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Employment and positions

Since 2013 Assistant Professor at Institute of Metallurgy and Materials Science, Polish Academy of Sciences. Since 2014 laboratory worker in the Accredited Testing Laboratories at the Institute of Metallurgy and Materials Science of the Polish Academy of Sciences, Laboratory of Scanning Electron Microscopy.

Scientific Carrier

M.Sc.: "Analysis of deformation mechanism in Cu single crystals compressed in channel-die". AGH University of Science and Technology.

Ph.D.: „Structure and properties of twin boundaries in Ni-Mn-Ga alloys", TU Dresden Germany.

Scientific achievements

total number of scientific papers - **45**, total number of citations - **168**, h-index - **8**

The most relevant publications during last 5 years

1.

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

2.

D. M. Fronczek, J. Wojewoda-Budka, **R. Chulist**, A. Sypien, A. Korneva, Z. Szulc, N. Schell, P. Zieba, Structural properties of Ti/Al clads manufactured by explosive welding and annealing, Materials and Design 91 (2016) 80-89.

3.

D. M. Fronczek, **R. Chulist**, L. Litynska-Dobrzynska, Z. Szulc, P. Zieba, J. Wojewoda-Budka, Microstructure Changes and Phase Growth Occurring at the Interface of the Al/Ti Explosively Welded and Annealed Joints, Journal of Materials Engineering and Performance, DOI: 10.1007/s11665-016-1978-7.

4.

E. Pagounis, M.J. Szczerba, **R. Chulist**, M. Laufenberg, Large magnetic field-induced work output in a NiMnGa seven layered modulated martensite,, Applied Physics Letters 107 (2015) 152407.

5.

E. Pagounis, A. Laptev, M.J. Szczerba, **R. Chulist**, M. Laufenberg, Structural behavior and magnetic properties of a NiMnGa single crystal across the martensite/austenite two-phase region, Acta Materialia 89 (2015) 32-40.

6.

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.

7.

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.

8.

R. Chulist, A. Böhm, C.G. Oertel and W. Skrotzki: Self-accommodation in polycrystalline 10M NiMnGa martensiteJournal of Materials Science 49 (2014) 3951-3955.

9.

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.

10.

E. Pagounis, **R. Chulist**, M. Szczerba, M. Laufenberg: High-temperature magnetic shape memory actuation in a Ni-Mn-Ga single crystal Scripta Materialia 83 (2014) 29-32.

11.

R. Chulist, L. Straka, A. Sozinov, T. Lippmann, W. Skrotzki: Modulation reorientation in 10M Ni-Mn-Ga martensite. Scritpa Materialia 68 (2013) 671-674.

12.

R. Chulist, L. Straka, N. Lanska, A. Soroka, A. Sozinov, W. Skrotzki: Characterization of mobile type I and type II twin boundaries in 10M modulated Ni-Mn-Ga martensite by electron backscatter diffraction. Acta Materialia 61 (2013) 1913-1920.

13.

E. Pagounis, **R. Chulist**, T. Lippmann, M. Laufenberg, W. Skrotzki: Structural modification and twinning stress reduction in a high-temperature Ni-Mn-Ga magnetic shape memory alloy. Applied Physics Letters 103 (2013) 11911.

14.

R. Chulist, L. Straka, A. Sozinov, N. Lanska, A. Soraka, C.-G. Oertel, and W. Skrotzki, Segmented twin boundaries in 10M modulated Ni-Mn-Ga martensite. Proc. TMS, 2013.

15.

R. Chulist, A. Sozinov, L. Straka, N. Lanska, A. Soroka, T. Lippmann, C.-G. Oertel, W. Skrotzki: Diffraction study of bending-induced polysynthetic twins in 10M modulated Ni-Mn-Ga martensite Journal of Applied Physics 112 (2012) 063517-7.

16.

U. Gaitzsch, **R. Chulist**, L. Weisheit, A. Böhm, W. Skrotzki, C.-G. Oertel, H.-G. Brokmeier, T. Lippmann, I. Navarro, M. Pötschke, J. Romberg, C. Hürrich, S. Roth, L. Schultz: Processing Routes Toward Textured Polycrystals in Ferromagnetic Shape Memory Alloys. Advanced Engineering Materials 14 (2012) 636-652.

17.

R. Chulist, E. Pagounis, A. Böhm, C.-G Oertel, W. Skrotzki: Twin boundaries in trained 10M Ni-Mn-Ga single crystals. Scripta Materialia 67 (2012) 364-367.

18.

