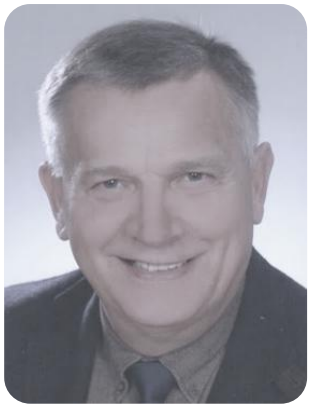
PART ONE



PERSONAL INFORMATION

29th August 1955

Gdańsk

4C Borówkowa St,
Otomin,
Kolbudy Municipality,
80-174 Gdańsk

2B Zator-Przytockiego St,
Apt 12, Wrzeszcz,
80-245 Gdańsk

Gdańsk University of Technology,
11/12 Narutowicza St,
80-233 Gdańsk

Academic teacher,
chemical engineer

Cathodic protection inspector

+ 48 601 529 730

kazdarow@pg.edu.pl

Kazimierz Darowicki – Wikipedia, the free encyclopedia

Kazimierz Darowicki

FIELD: ENGINEERING AND TECHNOLOGY
DISCIPLINE: CHEMICAL ENGINEERING
ORCID ID: 0000-0002-5457-5008

SCIENTIFIC PROFILE

TABLE OF CONTENTS

1. DEGREES AND ACADEMIC TITLE

Professional degree	**Master of Science in Engineering**
Specialty	Inorganic chemical technology
Date obtained	5th June1981
Awarded by	Faculty Council, Faculty of Chemistry, Gdańsk University of Technology

First academic degree	**Doctor of Philosophy**
Field	Technical sciences
Discipline	Chemical engineering
Specialty	Anticorrosion protection technologies
Date obtained	27th November 1991
Awarded by	Faculty Council, Faculty of Chemistry, Gdańsk University of Technology

Second academic degree	**Doctor of Philosophy, Doctor of Science**
Field	Technical sciences
Discipline	Chemical technology
Specialty	Corrosion engineering, electrochemistry
Awarded by	Faculty Council, Faculty of Chemistry, Gdańsk University of Technology
Decision and date	Central Commission for Academic Degrees and Titles, decision of 13th December 1995

Academic title	**Professor**
Field	Technical sciences
Applicant	Faculty Council, Faculty of Chemistry, Gdańsk University of Technology
Decision and date	Central Commission for Academic Degrees and Titles, decision of 12th July 1999
Nomination	President of the Republic of Poland, decision no. Pr. 115-7-99

2. EMPLOYMENT, POSITIONS AND FUNCTIONS

Date, position Employer	1981 – 1991, chemist/specialist Faculty of Chemistry, Gdańsk University of Technology
Date, position Employer	1991 – 1992, assistant Faculty of Chemistry, Gdańsk University of Technology
Date, position Employer	1992 –1997, assistant professor Faculty of Chemistry, Gdańsk University of Technology
Date, position Employer	1997 – 2001, associate professor Faculty of Chemistry, Gdańsk University of Technology
Date, position Employer	2001 – …, full professor [1a] Minister of National Education

Date, position Employer	1996 – 2024, head of the postgraduate studies „Anticorrosion Protection” Faculty of Chemistry, Gdańsk University of Technology
Date, position Employer	1996 – 2001, head of the Department of Anticorrosion Protection Technologies Faculty of Chemistry, Gdańsk University of Technology
Date, position Employer	2001 – 2023, head of the Department of Electrochemistry, Corrosion and Materials Engineering Faculty of Chemistry, Gdańsk University of Technology[1b]
Date, position Employer	2003 –2023, head of the Anticorrosion Protection Team Security and Defence Technologies Centre/ Gdańsk University of Technology
Date, position Employer	2020 – 2022, director of the Industrial Doctoral School Gdańsk University of Technology
Date, position Employer	2021 – 2022, director of the Hydrogen Technologies Centre Gdańsk University of Technology
Date, position Institution	2024 –….., member of the Committee of Chemical and Process Engineering Polish Academy of Sciences

3. MAJOR ACHIEVEMENTS

3.1. Didactic achievements

Establishment of the Department of Electrochemistry, Corrosion and Materials Engineering, one of the largest and most recognizable corrosion teaching centres in Europe [1]. Other important initiatives include:

