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Employment and positions

Institute of Metallurgy and Materials Science, Polish Academy of Sciences: Ph.D. studies (2002-2007), assistant professor (2007), Professor of Polish Academy of Sciences (2014), Accredited Testing Laboratories at the Institute of Metallurgy and Materials Science of the Polish Academy of Sciences, Laboratory of Scanning Electron Microscopy (2005).

Scientific Career

M.Sc.: Jagiellonian University, 2002

Ph.D.: Institute of Metallurgy and Materials Science, Polish Academy of Sciences, 2007, "*Char acteristics of the phenomena occuring at the interfaces of the interconnections obtained in diffusion soldering of copper with indium alloys".*

D.Sc.: Institute of Metallurgy and Materials Science, Polish Academy of Sciences, 2014, "*Micro structural and thermodynamical analysis of high temperature interaction of aluminium with oxide substrates (Y2O3, NiO, ZnO, SiO2), as a starting point to obtain ceramic-metal composites of mutually interpenetrating lattices".*

Scientific achievements

total number of scientific papers - **70**, total number of citations - **130**, h-index - **8**

The most relevant publications during last 5 years

1.

Huber Z., **Wojewoda-Budka J**., Wierzbicka-Miernik A., Sypien A., Szczerba M., Zieba P., Influence of phosphorous content on microstructure development at the NiP plating/SAC interface, Electronic Materials Letters, Electronic Materials Letters, 12(1) (2016) 178-185.

2.

Wojewoda-Budka J., Stan-Glowinska K., Nowak R., Sobczak N. High temperature reactivity and wetting characteristics of Al/ZnO system related to the zinc oxide single crystal orientation, Journal of Materials Science, Journal of Materials Science 51 (2016) 1692-1700.

3.

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

4.

Nowak R., Sobczak N., Bruzda G., **Wojewoda-Budka J.**, Litynska-Dobrzynska L., Homa M., Kaban I., Xi L., Jaworska L.: „Wettability and reactivity of ZrB2 substrates with liquid Al", Journal of Materials Engineering and Performance 25, (2016) 3310-3316.

5.

Fronczek D. M., Chulist R., Litynska-Dobrzynska L., Szulc Z., Zieba P.,**Wojewoda-Budka J**. Microstructure Changes and Phase Growth Occurring at the Interface of the Al/Ti Explosively Welded and Annealed Joints, Journal of Materials Engineering and Performance, 25 (2016) 3211-3217.

6.

Wojewoda-Budka J., Wierzbicka-Miernik A., Litynska-Dobrzynska L., Szczerba M., Mordarski G., Mosialek M.: „Microstructure characteristics and phase transformation after heat treatment of the Ni-P and Ni-Re-P coatings electroless deposited", Electrochimica Acta 209, (2016) 183-191.

7.

Wierzbicka-Miernik A., **Wojewoda-Budka J**., Miernik K., Litynska-Dobrzynska L., Schell N.: „Intermetallic phases' characteristics appearing in Cu/(Sn,Ni) diffusion couples annealed at 220°C", Journal of Alloys and Compounds 693, (2017) 1102-1108.

8.

Fronczek D. M., Chulist R., Szulc Z., **Wojewoda-Budka J**.: „Growth kinetics of TiAl3 phase in annealed Al/Ti/Al explosively welded clads", Materials Letters 198, (2017) 160-163.

9.

Stan-Głowinska K., Rogal L., Goral A., Wierzbicka-Miernik A., **Wojewoda-Budka J**., Schell N., Litynska-Dobrzynska L.: „Formation of a quasicrystalline phase in Al-Mn base alloys cast at intermediate cooling rates", Journal of Materials Science 52, (2017) 7794-7807.

10.

Chulist R., Fronczek D.M., Szulc Z., **Wojewoda-Budka J**.: „Texture transformations near the bonding zones of the three-layer Al/Ti/Al explosively welded clads", Materials Characterization 129, (2017) 242-246.

11.

Fronczek D.M., Chulist R., Litynska-Dobrzynska L., Kac S., Schell N., Szulc Z., Kania Z., **Woje**

woda-Budka J
.: „Microstructural and kinetics characterization of three-layered A1050/AZ31/A1050 clads prepared by explosive welding combined with subsequent annealing", Materials & Design 130, (2017) 120-130.

