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Employment and positions

Institute of Metallurgy and Materials Science, Polish Academy of Sciences: assistant professor (1975-1988); Institut für Werkstoffe der Technischen Universität Braunschweig (Germany) and (since 1992) Forschergruppe Textur und Anisotropie Kristalliner Stoffe der Technischen Universität Clausthal (Germany): research worker (1988 - 1997); again at the Institute of Metallurgy and Materials Science, Polish Academy of Sciences: associate professor (2003-2011), professor (2011-); Higher School of Dental Engineering (Ustroń): professor (2007-2013)

Scientific Career

M.Sc.: AGH - University of Science and Technology, 1975,

Ph.D.: Institute of Metallurgy and Materials Science, Polish Academy of Sciences, 1985,

D.Sc.: Institute of Metallurgy and Materials Science, Polish Academy of Sciences, 2002.

Prof.: President of the Republic of Poland, Scientific title, 2011.

Scientific achievements

109 papers, among them: **71** papers in refereed journals and periodicals cited by the Institute for Scientific Information in Philadelphia; **3** books and **2** chapters in books:

The most relevant publications during last 5 years:

1.

A. Korneva, M. Bieda, G. Korznikova, A. Korznikov, **K. Szwierc**: Microstructure and properties of hard magnetic FeCr₃₀Co₈ alloy subjected to plastic deformation by complex loading, International Journal of Materials Research, 102 (2011) 32-40.

2.

Recrystallization, Edited by **K. Szwierc**, ISBN 978-953-51-0122-2, pages 476, Publisher: InTech Croatia, 2012. www.intechopen.com

3.

A. Korneva, G. Korznikova, R. Kashaev, **K. Szwierc**: Microstructure of hard magnetic FeCr₂₂Co₁₅ alloy subjected to tension combined with torsion at high temperature, Solid State

Phenomena, 2013, 203-204, 284-287.

4.

K. Sztwiertnia, M. Bieda, A. Korneva: Continuous and discontinuous recrystallization of 6013 aluminum alloy, Materials Science Forum, 2013, 753, 221-224. A.

5.

A. Korneva, G. Korznikova, K. Berent, A. Korznikov, R. Kashaev, J. Bogucka, **K. Sztwiertnia**: Microstructure evolution and magnetic properties of hard magnetic FeCr₂₂Co₁₅ alloy subjected to tension combined with torsion, Journal of Alloys and Compounds, In Press.

6.

K. Sztwiertnia, J. Kawałko, M. Bieda, K. Berent: Microstructure of polycrystalline zinc subjected to plastic deformation by complex loading, Archives of Metallurgy and Materials, 2013, 58, 157-167.

7.

K. Sztwiertnia: Recrystallization textures and the concept of oriented growth revisited, Materials Letters, 123 (2014) 41-43

8.

K. Kowalczyk-Gajewska, **K. Sztwiertnia**, J. Kawałko, K. Wierzbanowski, M. Wronski, K. Frydrych, S. Stupkiewicz, H. Petryk, Texture evolution in titanium on complex deformation paths: Experiment and modelling, Materials Science and Engineering: A, 2015, 637, 251-263.

9.

R. Wawszczak, A. Baczmański, M. Marciszko, M. Wróbel, T. Czeppe, **K. Sztwiertnia**, C. Braham, K. Berent, Evolution of microstructure and residual stress during annealing of austenitic and ferritic steels, Materials Characterization, 2016, 112, 238-251.

10.

K. Nalepka, **K. Szwierc**, P. Nalepka, Preferred orientation relationships at the Cu/ α -Al₂O₃ interface: Identification and theoretical explanation, Acta Materialia, 2016, 104, 156-165.