1. Initiating the creation and co-organization of an inter-faculty direction of study ‘MATERIALS ENGINEERING’ at the Gdańsk University of Technology, 1998.
2. Creation of the specialization ‘CORROSION ENGINEERING’ and modernization of the specialization ‘ANTICORROSION PROTECTION TECHNOLOGIES’, 1998.
3. Organization of a unique direction of study „CONSERVATION AND DEGRADATION OF MATERIALS” and the direction of study „CORROSION” at the Gdańsk University of Technology [2a]. Gdańsk Tech Senate Resolution No. 98/2013/XXIII of June 19, 2013.
4. Establishment of a laboratory for STM and AFM nanoscopic surface analysis, a laboratory for electron vacuum techniques XPS, UPS, AES, SEM, and a laboratory for Raman microscopy, 2002.
5. Organization and conducting postgraduate studies „ANTICORROSION PROTECTION”, 1996-2024.
6. Creation of a cyclic course for the seagoing ship paint coat surveyor according to the Solas convention regulations II-1/3-2 at NACE level 2, FROSIO III, JOURNAL OF LAWS OF THE REPUBLIC OF POLAND. Item 1378 REGULATION OF THE MINISTER OF INFRASTRUCTURE AND DEVELOPMENT, of September 19, 2014. The course has been accredited by DET NORSKE VERITAS (NORWAY).

7a. Co-organization of a cyclic course for cathodic protection inspectors at NACE levels 2 and 3. JOURNAL OF LAWS OF THE REPUBLIC OF POLAND. Item 1378 REGULATION OF THE MINISTER OF INFRASTRUCTURE AND DEVELOPMENT, of September 19, 2014. The course has been accredited by the POLISH REGISTER OF SHIPPING.

7b. Co-organization of a training centre and examination centre for cathodic protection personnel established by the OFFICE OF TECHNICAL INSPECTION. Certificate CO/OKAT/Sz./01/17, certificate CO/OKAT/Egz./ 01/17.

8. Obtaining the status of a MARITIME EDUCATIONAL UNIT. JOURNAL OF LAWS OF THE REPUBLIC OF POLAND. Item 698 Regulation of the Minister of Infrastructure and Development of May 13, 2014.
9. Preparation of the lectures:
   - Faculty of Chemistry, Gdańsk University of Technology: Fundamentals of metal corrosion, Construction materials in the chemical industry, Electrochemistry, Economic environment, Corrosion of metals, Photoelectron spectroscopy, Anticorrosion protection technologies.
   - Faculty of Electrical and Control Engineering, Gdańsk University of Technology: Technical electrochemistry, Hydrogen technologies, Corrosion.
   - Faculty of Chemistry, Warsaw University of Technology: Industrial electrochemistry, Anticorrosion protection.

10. Establishment and management of the first Industrial Doctoral School in Poland. Regulation of the Rector of the Gdańsk University of Technology 4/2020 of January 23, 2020.
11. Establishment of the Hydrogen Technologies Centre of the Gdańsk University of Technology, 2021.
12. Initiation of the creation and co-organization of an inter-faculty direction of study: 'HYDROGEN TECHNOLOGIES and ELECTROMOBILITY' Faculty of Electrical and Control Engineering, Gdańsk University of Technology, 2021.
13. Establishment of a didactic laboratory for fuel cells, 2022.
14. Initiation of the creation and co-organization of the discipline 'Chemical Engineering' at the Faculty of Chemistry of the Gdańsk University of Technology, 2019.
15. Co-authorship of the following manuscripts:
    - „Charakterystyka chemiczna żywic i rozpuszczalników do farb oraz powłok ochronnych", Wydawnictwo Politechniki Gdańskiej 2011, ISBN 8373483438, 9788373483439
    - „Ochrona katodowa konstrukcji metalowych podziemnych i podwodnych", Wydawnictwo Politechniki Gdańskiej 2011, ISBN 8373483667, 9788373483668
    - „Podstawowe procedury pomiarowe w ochronie katodowej", Wydawnictwo Politechniki Gdańskiej 2021, ISBN: 978-83-7348-811-3
    - „Powłoki malarskie w ochronie przeciwkorozyjnej, zasady stosowania i kontrola jakości", Wydawnictwo Politechniki Gdańskiej 2023, ISBN: 978-83-7348-880-9
    - „Ochrona katodowa". Wydawnictwo Politechniki Gdańskiej 2011, ISBN: 978-83-7348-362-0
    - „Cathodic and Anodic Protection, Materials Science and Technology: A Comprehensive Treatment, Volume 1-2, Pages 384 – 470 April 21, Wiley 2008, https://doi.org/10.1002/9783527619306.ch8

