

Kazimierz Drabczyk Ph.D., D.Sc

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Employment and positions

The Silesian University of Technology, Faculty of Automatic Control, Electronics and Computer Science: Ph.D. studies (1998-2003), assistant (2003- 2004), assistant profesor (2004-2007). From 2007 assistant profesor in the Photovoltaic Laboratory of the Institute of Metallurgy and Materials Science of the Polish Academy of Sciences. From June 1, 2019, he is employed as an institute professor at IMIM PAN

Scientific Career

Ph.D.: The Silesian University of Technology, 2003 (**with honour**)

M.Sc.: The Silesian University of Technology, 1998

D.Sc.: the Institute of Metallurgy and Materials Science, 2019

Scientific achievements

118 papers, among them: 32 papers in refereed journals and periodicals citetd by the Institute for Scientific Information in Philadephia), 51 presentations during conferences, 2 chapters in books, 3 book (monography).

The most relevant publications during last 5 years

Monographs:

1.

Drabczyk K., 2018. Modyfikacje elektrod na bazie srebra w aspekcie zastosowań w krzemowych krystalicznych ogniwach fotowoltaicznych. Monografia, ISBN 978-83-60768-47-1, (166 stron, 8 arkuszy wydawniczych), Kraków - Kozy 2018

2.

Drabczyk K., Domaradzki J., Godlewski M., Kaczmarek D., Lipiński M., Mazur M., Michałek A., Sieradzka K., Stapiński T., Szymonik D., Wojcieszak D., Zięba P., „Biała księga innowacji w fotowoltaice polskiej”, praca zbiorowa pod redakcją Kazimierza Drabczyka, 2018., Grafpol, Wrocław, 140 stron, ISBN 978-83-60768-49-5

Articles:

1.

Maleczek S., **Drabczyk K.**, Bogdanowicz K.A., Iwan A., 2020, "Engineering concept of energy storage systems based on new type of silicon photovoltaic module and lithium ion batteries", ENERGIES, Volume: 13, Issue: 14

2.

Drabczyk K., Sobik P., Starowicz Z., Gawlińska K., Pluta A., Drabczyk B., 2019, "Study of lamination quality of solar modules with PMMA front layer", Microelectronics International, Volume: 36, Issue: 3, pp: 100-103

3.

Kulesza-Matlak G., Gawlińska K., Starowicz Z., Sypień A., **Drabczyk K.**, Drabczyk B., Lipinski M., Zięba P., 2018, "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, pp: 1009-1017

4.

Filipowski W., **Drabczyk K.**, Wrobel E., Sobik P., Waczyński, K., Waczyńska-Niemiec, 2018, "Borosilicate spray-on glass solutions for fabrication silicon solar cell back surface field", Microelectronics International, Volume: 35, Issue: 3, pp: 172-176

5.

Gawlinska K., **Drabczyk K.**, Starowicz Z., Sobik P., Drabczyk B., Zięba P., 2018, "Determination of EVA cross-linking degree after lamination process by extraction and optical transmission measuring", Archives of Metallurgy and Materials, Volume: 63, Issue: 2, pp: 833-838

6.

Starowicz Z.M., **Drabczyk K.**, Gawlińska K., Zięba P., 2018, "Metrological aspects of evaluation of glass types used in photovoltaic modules in laboratory scale", Metrology And Measurement Systems, Volume: 25, Issue: 1, pp: 203-211

7.

Drabczyk K., 2018. Fine line screen printed silver electrodes for copper electrodeposition. Soldering & Surface Mount Technology, Volume 30, Issue 2, pp. 129-134

8.

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

9.

Grzesiak W., Mackow P., Maj T., Polak A., Klugmann-Radziemska E., Zawora S., **Drabczyk K.**, Gulkowski S., Grzesiak P., " Innovative system for energy collection and management

integrated within a photovoltaic module", Solar Energy, Volume 132 (2016), pp. 442-452

10.

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, (2016), pp. 14-21

Research Projects

Projects from Ministry of Science and Higher Education

1.

„Samoczyszczące, wydajne panele fotowoltaiczne na podłożu elastycznym zintegrowane z ekranem akustycznym i inteligentnym systemem monitorowania", Projekt w ramach Programu Operacyjnego Inteligentny Rozwój 2014-2020 poddziałanie 4.1.1, project manager, implementation period:1.09.2018 - 31.08.2021

2.

Innovative flexible photovoltaic cover, The National Centre for Research and Development and The National Fund for Environmental Protection and Water Management, „GEKON - Generator Koncepcji Ekologicznych", **supervisor in IMMS of PAS**, 2016-2018

3.

Isothermal and refrigeration photovoltaic car body,, Project No. GEKON2/04/266475/6/2015, The National Centre for Research and Development and The National Fund for Environmental Protection and Water Management, „GEKON - Generator Koncepcji Ekologicznych", **main contractor**, 2015-2017

4.

Investigation of influence of metal and semiconductor nanoparticles on optoelectronic properties of composite materials, Project NCN, DEC-2012/05/B/ST8/00087, **contractor**, 2013-2016

5.

In-line processing of n+/p and p/p+ junction systems for cheap photovoltaic module production, POLNOR/199380/89/2014, **main contractor**, 2014 -2016

6.

Development and testing charging station based on solar cells for electric vehicles, Development Project No. NR10-0020-10/2011, **main contractor**, 2011-2013

7.

The Laser-fired Back Contacts for Crystalline Silicon Solar Cells, (Project No. N507 443734), IMIM PAN, **contractor**, 2008 - 2010

8.

