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Employment and position

Institute of Metallurgy and Materials Science, Polish Academy of Sciences: Ph.D. studies (2010-2014), assistant professor (2015).

Scientific Career

M.Sc.: AGH - University of Technology, Faculty of Materials Science and Ceramics, 2010
Ph.D.: Institute of Metallurgy and Materials Science, Polish Academy of Sciences, 2014 (with honour)

Scientific ahievements

A total of **34** publications (**14** items recognized by the Institute for Scientific Information in Philadelphia).

1.

Sobik P., Pawłowski R., Pluta A., Jeremiasz O., Drabczyk K., **Kulesza-Matlak G**., Zięba P., The impact of ribbon treatment on the interconnection of solar cells withina glass free PV module, MICROELECTRONICS INTERNATIONAL, Volume: 36, Issue: 3, 95-99, 2019

2.

Starowicz Z., Gawlińska K., Walter J., Socha R.P., **Kulesza-Matlak G**., Lipiński M., Extended investigation of sol aging effect on TiO2 electron transporting layer and performances of perovskite solar cells, MATERIALS RESEARCH BULLETIN, Volume: 99, 136-143, 2018

3.

Kulesza-Matlak, G., Gawlińska K., Starowicz Z., Sypień A., Drabczyk K., Drabczyk B., Lipiński M., Zięba P., Black silicon obtained in two-step short wet etching as a texture for silicon solar cells - surface microstructure and optical properties studies, ARCHIVES OF METALLURGY AND MATERIALS, Volume: 63, Issue: 2, 1009-1017, 2018

4.

Gawlińska K., Iwan A., Starowicz Z., **Kulesza-Matlak G**., Stan-Głowinska K., Janusz M., Lipiński M., Boharewicz B., Tazbir I., Sikora A., Searching of new, cheap, air- and thermally stable hole transporting materials for perovskite solar cells, OPTO-ELECTRONICS REVIEW, Volume: 25, Issue: 4, 274-284, 2017

5.

Starowicz Z., Kędra A., Berent K., Gawlińska K., Gwóźdź K., Zielony E., **Kulesza-Matlak G**., Socha RP., Drabczyk K., Płaczek-Popko E., Lipiński M., Influence of Ag nanoparticles microstructure on their optical and plasmonic properties for photovoltaic applications, SOLAR ENERGY, Volume: 158, 610-616, 2017

6.

Lipiński M., Socha RP., Kędra A., Gawlińska **K., Kulesza-Matlak** G., Major Ł., Drabczyk K., Łaba K, Starowicz Z., Gwóźdź K., Góral A., Popko E., Studying of perovskite nanoparticles in PMMA matrix used as light converter for silicon solar cell, ARCHIVES OF METALLURGY AND MATERIALS, Volume: 62, Issue: 3, 1733-1739, 2017

7.

Filipowski W., Wróbel E., Drabczyk K., Waczyński K., **Kulesza-Matlak G**., Lipiński M., Spray-on glass solution for fabrication silicon solar cell emitter layer, MICROELECTRONICS INTERNATIONAL, Volume: 34, Issue: 3, 149-153, 2017

8.

Drabczyk K., **Kulesza-Matlak G**., Drygała A., Szindler M., Lipiński M.Electroluminescence imaging for determining the influence of metallization parameters for solar cell metal contacts, SOLAR ENERGY, Volume: 126, 14-21, 2016

9.

Drabczyk K., Wróbel E., **Kulesza-Matlak G**., Filipowski W., Waczyński K., Lipiński M., Comparison of diffused layer prepared using liquid dopant solutions and pastes for solar cell with screen printed electrodes, MICROELECTRONICS INTERNATIONAL, Volume: 33, Issue: 3, 167-171, 2016

10.

Drabczyk K., Domaradzki J., **Kulesza-Matlak G**., Lipiński M., Kaczmarek D., Influence of ITO layer application on electrical parameters of silicon solar cells with screen printed front electrode, MICROELECTRONICS INTERNATIONAL, Volume: 33, Issue: 3, 172-175, 2016

Research Projects

Projects from Ministry of Science and Higher Education

-

Otrzymywanie i charakterystyka nowych materiałów do perowskitowych ogniw słonecznych

(Preparation and characterization of new materials for perovskite solar cells), contractor, 2019-2022

-

Samoczyszczące, wydajne panele fotowoltaiczne na podłożu elastycznym zintegrowane z ekranem akustycznym i inteligentnym systemem monitorowania ("Self-cleaning, PV panels on the flexible subgrade integrated with the acoustic screen and the smart monitoring system), contractor, 2018-2021

-

Innowacyjne elastyczne pokrycie fotowoltaiczne (Innovative flexible photovoltaic cover), contractor, 2018-2021

-

Dobór i szczegółowa analiza warunków kierunkowej teksturyzacji powierzchni fotowoltaicznego krzemu krystalicznego w celu poprawy własności optoelektronicznych (The selection and detailed analysis of directional texturizing conditions of crystalline silicon surface in order to improve the optoelectronic properties), project manager, 2014-2016 (in progress)

-

Badanie wpływu nanocząstek metali i półprzewodników na właściwości optoelektroniczne materiałów kompozytowych (Study of the effect of metal and semicondutor nanoparticles on the optoelectronic properties of composite materials), contractor, 2013-2016 (in progress)

-

Opracowanie i badania opartej na bateriach słonecznych stacji ładowania akumulatorów do pojazdów elektrycznych (Development and testing of based on solar cells charging stations for electric vehicles), contractor, 2011-2013.