3.2. Achievements in staff education

Education of staff at doctoral, master, bachelor, postgraduate and professional course levels

1.	Graduates of certified courses: 'Marine ship paint coating supervision inspector', 'Cathodic protection inspector'.	~ 400
2.	Graduates of postgraduate studies 'Anticorrosion Protection'.	~ 320
3.	Supervised Ph.D.: J. Orlikowski, A. Miszczyk, S. Krakowiak, A. Zieliński, P. Ślepski, A. Krakowiak, J. Majewska, S. Janicki, A. Królikowska, W. Felisiak, J. Kawula, A. Mirakowski, A. Arutunow, M. Szociński, J. Ryl, K. Schaefer, E. Janicka, M. Tobiszewski, K. Jurak, M. Narożny, Ł. Gaweł, Ł. Burczyk, M. Mielniczek, R. Gospoś, Ł. Plis.	25
4.	Supervision of currently ongoing Ph. D. theses: R. Pisarski, A. Karólkowska, S. Wysmułek.	3

Scientific advisor in the Ph. D. project: Catia Lamerton Viegas, "Investigating the contemporary enamel on metal outdoor murals through the work of Stefan Knapp", Birmingham University, Great Britain

3.3. Achievements in applied research

Establishment of one of the largest corrosion research and implementation centres in Europe. About 500 research works, expert opinions and implementations performed. The research focuses on corrosion monitoring and diagnostics , anticorrosion organic coatings and electrochemical protection. Major achievements include:

1. Development and implementation of a maintenance-free, automatic system for corrosion monitoring of water lines in the lower terrace of the city of Gdańsk, SAUR NEPTUN GDAŃSK S.A., and the GDAŃSK CITY HALL [2b].
2. Development and implementation of a method for assessing the condition of anti-corrosion linings and coatings in flue gas desulfurization installations at the Bełchatów Power Plant, ELEKTROWNIA BEŁCHATÓW S.A [2b]
3. Determining the causes of intensified corrosion of heat exchangers. Development of anticorrosion-erosion protection technology, LOTOS S.A.

