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Employment:

From 2007 he is employed at the Institute of Metallurgy and Materials Science of the Polish Academy of Sciences in Krakow.

Scientific career:

- Master: AGH University of Science and Technology, Department of Mechanical Engineering and Robotics, 2006;

- PhD: Institute of Metallurgy and Materials Science, 2011;

- Habilitation: Institute of Metallurgy and Materials Science, 2017.

The most important publications:

- M.J. Szczerba, S. Kopacz, M.S. Szczerba, Experimental studies on detwinning of face-centered cubic deformation twins, *Acta Materialia* 104 (2016) 52-61.

- M.J. Szczerba, S. Kopacz, M.S. Szczerba, Detwinning of face-centered cubic deformation twins via the correspondence matrix approach, *Acta Materialia* 102 (2016) 162-168.

- R. Chulist, M. Faryna, M.J. Szczerba, Orientation relationship between austenite and non-modulated martensite in Ni-Mn-Ga single crystals, *Acta Materialia* 103 (2016) 836-843.

- M.J. Szczerba, R. Chulist: Detwinning of a non-modulated Ni-Mn-Ga martensite: From self-accommodated microstructure to single crystal. *Acta Materialia* 85 (2015) 67-73.

- E. Pagounis, A. Laptev, M.J. Szczerba, R. Chulist, M. Laufenberg, *Acta Materialia* 89 (2015) 32-40.

- M.J. Szczerba, Non-modulated martensite microstructure with internal nanotwins in Ni-Mn-Ga alloys, Archives of Metallurgy and Materials 60 (2015) 2267-2270.
- E. Pagounis, M.J. Szczerba, R. Chulist, M. Laufenberg, Large magnetic field-induced output in a NiMnGa seven-layered modulated martensite, Applied Physics Letters 107 (2015) 152407.
- M.J. Szczerba, R. Chulist, S. Kopacz, M.S. Szczerba: Effect of initial plastic strain on mechanical training of non-modulated Ni-Mn-Ga martensite structure. Materials Science and Engineering A 611 (2014) 313-319.
- E. Pagounis, R. Chulist, M.J. Szczerba, M. Laufenberg: Over 7% magnetic field-induced strain in a Ni-Mn-Ga five-layered martensite. Applied Physics Letters 105 (2014) 052405.
- • E. Pagounis, R. Chulist, M.J. Szczerba, M. Laufenberg: High-temperature magnetic shape memory actuation in a Ni-Mn-Ga single crystal. Scripta Materialia 83 (2014) 29-32.
- • M.J. Szczerba, M.S. Szczerba, Transformation of dislocations during twin variant reorientation in Ni-Mn-Ga martensite structures, Scripta Materialia, 66 (2012) 29-32.
- • M.S. Szczerba, S. Kopacz, M.J. Szczerba: On the reverse mode of FCC deformation twinning. Acta Materialia 60 (2012) 6413-6420.

Research projects:

- Project NCN OPUS: „Advanced experimental and theoretical study on shear band formation in layered twin-matrix FCC materials ". (2016/23/B/ST8/01193) Principle Investigator, 2017-2020;
- Project Iuventus Plus pt.: „Studies on the effect of reverse twinning on mechanical properties of FCC materials" (Nr 0/600/IP2/2013/72), Principle Investigator, 2013-2015;
- Project NCN: Advanced study of the effect of martensite variants reorientation in plastically deformed Ni-Mn-Ga single crystals.(NCN:2011/03/D/ST8/04017) Principle Investigator, 2012-2015;

- Design and production of functional gradient materials, (Project PBZ-KBN-100/T08/2003), personnel, 2004-2007;
- Development of technology for the production of structural elements of aircraft engines by the method of directional crystallization, (PBZ-MNiSW-03/I/2007), personnel, 2007-2011;
- ERA-NET MNT/FP6: Nanostructured materials for biomedical circulatory systems (CardioBioMat), personnel, 2009-2012;
- KMM-NoE Project FP6, Knowledge-based multicomponent materials for durable and safe performance; Stress related effects, 2004-2008.

Main scientific interests

Modern methods of material characterization with particular emphasis on electron microscopy, physico-mechanical properties of solids, single crystal growth technology, shape memory alloys.