Specjalne systemy fotowoltaiczne do zastosowania w Siłach Zbrojnych RP, projekt rozwojowy Nr OR00002108 w konsorcjum z Wojskowymi Zakładami Techniki Inżynierskiej we Wrocławiu i Wojskowymi Zakładami Łączności nr 2 w Czernicy, IMIM PAN, **main contractor**, 2009 - 2011

9.

Designing and production of functional graded materials (Project No. PBZ-KBN 100/TO8-2003): Subject 1: Designing and technology elaboration of functionally graded materials for the application in photonics and fuel cells, Task 2: Elaboration of technology of antireflection gradient coatings in silicon solar cells, IMMS PAS, **contractor**, 2004-2007

Common research within the scientific network

PV-TECH- Development of new technologies and research techniques for silicon solar cells,
IMMS PAS,
contractor
, 2008

International projects

1.

Materialy termoprzewodzące nowej generacji do zastosowań w elektronice". Program INNOCHEM, Projekt nr: POIR.01.02.00-00-0009/16, **contractor**, implementation period: 15.12.2017 - 14.12.2018

2.

Research and development of modern technologies, 2016, (POIG 01.04.00-16-003 / 10) measure 1.4., Project: "Development of an innovative method of increasing the efficiency of photovoltaic cells. Research in cooperation with Thermolytix company, **project manager** at the IMMS of PAS

3.

Operational Programme Human Capital, co-financed by European Social Fund, *Dissemination of Polish and world achievements in photovoltaics in the education process at high level - II Edition - supranational component*,
(No. UDA-POKL. 04.02.00-00-006/09-00), IMMS PAS,
contractor
, 2011-2012

4.

Operational Programme Human Capital, co-financed by European Social Fund, *Dissemination of Polish and world achievements in photovoltaics in the education process at high level - II Edition* (No.

UDA-POKL. 04.02.00-00-006/09-00), IMMS PAS,
contractor
, 2010-2011

5.

Nowa jakość - kompleksowe wsparcie procesów restrukturyzacyjnych w Jabil Circuit Poland,
(Projekt nr WND-POKL.08.01.02-22-010/10realizowany w Jabil Circuit Poland , ul. Lotnicza 2,
82-500 Kwidzyń. Projekt współfinansowany ze środków Unii Europejskiej w ramach
Europejskiego Funduszu Społecznego), main contractor, 2010 - 2011

6.

Operational Programme Human Capital, co-financed by European Social Fund, *Dissemination
of Polish and world achievements in photovoltaics in the education process at high level*
(No. UDA-POKL.04.02.00-00-053/08-00), IMMS PAS,
contractor
, 2009-2010

Experience

1.

Poland, Odlewnie Polskie S.A., The industrial training, 2014-2015 (7 months)

2.

Poland, Jabil Circuit Poland, Research and training contract , 2010 - 2011 (1 month)

3.

France, Institut d'Electronique du Solide et des Systèmes, CNRS - Universite Louis
Pasteur, Strasbourg, Research contract, 2008 (2 months)

Some shorter visits:

1.

Norway, SINTEF, Research training, 2014, (1 week)

2.

NATO - Advanced Study Institute - Photovoltaic and Photoactive Materials, Sozopol, Bulgaria, 2001 (2 weeks) - training

Prizes and awards

2019 Award of the Director of IMIM PAN for the 2nd place in the group of doctors and engineering and technical employees in the assessment of scientific and research achievements for 2017-2018

2018 Gold Medal at the International Exhibition of Inventions, Geneva, Switzerland, April 11-15, 2018 for Innovative flexible photovoltaic cover, awarded by: Maleczek S., Wojciechowski A., Grzesiak W., Drabczyk K., Januszko A.

2018 Award with the best innovation for Innovative flexible photovoltaic coating, Geneva, Switzerland, April 11-15, 2018, awarded by: Maleczek S., Drabczyk K., Wojciechowski A., Grzesiak W.

2003 - Ph.D. with honour

2004 - Prize from the Rector of the Silesian University of Technology (II degree prize)

Organisation of conferences and scientific events

Member of the organizing committee, 2nd National Conference of Science and Industry "Fotowoltaika 2020", organized as part of the DIALOG Program, 2021

Chairman of the organizing committee of the National Conference on Science and Industry "Fotowoltaika 2020", organized as part of the DIALOG Program on April 12-15, 2018 in Rytro.

Member of organising committee: 27-th International Conference and Exhibition IMAPS 2003 (2003)

PV-TECH Development of new technologies and research techniques for silicon solar cells, reporting meeting, Kozy, 2008

I Photovoltaic Polish Country Conference, 8 - 11 October 2009, Krynica-Zdrój

II Photovoltaic Polish Country Conference, 12 - 15 May 2011, Krynica-Zdrój

European Photovoltaics Summer School, 4 - 7 July 2012, Krakow, Poland

Membership in professional societies

Member of the Scientific Council of IMIM PAS - from 30 July 2020.

Member of the Executive Council of the Polish Section of IMAPS (term 2015-2016)
Member of IMAPS International Microelectronics and Packaging Society and Education Foundation

Main scientific interest

Methods of encapsulating photovoltaic cells. Gradient materials for photovoltaics, luminescent light concentrators. New technologies used in the photovoltaic industry

Metal electrodes and silicon-metal contacts of solar cells.

Solar cell device physics and technology, diffusion processes, defect engineering in polycrystalline silicon, texturization. Renewable energy sources.