4. Development of technology and implementation of cathodic protection and corrosion monitoring system at the Baltic Beta oil production platform, PETROBALTIC S.A.
5. Assessment of the corrosion progress of harbour installations and facilities, NAFTOPORT S.A. [2b]
6. Conducting a stray currents risk assessment of gas transmission pipelines, MAZOWIECKA SPÓŁKA GAZOWNICZA S.A.
7. Design and implementation of cathodic protection of the Elbląg Canal slipway, WPP BUD-TOR.
8. Corrosion monitoring of HON, HOG, FKK, and HF Alkylation installations, ORLEN S.A. Corrosion monitoring of DRW installation, RAFINERIA TRZEBINIA S.A. Corrosion monitoring of 100, 200, and 1300 installations, LOTOS S.A. [2b]
9. Assessment of the condition and development of protection technology for preserving the facilities of the former concentration camp 'Auschwitz', AUSCHWITZ-BIRKENAU Memorial and Museum.
10. Cathodic protection of 28 petrol stations, ORLEN S.A. Cathodic protection of 3 fuel terminals, LOTOS S.A.
11. Assessment of the corrosion progress and elaboration of corrosion atlas of facilities and installations of the Ore Enrichment Plant, KGHM Polska Miedź S.A. [2b]
12. Diagnostics and assessment of the technical condition of brine pipelines, Salt Mine MOGILNO – Production Plant JANIKOSODA in Janikowo, SOLINO Grupa ORLEN.
13. Corrosion risk assessment of various types of crude oil and their impact on the distillation tower at ORLEN S.A., EMERSON Process Management Ltd.
14. Modernization of cathodic protection systems of vessels of the Polish Navy, NAVAL COMMAND OF THE REPUBLIC OF POLAND.
15. Control algorithm and controller for increasing the efficiency of hybrid PEMFC systems in different applications. COALA project as part of the STAIR initiative, the Polish-German sustainable development program [2b].
16. Design and implementation of a cathodic protection system for the water intake and the Dn1400 pipeline of the Czerniaków settler in Warsaw, HUSAR Construction Engineering S.A.
17. Design, construction, and implementation of a dual system for monitoring general and hydrogen-induced corrosion. Monitoring of CATALYTIC CRACKING installations. Monitoring of HYDROCRACKING II installations. Monitoring of GUDRON HYDRODESULFURIZATION installations. Projects realized within the KORMON program, INNOCHEM initiative, PKN ORLEN-Gdańsk University of Technology [2b].
18. Risk based inspection (RBI) systems for the LOTOS Group. Corrosion risk assessment of 100, 1100, 250, 520, and 920 installations, LOTOS S.A.
19. Framework agreement with ORLEN S.A. 'RBI management systems in ORLEN S.A.': Corrosion risk assessment of DRW3 installation. Corrosion risk assessment of the Reforming installations. Corrosion risk assessment of FKK installation. Corrosion risk assessment of HON VII installation. Corrosion risk assessment of the Reforming VI installation. Corrosion risk assessment of HON VI installation. Corrosion risk assessment of paraxylene installation.
20. Research and expertise concerning the list of pipeline degradation mechanisms in accordance with the API 571 standard for ORLEN Projekt: Visbreaking installation at the Production Plant in Płock, project 7324. Connection of recycled gas pipeline to the GOP HP - E+PC network, project 7816. Maximizing the yield of the diesel fraction (P60) at the expense of the yield of the HVGO fraction (P61) on the DRW VI installation, project 7724. Construction of hydrogen gas pipelines connecting HON VI/VII installations with the REFORMING VI installation for the co-hydrogenation process, project 7743. Implementation of HAZOP recommendations – FA-1632 tank in the Olefiny installation, project 7823. RBI analysis of the investment task of constructing hydrogen gas pipelines connecting HON VI/VII installations with the REFORMING VI installation for the co-hydrogenation process, project 7742. Building a connection between the BA-573 and BA-1 pipelines to direct the isomerizate to the batch for the WW I installation, project 7828, Modernization of the C-502 column and vacuum ejectors for TE installation, project 7383, RBI analysis of pressure equipment of the TGTU III installation, Intensification of HON VI installations, including the DEWAXING unit, to increase the margin on ready diesel fuel - project 7124, Adaptation of the tank park of the Refinery Plant in Płock to RMG, project 7377.
21. Framework agreement with ORLEN S.A. 'Corrosion testing of installations and objects'- current corrosion analysis of damage and technical condition of installations and objects: Explanation of the causes of pipe thinning in the PC-1 technological furnace at the DRW II installation, Assessment of the degree of hydrogenation of carbon steel in the HF Alkylation installation at ORLEN SA.
22. Development of a process for a comprehensive renovation of vessels using an innovative mobile floating dock with reduced weight at the Szczecin Shipyard. Development of a system for assessing the corrosion progress of vessels, Astillero Sp. z o.o.

23. Comprehensive expertise of fertilizer dryers, Police GRUPA AZOTY S.A.

Research works completed abroad

1. Laboratory selection of corrosion inhibitors for aluminum alloys, ALCAN INTERNATIONAL Ltd., Ontario, Canada
2. Performance evaluation of Korroplast VE, Keraflake H, Korroplast VEL linings under 20C/160C/20C thermal shock cyclic effects by means of EIS measurements, Kieramchemie GmbH, Germany.
3. Performance evaluation of EG-071, EG-072, EG-073 rubber linings during one year of exposure in 1% H2S04 +02% Cl at 70C by means of EIS, separate evaluation of rubber lining materials and linings with joints, Kieramchemie GmbH, Germany.
4. Tests of the WIKABUTYL No. 16 lining of absorbers No. 9 and 7 ISO at the Bełchatów Power Plant, KORCHEM – K&W, Germany.
5. Analysis of the paint damage, tests under UV exposure conditions, MetPro Group Ltd., Dublin, Ireland.
6. Anticorrosion protection of structures at the Narva Power Plant and determining the causes of low adhesion of coatings, Narva Power Plant, Eastland.
7. Corrosion of flood tanks of Crane Ship (Jack-Up Vessel) “Innovation”, Bremerhaven, Germany.

