PhD course "The Industrial Applications of Electrochemistry"

CURRICUL VITAE

Remigiusz Kowalik

1 Short CV

Affiliation

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Education

2000 - M. Sc., in Metallurgy, AGH University of Science and Technology, Department of Nonferrous Metals, Kraków
2006 - Ph. D., in Metallurgy, AGH University of Science and Technology, Department of Nonferrous Metals, Kraków

Employment

1.11.2004-30.09.2008 – research assistant, Faculty of Non-Ferrous Metals, AGH University of Science and Technology, al. Mickiewicza 30, 30-059 Krakow, Poland
1.10.2008-30.09.2019 – assistant professor, Faculty of Non-Ferrous Metals, AGH University of Science and Technology, al. Mickiewicza 30, 30-059 Krakow, Poland
1.10.2019-now – associate professor, Faculty of Non-Ferrous Metals, AGH University of Science and Technology, al. Mickiewicza 30, 30-059 Krakow, Poland

Scientific Experience

Industrial practice: Rassini Frenos S.A. de C.V., 01.08 - 30.11.2001 San Martin Texmelucan, Mexico
European Academy of Surface Technology Fellowship: Micro and Nano Deposition Training Course: *Deposition Processes*, 8.05 - 13.05. 2005 Barcelona, Spain
Fellowship of the Italian Ministry of Foreign Affairs: Department of Chemistry, University of Florence 01.10 - 30.11.2005, Florence, Italy

European Academy of Surface Technology Fellowship: Micro and Nano Deposition Training Course: *Control Of Deposit Processes*, 28.05 - 02.06. 2006 Schwäbisch Gmünd, Germany
Electrochemical STM Training Course: Department of Electrochemistry, University of Ulm, 19.03.2007-5.04.2007 Ulm, Germany
European Summer School on Magneto-Electrochemistry: 02.05.07-05.05.07 Algiers, Algiers
European Academy of Surface Technology Fellowship: Micro and Nano Deposition Training Course: *Micro And Nano Scale Patterned Deposition*, 14.10.2007 – 19.10. 2007 Athens, Greece
Research Fellow in Adventurous Electrochemistry: 01.12.08-30.10.08 School of Chemistry, Southampton University, Southampton, Great Britain
European Academy of Surface Technology Fellowship: Micro and Nano Deposition Training Course: *Micro And Nano Scale Patterned Deposition*, 19.10.2008 – 22.10. 2008 Trento, Italy
Short Term Scientific Missions (STSMs) within MP1407: 26.02.2015-10.03.2015, Université de Lorraine, Metz, France
Visiting professor: 2.10 – 30.10.2021, University of Reims, Reims, France

Short scientific visits:

16.11 – 29.11.2008 University of Reims, Reims, France
07.09 – 2.07.2009 University of Reims, Reims, France
05.03 – 22.03.2010 Laboratoire National des Champs Magnétiques Intenses (LNCMI), Grenoble, France
15.11 – 19.11.2010 University of Reims, Reims, France
05.03 – 18.03.2011 Laboratoire National des Champs Magnétiques Intenses (LNCMI), Grenoble, France
27.11 – 05.12.2011 University of Reims, Reims, France
28.07 – 12.08.2012, Laboratoire National des Champs Magnétiques Intenses (LNCMI), Grenoble, France
20.03 – 01.04.2014, Laboratoire National des Champs Magnétiques Intenses (LNCMI), Grenoble, France
26.02 – 10.03.2015, Laboratoire National des Champs Magnétiques Intenses (LNCMI), Grenoble, France

Awards

2005, 2006, 2007, 2008 - European Academy of Surface Technology Fellowship
2005 - Fellowship of the Italian Ministry of Foreign Affairs
2007 - Research Fellow in Adventurous Electrochemistry
2013 - Rector's Prize of AGH University of Science and Technology for scientific achievement
2017 - Rector's Prize of AGH University of Science and Technology for scientific achievement
2019 - Silver Badge of the Association of Non-Ferrous Metal Engineers and Technicians

Grants Received

2010-2012 Project title: Electrodeposition of thin films semiconductors in the magnetic field, Sources of funding: Ministry of Science and Technology of Poland,

2011-2015 Project title: Electrochemical synthesis of nanometric thin film semiconductors, Sources of funding: NCN The National Science Centre of Poland,
2016-2018 Project title: Synthesis and analysis of catalytic properties of transition metal alloys modified by
chalcogens, Sources of funding: NCN The National Science Centre of Poland,
2015 - 2019 Member of Management Committee of the European project COST MP1407 "Electrochemical processing methodologies and corrosion protection for device and systems miniaturization (e-MINDS)".