R. Chulist, W. Skrotzki, C.-G. Oertel, A. Böhm, H.-G. Brokmeier, T. Lippmann: Cyclic fibre texture in hot extruded Ni50Mn29Ga21. International Journal of Materials Research 103 (2012) 575-579.

19.

Y. Ivanisenko, W. Skrotzki, **R. Chulist**, T. Lippmann, L. Kurmanaeva: Texture development in a nanocrystalline Pd-Au alloy studied by synchrotron radiation. Scripta Materialia 66 (2012) 131-134.

20.

R. Chulist, A. Böhm, E. Rybacki, T. Lippmann, C.-G. Oertel, and W. Skrotzki,Texture evolution of HPT-processed Ni50Mn29Ga21. Mater. Sci. Forum 702 (2012) 169-172.

21.

U. Klement, C. Oikonomou, **R. Chulist**, B. Beausir, L. Hollang, and W. Skrotzki, Influence of additives on texture development of submicro- and nanocrystalline nickel. Mater. Sci. Forum 702 (2012) 928 - 932.

22.

B. Sulkowski, **R. Chulist**, B. Beausir, W. Skrotzki, B. Mikulowski: Stage B work-hardening of magnesium single crystals. Crystal Research and Technology 46 (2011) 439-442.

23.

W. Skrotzki, **R. Chulist**, B. Beausir, and M. Hockauf, Equal-channel angular pressing of NiAl. Mater. Sci. Forum 667-669 (2011) 39-44.

Research Projects

Project leader:

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Advanced study of the influence of real structure on magnetic field induced strain in Ni-Mn-Ga single Crystals: Homing Plus/2013-8/3 Foundation for Polish Science (2013-2015).

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On the influence of intermartensitic phase transformation on the thermal stability in magnetic shape memory alloys: Ministry of Science and Higher Education of Poland, Project No.

0063/IP2/2015/73 (2015-2017).

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Advanced study of real structure on elastocaloric effect in Fe-based shape memory Alloys: National Science Centre of Poland, Project No. 201413/DST803108, (2015-2018).

Experience gained abroad:

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Germany, DESY (Deutsches Elektron-Synchroton), Beamline P07, 2015-2016 each year two times

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R. Chulist, M.J. Szczerba, M. Faryna, In-situ investigation on the martensitic transformation in NiMnGa alloys. Plasticity 2016, Invited talk. 3-9.01 2016, Kona, Big Island, USA.

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R. Chulist, M.J. Szczerba, P. Bobrowski, M. Faryna, Orientation relationship between austenite and martensite in NiMnGa alloys: In-situ study. ESOMAT 2015, 14-18.09 2015, Antwerp, Belgium

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R. Chulist, M.J. Szczerba, Multi-stage deformation twinning in Ni-Mn-Ga ferromagnetic shape memory alloys. Plasticity 2015,. 3-9.01 2015, Montego Bay, Jamaica.

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Postdoctoral position Tu Dresden Germany 2011-2013.

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France, Metz, Universite de Lorraine, Invited talk: "Segmented twin boundaries in 10M modulated Ni-Mn-Ga martensite" 22.05.2013.

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Poland, Kraków, Instytut Metalurgii i Inżynierii Materiałowej PAN: "EBSD characterization of highly mobile twin boundaries in 5M modulated Ni-Mn-Ga martensite" 05.10.2012.

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Germany, DESY (Deutsches Elektron-Synchroton), Beamline HARWI 2 lub P07, Texture and structural measurements (2008-2013).

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Finland , Helsinki, Company AdaptaMat, 14-16.09.1012.

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finland, AALTO Aalto University School of Engineering, Laboratory of Engineering Materials 16-19.09.2012.

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Germany, GKSS Forschunszentrum, Geesthacht, Neutron global texture measurements, 03-07.05.2009.

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Germany, Geesthacht: Neutron Workshop , 10-12.05.2008.

Prizes and awards:

2014 Foundation for Polish Science, Homing Plus for outstanding young researchers

2014 Three-year fellowship for outstanding young scientists granted by Ministry of Science and Higher Education

Education of scientific staff

Supervisor of M.Sc. thesis: Wojciech Kościelniak, 2015.

Main scientific interest

My research specialization is the field of martensitic transformation and related effects such as shape memory effect, magnetocaloric effect and super elasticity. Other major themes in my research are microstructural, mechanical and texture investigations of metals and alloys. Techniques: High resolution scanning electron microscopy, Electron backscatter diffraction (EBSD) with special emphasis on complex modulated structures as 10M Ni-Mn-Ga alloys, Energy dispersive X-ray (EDX) spectroscopy, conventional X-ray diffraction, Structural and diffraction experiments with high energy synchrotron radiation and neutrons.