3.4. Achievements in basic research

Establishment of a scientific school of impedance spectroscopy. Major achievements engulf:

1. Creating the theoretical basis for impedance research in non-stationary conditions - Dynamic Electrochemical Impedance Spectroscopy (DEIS).
2. Pioneering application of dynamic electrochemical impedance spectroscopy under conditions of continuous changes in electrode potential, changes in mechanical stresses, and conditions of temperature changes.
3. A new method for fast impedance scanning in AFM mode and impedance imaging of the surface.
4. Implementation of a new variant of electrochemical microscopy in impedance scanning and imaging mode of electrode surfaces.
5. Development of an original methodology for polynomial analysis and determination of differential and integral impedance spectrograms.
6. Development of a method for measuring impedance using the „chirp” signal as a function of frequency sweep rate.
7. Development of a method for online impedance monitoring of single cells and the entire fuel cell stack.
8. Time-frequency analysis of chemical oscillations.
9. Development of the theory and introduction of the concept of relative impedance/admittance spectrograms into research practice.
10. Theoretical description of nonlinear electrochemical impedance spectroscopy of a first-order electrode reaction.

4. SCIENTIFIC PROFILE and BIBLIOMETRIC ANALYSIS

Bibliometric parameter	SCIENTIFIC DATABASE (status on 4.10.2024)		
	WEB of SCIENCE	GOOGLE SCHOLAR	SCOPUS-ELSEVIER
Number of publications	263	270	270
Times cited total / without self-citations	~ 4100 / ~3250	~ 6150	~ 4650 / ~ 3750
H-index / without self-citations	34	41	35 / 32
I-10 index	129	159	116

~ 50 % of the papers published in the journals from the first quartile

~ 75 % of the papers published in the journals from the first and second quartiles

~ 90 % original papers, ~ 8% conference papers in the journals, ~ 1 % review papers

Representative journals: Electrochimica Acta (37), Progess in Organic Coatings (18), Corrosion Science (16), Journal of Solid State Electrochemistry (15) Journal of Electroanalytical Chemistry (12), Journal of the Electrochemical Society (9), Electrochemistry Communications (8), Construtions & Buliding Materials (4), Case Studies in Construction Materials(4), Journal of Power Sources (3), Sensors and Actuators B: Chemical (2), Applied Energy (2), Measurement (2), Ocean Engineering (2), Journal of Pchysical Chemistry C (2), Applied Physics Letters (2), Microscopy & Microanalysis (4), Corrosion (2)

Over 100 contributions not included in the SCOPUS-ELSEVIER scientific database

Scientific profile according to the represented fields and disciplines according to SCOPUS-ELSEVIER

Field	Percentage contribution	Discipline	Percentage contribution
Engineering and technology	~ 62 %	Chemical engineering	~ 21 %
		Materials engineering	~ 21 %
		Engineering	~ 10 %
		Energy	~ 3 %
		Environmental engineering	~ 2 %
		Computer and information sciences	~ 1 %
Natural sciences	~ 37 %	Chemistry	~ 27 %
		Physics and astronomy	~ 7 %
		Mathematics	~ 3 %

	Scientific database SCOPUS-ELSEVIER (original papers, status on 4.10.2024)	Position	
		World	Poland
Keyword	Keyword 1: „Dynamic Electrochemical Impedance Spectroscopy”	1	1
	Keyword 2: „Electrochemical Impedance Spectroscopy”	27	1
	Keyword 3: „Corrosion”	87	1
	Keyword 3.1: „Cathodic protection”	29 - 32	1
	Keyword 3.2: „Organic coatings”	34 - 36	1
	Keyword 3.3: „Corrosion monitoring”	15 - 25	1

	Scientific database WEB of SCIENCE (original papers, status on 4.10.2024)	Position	
		World	Poland
Keyword	Author Keyword 1: „Dynamic Electrochemical Impedance Spectroscopy”	1	1
	Author Keyword 2: „Electrochemical Impedance Spectroscopy”	4	1
	Author Keyword 3: „Corrosion”	80	1
	Author Keyword 3.1: „Cathodic protection”	11	1
	Author Keyword 3.2: „Organic coatings”	5	1
	Author Keyword 3.3: „Corrosion monitoring”	4	1

Presence on all previous annual lists of the most recognizable scientists in the world ‘WORLD’S 2 % SCIENTIST’ [3]