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Specjalne systemy fotowoltaiczne do zastosowania w Siłach Zbrojnych RP (Special photovoltaic systems for use in the Armed Forces of the Republic of Poland), contractor, 2010-2011.

European Union Projects

-

Upowszechnianie osiągnięć polskiej oraz światowej fotowoltaiki w procesie kształcenia na poziomie wyższym - II edycja - komponent międzynarodowy, Projekt nr POKL.04.02.00-00-006/09-00 realizowany w ramach Priorytetu IV Działania 4.2 Programu Operacyjnego Kapitał Ludzki, uczestnik Europejskiej Letniej Szkoły Fotowoltaiki, 2011 -2012

-

Interdyscyplinarne studia doktoranckie z zakresu inżynierii materiałowej z wykładowym językiem angielskim, (Interdisciplinary PhD studies on materials sciences with english as a language of instruction), Project no. POKL.04.01.01-00-004/10 co-financed by European Union within European Social Fund, PhD student, 2010-2014

-

Upowszechnianie osiągnięć polskiej oraz światowej fotowoltaiki w procesie kształcenia na poziomie wyższym - II edycja, Projekt nr POKL.04.02.00-00-006/09-00 realizowany w ramach Priorytetu IV Działania 4.2 Programu Operacyjnego Kapitał Ludzki, uczestnik Szkolenia i warsztatów dla studentów wyższych szkół technicznych, 2010 -2011

Research experience

1.

Training on "Promoting the achievements of Polish and world photovoltaics in the process of higher education - the 2nd edition", organized by the Photovoltaic Laboratory IMMS PAS (October 2010-January 2011)

2.

Academic training - Prof. Danuta Kaczmarek, Wroclaw University of Technology, Faculty of Microsystem Electronics and Photonics, diagnosis of optical and electrical nanocrystalline thin film materials for transparent electronics (1-29/07/2011)

3.

PV training organized by the Warsaw University of Technology (29-30/09/2011)

4.

Training on "Professional R&D Project Manager", organized by the University of Agriculture in Krakow (October 2011-June 2012)

5.

Academic training - Prof. Irena Zubel, Wroclaw University of Technology, Faculty of Microsystem Electronics and Photonics, technology of etching of silicon for photovoltaics and microelectronics (18-30/06/2012)

6.

Training on "Nano-scale Materials and Advanced Characterization Techniques" organized by DGM, Drezden, Germany, (5-6/12/2012)

7.

Online course "Solar Cells, Fuel Cells and Batteries" organized by Stanford University, ended with honors (October 2013-January 2014)

8.

Training on "Photovoltaic systems in practice. Designing. Installation. Connecting to the network and monitoring of the effectiveness" organized by KGI FoxKrak (10/09/2014)

Prizes and awards

PhD with honour (2014)

1st prize for the best poster presentation "Short acidic surface texturization of mc-Si wafers for Crystallographica specific orientations and its impact on optoelectronic parameters of solar cells", Euromat, Seville (Spain), 8-13/09/2013

Doctus doctoral scholarship for 2011-2014

2nd prize for the best speech at the 7th Symposium on Photovoltaics and Transparent Electronics - Development Perspectives

1st prize for the best speech at the 6th Symposium on Photovoltaics and Transparent Electronics - Development Perspectives

1st prize for the best speech at the 5th Symposium on Photovoltaics and Transparent Electronics - Development Perspectives

2nd prize for the best speech at the 4th Symposium on Photovoltaics and Transparent Electronics - Development Perspectives

2nd prize for the best speech at the 3rd Symposium on Photovoltaics and Transparent Electronics - Development Perspectives

2nd prize for the best speech at the 2nd National Conference on Photovoltaics

1st prize for the best speech at the 2nd Symposium on Photovoltaics and Transparent Electronics - Development Perspectives

Organisation of conferences and scientific events

Secretary of the Organizing Committee of the 2nd National Conference of Science and Industry "Fotowoltaika 2020", organized as part of the DIALOG Program, 2021

Member of the organizing committee of the 2nd National Conference on Photovoltaic in Krynica-Zdroj (12-15/05/2011)

Chairman on session "Sensors" on the 2011 International Students and Young Scientist Workshop-Photonics and Microsystems in Cottbus (8-10/07/2011)

Main scientific interest

Physical chemistry and technology of photovoltaic cells based on crystalline silicon with special emphasis on opto-electronic measurements.
Directional surface modification of chemical solutions.
Thin film and perovskite solar cells.
Tandem solar cells based on silicon/perovskite