12.

Stan-Głowińska K., Lityńska-Dobrzyńska L., Kania B., Dutkiewicz J., Rogal Ł., Skuza W., **Woje woda-Budka J**
., Gordillo M.A., Wiezorek J.M.: „Effects of hot-compaction on the structure and properties of Al-Mn-Fe-X alloys strengthened with quasi-crystalline icosahedral phase", Materials & Design 126, (2017) 162-173.

13.

Fronczek D.M., Chulist R., Litynska-Dobrzynska L., Lopez G.A., Wierzbicka-Miernik A., Schell N., Szulc Z., **Wojewoda-Budka J**., Microstructural and phase composition differences across the interfaces in Al/Ti/Al explosively welded clads, Metallurgical and Materials Transactions A, Metallurgical and Materials Transactions , 48(9), (2017) 4154-4165.

14.

Fronczek D.M., Saksl K., Chulist R., Michalik S., **Wojewoda-Budka J**., Sniezek L., Wachowski M., Torzewski J., Sulikova M., Sulova K., Lachova A., Fejercak M., Daisenberger D., Szulc Z., Kania Z.: „Residual stresses distribution, correlated with bending tests, within explosively welded Ti gr. 2/A1050 bimetals", Materials Characterization 144, (2018) 461-468.

15.

Fronczek D.M., Wierzbicka-Miernik A., Saksl K., Miernik K., Chulist R., Kalita D., Szulc Z., **Woje woda-Budka J**
.: „The intermetallics growth at the interface of explosively welded A1050/Ti gr. 2/A1050 clads in relation to the explosive material", Archives of Civil and Mechanical Engineering 18, (2018) 1679-1685.

16.

Brzoza A., Kowalczyk M., Wierzbicka-Miernik A., Czaja P., Maziarz W., Wójcik A., **Wojewoda-B udka J** .,
Sikora M., Dutkiewicz J., Szczerba M.J.: „Microstructural anisotropy, phase composition and magnetic properties of as-cast and annealed Ni-Mn-Ga-Co-Cu melt-spun ribbons", Journal of

Alloys and Compounds 776, (2019) 319-325.

17.

Kwiecien I., Bobrowski P., Wierzbicka-Miernik A., Litynska-Dobrzynska L., **Wojewoda-Budka J.** : „Growth Kinetics of the Selected Intermetallic Phases in Ni/Al/Ni System with Various Nickel Substrate Microstructure", Nanomaterials 9, 134 (2019), doi:10.3390/nano9020134.

18.

Kazimierczak H., Wierzbicka-Miernik A., Kwiecien I., Szczerba M.J., Korneva-Surmacz A., Mosiałek M., Miernik K., **Wojewoda-Budka J.**: „Electroless deposition of Ni-P and Ni-P-Re alloys from acidic hypophosphite baths", Electrochimica Acta 303, (2019) 157-166.

19.

Wojewoda-Budka J., Wierzbicka-Miernik A., Litynska-Dobrzynska L., Korneva A., Onderka B., Kodentsov A.: „The periodic layer formation in early stage reaction of silicon dioxide with magnesium", Materials Chemistry and Physics 231, (2019) 260-263.

20.

Kodentsov A., **Wojewoda-Budka J**., Wierzbicka-Miernik A.: „Periodic Layer Formation during Multiphase Diffusion in Silicide Systems„, Diffusion Foundations (Volume 21), Diffusion Controlled Growth and Oxidation of Metal-Silicides, (2019), 157-189, https://doi.org/10.4028/www.scientific.net/DF.21.157.

21.

Kodentsov A., Wierzbicka-Miernik A., Litynska-Dobrzynska L., Czaja P., **Wojewoda-Budka J**.: „Formation of Magnesium Silicide in bulk diffusion couples", Intermetallics, 114, (2019), 106589

22.

Kwiecien I., Bobrowski P., Janusz-Skuza M., Wierzbicka-Miernik A., Szulc Z., **Wojewoda-Budka J** .,
Microstructure of the interface zone after explosive welding and further annealing of A1050/Ni201 clads using various joining conditions, Journal of Materials Science 55, (2020) 9163-9172, https://doi.org/10.1007/s10853-019-04317-7.