5. MAJOR AWARDS, MEDALS, RECOGNITIONS and PATENTS

- Medal of the National Education Commission awarded by the Minister of National Education in 1998 for special contributions to education and upbringing, in particular in the field of educational and care activities, and for outstanding didactic achievements.
- European Corrosion Federation 50th Anniversary Medal awarded by the European Federation of Corrosion for contributions to the development of corrosion science, European Corrosion Congress, Lisbon, Portugal, 4th-8th September 2005.
- Ignacy Mościcki Medal awarded by the Main Board of the Polish Chemical Society in 2016 for outstanding scientific achievements in the field of chemical engineering and chemical technology, constituting the basis for industrial implementations and innovative products and processes, Poznań, 19th September 2016.
- Jan Zawidzki Medal awarded by the Main Board of the Polish Chemical Society in 2021 for internationally recognized outstanding scientific achievements in the field of physical chemistry, Łódź, 13th September 2021.
- St. Wojciech Medal awarded by the Gdańsk City Council for scientific and implementation achievements, recognized in the global dimension, in particular for establishing in Gdańsk one of the biggest European didactic and scientific corrosion centres and for building a strong Gdańsk science school of 'Impedance Spectroscopy'. After the honorary citizenship of the city and next to the Prince Mściwoj II Medal, the St. Wojciech Medal is the highest distinction in Gdańsk, Artus Court, Gdańsk, 2nd December 2024.
- Medal of the 100th Anniversary of the Gdańsk Scientific Society awarded by the Main Board of the Gdańsk Scientific Society for continuous contribution to the development of science and culture, Old Town Hall in Gdańsk, Gdańsk, 17th May 2022.
- Jan Heweliusz Award awarded by the Mayor of Gdańsk in 2016 for outstanding scientific achievements, in particular for theoretical development and introduction to measurement practice of a new research method – dynamic electrochemical impedance spectroscopy, Main Town Hall in Gdańsk, 28th January 2017.
- 'Primum Cooperatio' Award awarded by the Board of the 'Pomeranian Employers' in 2018 for activities that have proven that effective cooperation between both communities is possible, bringing measurable benefits to the economy and science, and for outstanding scientific achievements combined with documented activities in the implementation of scientific achievements in the economy, Gala Evening of Pomeranian Employers, Amber Expo Exhibition and Congress Centre, Gdańsk, 1st March 2019.
- Award of the Minister of Science and Higher Education for activity in the field of students and Ph. D. students education, promoting teaching staff, as well as conducting specialized education and other forms of education contributing to the economic development of the country, Polish Science Gala, Cultural and Congress Centre Jordanki, Toruń, 19th February 2020.
- Award of the Minister of Education and Science for scientific achievements of an implementation nature serving the economic development of the country, Polish Science Day, Cultural and Congress Centre Jordanki, Toruń, 9th February 2023.
- Album 'Graduates of the Gdańsk University of Technology and their achievements in the field of chemistry'. Scientific biographies of graduates of the Gdańsk University of Technology, whose success is measured by recognized global scientific achievements serving science, economy, and society, Bernardinum Publishing House, Gdańsk, 2019. Biographical record pp. 96-101.
- Album 'Scholars of Gdańsk'. Biographies and achievements of outstanding Gdańsk scientists, Gdańsk Scientific Society, University of Gdańsk Publishing House, Gdańsk 2018. Biographical record pp. 105-227, 335-337.
- Album 'Gdańsk University of Technology. University and People'. Volume I, part 1 'From the history pages of the Gdańsk University of Technology', part 2 'Towards the future. Gdańsk University of Technology - a research university'. Volume II 'Graduates of the Gdańsk University of Technology and their achievements'. Presentation of the achievements of scientists from the Gdańsk University of Technology, PZITB Foundation Publishing House, Warsaw 2022. Biographical records pg. 70, 79, 106, 127, 178, 182.