Teaching Experience

General Chemistry, Physical Chemistry, Corrosion of Metals and Alloys, Electrochemistry in Materials Science, Catalysis in Industry, Circular Economy, Sustainable Metallurgy in Circular Economy

Technical Skills

Electrochemical techniques: chronoamperometry, chronopotentiometry, chronculometry, hydrodynamic methods – flow cell, rotating disc electrode, rotating-ring disc electrode, voltammetry, electrochemical impedance spectroscopy, electrochemical quartz crystal microbalance, electrochemical atomic force microscopy, electrochemical scanning tunnelling microscopy, Electrochemical Atomic Layer Epitaxy, electrodeposition of metals alloys, semiconductors, superstructures, template electrodeposition,

Materials analysis and characterisation techniques: XRD, EDS, XRF, SEM, TEM, STM, AFM

Research Interests

General electrochemistry, analysis of mechanism and kinetics of electrode processes, electrodeposition of metals and alloys, electrodeposition and synthesis of semiconducting compounds, study of growth of thin film materials and superlattices, electrocrystallization and surface phenomena, template electrodeposition electrocatalysis, batteries and fuel cells, photoelectrochemistry and photovoltaics, materials characterization.

2 Bibliometric data

58 articles

567 citation

20 – h- index

3 Selection of the 10 most relevant publications and/or patents

1. Kowalik, R., Zabiński, P., Fitzner, K., Electrodeposition of ZnSe, (2008) Electrochimica Acta, 53 (21), pp. 6184-6190. , DOI: 10.1016/j.electacta.2007.12.009
2. Mech, K., Żabiński, P., Kowalik, R., Tokarski, T., Fitzner, K., Electrodeposition of Co-Pd alloys from ammonia solutions and their catalytic activity for hydrogen evolution reaction, (2014) Journal of Applied Electrochemistry, 44 (1), pp. 97-103. DOI: 10.1007/s10800-013-0605-7
3. Zabiński, P., Mech, K., Kowalik, R., Co-Mo and Co-Mo-C alloys deposited in a magnetic field of high intensity and their electrocatalytic properties, (2012) Archives of Metallurgy and Materials, 57 (1), pp. 127-133. , DOI: 10.2478/v10172-012-0001-z
4. Kowalik, R., Fitzner, K., Analysis of the mechanism for electrodeposition of the ZnSe phase on Cu substrate, (2009) Journal of Electroanalytical Chemistry, 633 (1), pp. 78-84. , DOI: 10.1016/j.jelechem.2009.04.029
5. Gawęda, S., Kowalik, R., Kwolek, P., MacYk, W., Mech, J., Oszajca, M., Podborska, A., Szaciłowski, K., Nanoscale digital devices based on the photoelectrochemical photocurrent switching effect: Preparation, properties and applications, (2011) Israel Journal of Chemistry, 51 (1), pp. 36-55. , DOI: 10.1002/ijch.201000057
6. Mech, K., Kowalik, R., Zabiński, P., Cu thin films deposited by DC magnetron sputtering for contact surfaces on electronic components, (2011) Archives of Metallurgy and Materials, 56 (4), pp. 903-908. , DOI: 10.2478/v10172-011-0099-4
7. Sulima, I., Kowalik, R., Hyjek, P., The corrosion and mechanical properties of spark plasma sintered composites reinforced with titanium diboride, (2016) Journal of Alloys and Compounds, 688, pp. 1195-1205. , DOI: 10.1016/j.jallcom.2016.07.132
8. Zabiński, P., Mech, K., Kowalik, R., Electrocatalytically active Co-W and Co-W-C alloys electrodeposited in a magnetic field, (2013) Electrochimica Acta, 104, pp. 542-548. , DOI: 10.1016/j.electacta.2012.11.047
9. Kazimierczak, H., Ozga, P., Jałowiec, A., Kowalik, R., Tin-zinc alloy electrodeposition from aqueous citrate baths, (2014) Surface and Coatings Technology, 240, pp. 311-319. , DOI: 10.1016/j.surfcoat.2013.12.046
10. Mech, K., Zabiński, P., Kowalik, R., Fitzner, K., Kinetics and mechanism of [PdClx(H2O) 4-x]2-x(x = 3,4) complexes electro-reduction, (2013) Journal of the Electrochemical Society, 160 (10), pp. H770-H774. , DOI: 10.1149/2.007311jes