23.

Wojewoda-Budka J., Wierzbicka-Miernik A., Litynska-Dobrzynska L., Korniewa-Surmacz A., Kodentsov A., On constituents of the periodic layered microstructure developed in solid-state reaction between Zinc and Co2Si, Metallurgical and Materials Transactions A 51A, (2020) 3497-3503, https://doi.org/10.1007/s11661-020-05788-z.

24.

Kwiecien I., Bobrowski P., Janusz-Skuza M., Wierzbicka-Miernik A., Szulc Z., **Wojewoda-Budka J**., Interface characterization of Ni/Al bimetallic explosively welded plate manufactured with application of exceptionally high detonation speed, Journal of Materials Engineering and Performance 29, (2020) 6286-6294, https://doi.org/10.1007/s11665-020-05117-w.

25.

Kodentsov A., **Wojewoda-Budka J**., Litynska-Dobrzynska L., Zieba P., Wierzbicka-Miernik A., Formation of intermetallic compounds in reaction between Cu-Ni alloys and solid Sn - a new look at the prominent effect of Ni, Journal of Alloys and Compounds (2020) 157677, https://doi.org/10.1016/j.jallcom.2020.157677.

26.

Wojewoda-Budka J., Wierzbicka Miernik A., Szczerba M., Kazimierczak H.,Kwiecien I., Morgiel J., Stan-Glowinska K.,Valenz F., The effect of Readdition on the thermal stability and structure of Ni-P electroless coatings, Materials Characterization, vol. 171, (2021) 110811, https://doi.org/10.1016/j.matchar.2020.110811

27.

Szmul M., Stan-Głowinska K., Janusz-Skuza M., Bigos A., Chudzio A., Szulc Z., **Wojewoda-Budka J**., The Interface Zone of Explosively Welded Titanium/Steel after Short-Term Heat Treatment, Metallurgical and Materials Transactions A, vol. 52A, (2021) 1588-1595, https://doi.org/10.1007/s11661-021-06174-z

28.

Kwiecien I., Wierzbicka-Miernik A., Szczerba M., Bobrowski P., Szulc Z.,**Wojewoda-Budka J**., On the Disintegration of A1050/Ni201 Explosively Welded Clads Induced by Long-Term

Annealing. Materials, 14, (2021) 2931.

29.

Bugajska M., Sypien A., Bobrowski P., Korneva A., Morgiel J., Szulc Z., **Wojewoda-Budka J**., Microstructural Characterization of Nb/Inconel 601 Interface Obtained in the Explosive Welding Process, Microscopy and Microanalysis, (2021), https://doi.org/10.1017/S1431927621012174.

Research Projects

Supervisor

-

Structural transformations during Al-Al2O3 in situ metal-ceramic composites formation, Project No. N N507 272836, IMMS PAS, 2008-2011

-

High temperature interaction of aluminum with ZnO and NiO single crystals o various orientations, Project Iuventus Plus (IP2011061071), IMMS PAS, 2012-2013

-

Periodic layers structure formation in the solid state reactions in systems Mg/SiO2, Zn/Co2Si and Zn/Ni3Si (2014/15/B/ST8/00195, 2015-2018)

Participant

-

Joint research within EkoKat Net Innovative catalytic materials for protection of eco-system, Research and Development Project - Special fotovoltaic systems for the application in the Polish Army, (Nr 0021/R/T00/2009/08, 2009-2011)

-

International Project - not co-financed - The application of transient liquid phase (TLP) soldering process in the production of electronic joints dedicated to work at elevated temperatures, (2009-2012)

-

Development Project - Invention and examination of charging station for electric vehicles based on solar cells (10002010, 2010-2013)

-

Research Project - Characteristics of structure and properties of Ni/Al2O3 composite coatings (2011/01/D/ST8/05318, 2011-2014)

-

Research Project - Microstructural and kinetic characteristics of the phenomena occurring at interfaces in (Sn,Ni)/Cu diffusion couples, (2011/03/B/ST8/061585, 2012-2015)

-

Research Project - Characteristics of Al based composites reinforced with quazicrystalline particles (2011/03/B/ST8/05165, 2012-2015)

-

Research Project - Advanced investigation of reorientation of martensite variants in plastically deformed monocrystals of Ni-Mn-Ga, (2011/03/D/ST8/04017, 2012-2015), contractor.