- **Record in the Golden Book of the Gdańsk University of Technology.** A form of honouring by the Senate and Rector of the Gdańsk University of Technology for activity in professional work for the University. The title of the record was a creative contribution to science and economy, Gdańsk University of Technology, 2021.
- **Personality of the Gdańsk University of Technology 2021.** Title awarded by the Senate and Rector of the Gdańsk University of Technology in recognition of special contributions to the University in the field of development of science, education, economy, and public activities, Gdańsk University of Technology, 2021.
- **Silver Cross of Merit** awarded by the President of the Republic of Poland in 1998 for outstanding contributions in scientific and research work.
- **Knight's Cross of the Order of Polonia Restituta** awarded by the President of the Republic of Poland in 2020 for outstanding contributions to scientific, research, and didactic work.
- **Platinum Award** for the best invention in industrial applications 'Corrosion rate measuring probe', 15th International Fair of Inventions and Innovations INTARG 2022, International Congress Centre, Katowice, 11th - 12th May 2022.
- **GRAND PRIX Award** 'Corrosion rate measuring probe' 15th International Fair of Inventions and Innovations INTAR 2022 International Congress Centre, Katowice, 11th - 12th May 2022.
- **Award and Silver Medal** in the new invention category 'Corrosion rate measuring probe', iENA 2022 Trade Fair 'Ideas – Inventions – New Products', International Exhibition Centre, Nuremberg, 27th – 30th October 2022.
- **International patent application PCT/PL2022/050015, US Patent App. 18/282/234:** 'Corrosion rate measuring probe'.
- **European patent EP 0113129 B1:** 'Corrosion inhibitor for the protection of sheet metal'.
- **Polish patent PL 163553 B1:** 'Corrosion inhibitor for acidic etching baths'.
- **Polish patent PL 137597 B1:** 'Corrosion inhibitor for maintenance oils'.
- **Polish patent PL 137596 B1:** 'Method of producing anticorrosion additive for lubricants and anticorrosion additive'.
- **Polish patent PL 163554 B1:** 'Anticorrosion aqueous hydrocarbon emulsion for protection of machines and devices'.

6. MAJOR REVIEWS MADE

Reviews of applications for scientific dignities

Prof. Zbigniew GALUS, full member of the Polish Academy of Sciences
Renewal of doctorate, University of Warsaw, 2012

Prof. Bolesław FLESZAR, senator of the Republic of Poland, first term of office
Title and dignity of Doctor Honoris Causa of the Rzeszów University of Technology, 2017

Prof. Stanley WHITTINGHAM, laureate of the Nobel Prize in Chemistry, 2019
Title and dignity of Doctor Honoris Causa of the Warsaw University of Technology, 2020

Reviews of applications for academic qualifications

RZESZÓW UNIVERSITY OF TECHNOLOGY, Faculty of Chemistry
Qualifications to award habilitated doctor degrees in the field of chemical sciences in chemical technology discipline, Main Council of Science and Higher Education, 2014

JAGIELLONIAN UNIVERSITY, Faculty of Chemistry
Qualifications to award habilitated doctor degrees in the field of chemical sciences in environmental protection discipline, Main Council of Science and Higher Education, 2015

Reviews of applications for academic title and degrees

14 professor applications | 34 habilitation applications | 15 Ph. D. applications

7. ORGANIZATIONAL ACTIVITIES

7.1. Activities in national organizations

1997 – 2003 President of the Polish Corrosion Society, 2000 – 2009 Chairman of the Electrochemistry Section and member of the Presidium of the Main Board of the Polish Chemical Society, 2012 – 2014 reviewer and expert of the Foundation for Polish Science (FNP), 2013 –…. Deputy Secretary General, treasurer of the Gdańsk Scientific Society, 2018 – …. Honorary member of the Standing Committee of the Congress of Chemical Technology, 2018 – …. Member of the Presidium of the 'Polish Electrochemical Energy Storage Consortium' Council, 2019 – 2023 Member of the Scientific Council of the project 'Industrial Doctorate CUPRUM', 2023 – …. Member of the Scientific and Program Board of the CHEMIK journal, ZW CHEMPRESS-SITPChem., 2022 – 2027 Member of the Technical Council of the 17th term of the Polish Register of Shipping, 'Offshore and floating structures' team, 2024 – … Member of the Committee of Chemical and Process Engineering of the Polish Academy of Sciences

7.2. Activities at the Gdańsk University of Technology

2003 – 2023 Head of the Anticorrosion Protection Team of the Security and Defence Technologies Centre, GUT, 2010 – 2012 Member of the Scientific Council of the Nanotechnology Centre, GUT, 2019 – 2024 Member of the Scientific Discipline Council of 'Chemical engineering', 2019 – 2024 Member of the Scientific Discipline Council of 'Chemical sciences', 2019 – 2022 Director of the Industrial Doctoral School, GUT, 2020 – 2022 Director of the Hydrogen Technologies Centre, GUT.

