thin layers (diamond-like) and biophysics.

1.1. 2012 Leader of Laboratory of Magnetic Functional Materials and MSM group.

2008 – 2013 **J. E. Purkyně Fellow of Academy of Sciences Czech Republic, Prague**, a prestigious academy fellowship awarded to establish topical new research subjects of magnetic shape memory and magnetocaloric phenomena in Czech Republic.

2006 – 2008 **Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Germany**
Guest senior scientist, invited to work within German Priority Program SPP1239 MagnetShape. The program focused on fundamental and applied research subjects of magnetic shape memory phenomena (MSM).

1999 – 2006 **Helsinki University of Technology (now Aalto University), Helsinki, Finland**

2004 – 2006 Senior researcher, Laboratory of Materials Science, Department of Materials Science. Project manager of DEMSMAC project focused on magneto-mechanical damping controlled by magnetic field, principal researcher for Smart Surfaces Project.

2001 – 2003 Senior researcher responsible for Magnetic Shape Memory Project, leader of multinational team of researchers from Finland, Ukraine, China, Czech, and Spain.

1999 – 2001 Laboratory of Biomedical Engineering, Dept. of Engineering Physics and Mathematics. Researcher in Magnetic Shape Memory (MSM) project. Project headed by Dr. Kari Ullakko, discoverer of MSM effect.

1998 – 1999 **Parental leave, Helsinki, Finland**

1997 – 1998 **University of Salford, UK**, Independent postdoctoral researcher in Joule Laboratory, Department of Physics, (Prof. R. Gerber) Al-doped hard magnetic ferrite films within Royal Society Postdoctoral Fellowship.

1994 - 1996 **Institute of Physics, Academy of Sciences Czech Republic (FZU AV CR), Prague**
Researcher, Dept. of Magnetism and Superconductivity - soft magnetic amorphous and nanocrystalline materials (FINEMETs) characterized also by Mössbauer spectroscopy.

1991-1993 **VTT Technical Research Centre of Finland, Tampere, Finland**, junior researcher.

Other activities

2011 – 2015 Czech Scientific Foundation (CSF), Vice-chairman of Materials Science Panel and member of Technical Science Supervising Committee.
2019 - Czech Scientific Foundation (CSF) member of Panel of Condensed Matter Physics.
2016 – 2019 Chairman of International Committee of International Conference of Ferromagnetic Shape Memory Alloys (ICFSMA).
2019 Head of Organization committee of ICFSMA`19 held in June in Prague.
2019 – 2020 Guest editor of Shape Memory and Superelasticity Journal.
2021 - Member of Gender Equality Board of FZU-Institute of Physics, CAS.
2021 - Member of Council for Cooperation with Universities, Czech Academy of Science.

Teaching and supervision

2014 – now External lecturer – Magnetic advanced materials, FNSPE, Czech Technical University, Prague, Czech Republic.
2012 – 2019 Guest lecturer – Magnetism in Advanced Materials, Aalto University (previously Helsinki University of Technology - HUT), Finland.
2014 – now Supervising PhDs and Master thesis, Institute of Physics together with Faculty of Nuclear and Physical Engineering (FNPE), Czech Technical University and Faculty of Mathematics and Physics, Charles University.
2008 – 2012 Supervising and contributing to PhD training of other PhD students - Aalto University (previously Helsinki University of Technology) and IFW Dresden.
2018 – 2022 Supervisor of MSCA fellowships of Ladislav Straka and MSCA(CZ) of Jan Zemen and Denys Musiienko.

Scientific activities during the last five years (2018-2022):

Although the head of Department of Magnetic Measurements and Materials from September 2017 I am also a leader of Magnetic Shape Memory (MSM) group which focuses on the investigation of the phenomenology and physics of magnetic shape memory effect. We obtained several CFS grants focusing on, e.g. understanding the modulated phases (project concluded in 2019) and thin films with martensitic transformation (project ended 2022). In 2018 we successfully concluded five-year project Centre of Advanced materials in the frame of the Project of excellence (CSF). Now I am head of one research program (from five) within large, mostly infrastructure project of FZU - Solid state physics for 21st century (SOLID21) awarded by the Ministry of Education. It provides funding for FZU expansion and new advanced experimental equipment. The project will end in June 2023.

Currently I am supervisor of two PhD students with further two just graduated in March 2022. In 2018 my PhD student M. Vronka graduated with distinction in the field of TEM studies of magnetic shape memory alloys and went as postdoc to Carnegie-Mellon University, USA to learn magnetic Lorenz and other advanced TEM methods which were then successfully implemented in FZU TEM laboratory.

In June 2019 we organized ICFSMA in Prague, the most important conference in the field of magnetic shape memory phenomena. I was a chairman of the conference and head of organization committee. Based on this success and as a recognition of shape memory research in Prague we were asked to organize ICOMAT2025 the world-wide conference about martensitic transformation with me as chairman.

My published works are mainly in the field of magnetic shape memory materials, magnetic and functionalized nanoparticles and high entropy alloys. During last five years (2018-2022) 56 papers in international journals were published (WoS). I am author or coauthor of more than 205 publications with more than 5400 citations with *h*-index = 39.