-

Research Project - Microstructural and kinetic characterization of the phenomena occurring at the solder/substrate interfaces of the Ti-6Al-4V alloys brazed with the use of amorphous TiZrCuPd ribbons, (2013/11/B/ST8/04286, 2014-2017)

-

The National Centre for Research and Development and The National Fund for Environmental Protection and Water Management, „GEKON - Generator Koncepcji Ekologicznych", (GEKON2/04/266475/6/2015, 2016-2018).

European Union Projects

-

Operational Programme Innovative Economy, co-financed by European Cohesion Funds, Reliability improvement of lead-free interconnections in electronic packages, POIG.01.03.01-00-103/09), participant, 2010-2014.

Experience gained abroad

Max - Planck Institut für Metallforschung, Stuttgart, Germany 2003 (2 weeks),

Technical University Eindhoven, The Netherlands 2004 (1 month),

Technical University Eindhoven, The Netherlands 2005 (1 month),

Max - Planck Institut für Metallforschung, Stuttgart, Germany 2005 (2 weeks),

Solid State Physics Institute, Russian Academy of Sciences 2009 (1 week),

Technical University Eindhoven, The Netherlands 2011 (1 week),

Technical University Eindhoven, The Netherlands 2012 (1 week).

Prizes and awards

2007 - Ph.D. with honour and Prize of the General Secretary of the Polish Academy of Sciences

2007 -2008 Foundation for Polish Science, START stipend for young researchers

2009 Prize for the best contribution in the Young Scientists Session during European Microbeam Analysis Society EMAS-2009 meeting: 11th European Workshop on Modern Developments and Applications in Microbeam Analysis, Gdynia/Rumia, Gdańsk

2010 Invitation for a sponsored attendance in Microbeam Analysis Society (MAS) meeting in Portland (USA) together with an invited talk

2011 Award of Polish and Russian Academy of Sciences for outstanding scientific achievements

2011 - three-year fellowship for outstanding young scientists granted by Ministry of Science and Higher Education

2012 Award of Director of IMIM PAN for the II prize in the young scientists group assessed for scientific achievements in 2009-2010

2014 Award for poster „TEM microstructures formed due to the reactions in Al/metal oxide couples" during XV International Conference on Electron Microscopy; 15-18.09.2014; Kraków, Polska

2014 Award of Director of IMIM PAN for the II prize in the young scientists group assessed for scientific achievements in 2013-2014

Education of scientific staff

Supervisor of M.Sc. thesis: Przemysław Romanów, 2007.

Vice-promoter of PhD student Katarzyna Stan within her doctoral studies with English language in the IMIM: "Aluminum alloys strengthened with quasi-crystalline particles based on the Al-Mn-Fe-system - microstructure and properties", 2010-2014.

Supervisor of PhD student Dagmara Fronczek within her doctoral studies in the IMIM: "Microstructural and kinetic characterization of the phenomena occurring on the clads' bonding surface manufactured using explosive welding", 2014-2018.

Organisation of conferences and scientific events

Member of the Organizing Committee of the Symposium on Techniques and Methods of Microstructure Characterization in Nanoscale, Kraków (2004),

Member of the Local Organizing Committee of Sixth International Conference on Diffusion In Materials (DIMAT), Kraków (2004),

Member of the Local Organizing Committee of Summer School on Mass and Charge Transfer in Materials (MCTM) Kraków (2004).

Member of the Local Organizing Committee of XII International Symposium on Explosive Production of New Materials: Science, Technology, Business and Innovation, EPNM-2014

Organizator of C2.1 panel Joining Technologies (area C:Processing, C2: Joining and Interfaces) EUROMAT 2015, 20-24.09.2015

Membership in professional societies:

Polish Association for Materials Science (since 2008)

European Microbeam Analysis Society (since 2009)

Microbeam Analysis Society (since 2010)

Member and Secretary of Scientific Council of Institute of Metallurgy and Materials Science Polish Academy of Sciences (since 2015)

Main scientific interest

Metal-ceramic composites, lead-free solder materials and modern soldering methods, methods of materials characterization including scanning and transmission electron microscopy.