Research Projects

Projects from Ministry of Science and Higher Education

- *Mechanisms of the grains refinement in the process of continuous recrystallization in aluminum alloys with bimodal distribution of second phase particles. New way to get ultrafinegrained structures* (Project No. N507 047 31/1152), IMMS PAS, supervisor, 2006-2009.
- *Improvement of competitive and innovative characteristics of the national industry of non-ferrous metal processing through the preparation of advanced metallic materials and technologies of their production* (Project No. PBZ-MNiSW-3/3/2006), Task 1.5: Multiscale, quantitative characteristics of the microstructure of technologically-advanced metallic materials, IMMS PAS, contractor, 2007 - 2010.

Projects from National Centre for Science

- *Elucidation of the microstructure formation mechanisms in titanium subjected to complex loading. Crystallographic orientation microscopy in SEM and TEM as applied to the quantitative analysis of hexagonal metallic materials* . (Project 2011/03/B/ST8/06120), supervisor in IMMS PAS, 2012-2015.
- *Identification of the nanostructured effects generated by cyclically alternating deformation*

scheme. Pure aluminum and aluminum alloy after deformation by KoBo method . (Project „OPUS 4" 2012/07/B/ST8/04025), consortium: supervisor in IMMS PAS, 2013-2016.

Projects from National Centre for Research and Development

- *Development of technology for the manufacturing of implanto-distractors - an innovative solution for dental prosthetics. Materials research, modeling and testing of machining methods* . Project PBS2/A6/18/2014, consortium: supervisor, 2014-2016.

European Union Projects

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Centre of Excellence in Nano- and Microscale Characterization and Development of Advanced Materials, 5 Frame Programme EU, Accompanying Measures, Contract No. G5MA-CT-2002-04048, IMMS PAS, package supervisor, 2003-2005.

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COST, Action 525 – *Advanced electronic ceramics: Grain boundary engineering*, Task: *Orientation imaging microscopy and microanalysis applied to advanced materials* ; contractor
, member of the
Management Committee, 2004 – 2005.

International exchange programmes

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Orientation imaging microscopy and microanalysis applied to advanced materials, Josef Stefan Institute, Ljubljana, Slovenia,
2004-2005.

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Recrystallization and grain growth in hexagonal materials, Laboratoire d'Etude des Textures et Application aux Materiaux (LETAM), Universite de Metz, Francja 2003

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Experience gained abroad:

Deutscher Akademischer Austauschdienst (DAAD), Institut f. Metallkunde und Metallphysik der Technischen Universität Clausthal 1978 (3 months), Institut für Werkstoffe der Technischen Universität Braunschweig

Werstoffe der Technischen Universität Braunschweig 1981 (3 months), 1982/1983 (5 months), 1986/87 (8 months).

1988 – 1997 researcher at the Institut für Werkstoffe der Technischen Universität Braunschweig, Germany - since 1992 member of the research group *Texture and anisotropy of crystalline materials* (Technische Universität Clausthal, Germany).

Some shorter visits: Laboratoire d'Etude des Textures et Application aux Materiaux (LETAM), Universite de Metz, France 2003 (1 month), 2004 (1 month), 2007 (1 month).

University of Natal (Durban), University of Capetown, Republic of South Africa 2000; Max-Planck-Institut für Metallforschung, Stuttgart, Germany 2001, Laboratoire des Proprietes Mecaniques et Thermodynamiques des Materiaux Universite Paris-Nord

, France 2003.

Education of scientific staff

Supervisor of 3 Ph.D. thesis: Magdalena Bieda-Niemiec (2008), Anna Korneva (2008), Grzegorz Sawina (2009).

External reviewer of 3 Ph.D. thesis.

Reviewer of 15 papers in scientific journals.

Organisation of conferences and scientific events

Chairman: Workshop MicroCEM Progress in Microstructure Characterization by Electron Microscopy (2005); Member of scientific committee: Symposium on Texture and Microstructure Analysis of Functionally Graded Materials, SOTAMA'2005' and SOTAMA'2007'.

Main scientific interest

Modern methods of texture and microstructure measurement, description and analysis (including orientation microscopy in SEM and TEM). Texture and anisotropy of physical, chemical and mechanical properties of polycrystalline materials. Deformation and recrystallization texture and microstructure of metals.