7.3. Activities in state agencies [4]

2002 – 2004 Member of the review team of T09A-Chemistry, KBN, 2004 – 2005 Chairman of the review team of T09A-Chemistry, KBN, Member of the Research Committee for the Development of the Economy, G1/N12 Chemical Sciences and Materials, Chemical and Process Engineering (2010), 2006 – 2008 Member of the N204-Chemistry review panel, MNSW, 2007 – 2008 Member of the N209-Chemical Technology review panel, MNSW, 2008 – 2011 Member of the Specialist Team of ZS-2 Science, MNSW, 2007 – 2010 Chairman of the N204-Chemistry review panel, MNSW, 2011 – 2015 Chairman of the Specialist Team of Exact and Technical Sciences, MNSW, 2011 – 2014 Member of the expert team, expert of the ST panel, NCN , 2011 – 2015 Expert in the fields of materials engineering and chemistry, NCBR, 2011 – 2014 Member of the Interdisciplinary Team, Polish Science and Technology Fund in MNSW, 2013 – 2016 Chairman of the Scientific Units Evaluation Team SI-1CT and SI-2CT, KEJN, 2013 – 2016 Member of the appeal team SI-15, KEJN, 2017 – Expert in the SI-1 team - chemistry, chemical technology, materials engineering, KEJN.

7.4. Cooperation with foreign publishers

2001 – …… Member of the editorial board of 'Progress in Organic Coatings', Elsevier Ltd., 1998 – 2003 Member of the editorial board of 'Protective Coatings Europe', Sutton SM3 Publisher, 2000 – 2005 Member of the editorial board of 'Corrosion Reviews', Freund Publishing House Ltd., 2000 – 2013 Member of the editorial club of „Emerald Literati", Emerald Ltd.

7.5. Activities in international organizations

2008 – 2011 Representative of Poland in the European Association for Chemical and Molecular Sciences (Electrochemistry), 2001 – 2022 Individual member of the International Society of Electrochemistry (ISE), 1996 – 2006 Representative of Poland in the International Corrosion Council (ICC), 2003 – 2007 Representative of Poland in the European Federation of Corrosion (EFC), 2016 – 2021 Individual member no. 180271 of the National Association of Corrosion Engineers (NACE), 2017 – 2021 Scientific expert of the Flemish Scientific Foundation METHUSALEM , 2017 – 2021 Scientific expert of the French National Research Agency, 2018 – 2021 Scientific expert of the European Research Executive Agency .

7.6. Organization of the equipment park

The most important research equipment purchased or built by me under grants, apparatus investment grants and research contracts with industry: Monochromatic ellipsometer EL X-02C, Electrochemical quartz nanobalance EQCN-700, Acoustic emission system VALLEN-SYSTEME, Two scanning probe microscopy systems NTEGRA Aura, Frequency response analyser Schlumberger 1250 , Electrochemical microscope SECM n-Lab, Frequency response analyser Schlumberger 1255, Frequency response analyser ModuLab XS MTS Solartron Analytical, Confocal Raman microscope ARAMIS-Horiba, Scanning electron microscope Hitachi S-3400N, X-ray photoelectron spectrometer XPS Escalab 250Xi Thermofisher Scientific, Fuel cell test bench CELL TECHNOLOGIES Inc., Two electrolysers NEL MODEL S, Cable and pipe locating system Radiodetection RD4000, Fifteen multichannel measuring cards with Virtual Instruments and Lab-View software, National Instruments, Three multifunctional systems potentiostat/galvanostat/FRA Reference 100/600 Gamry Instruments, Three multifunctional systems potentiostat/galvanostat/FRA, PGSTAT100 AUTO-LAB, Multifunctional electrochemical system Biologic SP-300 LAMBDA-SYSTEM, Fuel cell test station, Handheld XRF Spectrometer BRUCKER TITAN S1, Optical microscope NIKON CLIPSE MA200, Tensile testing machine ZWICK/Roell Z030, High pressure reactor NOVOCLAVE 600 BUCHIGLAUSTER, LPP-equipment, Fuel cell testing station LeanCAT PTS-500, Three custom DEIS measurement digital systems, Hydrogen purity analyser ProCeas®, Electronic load DC N3300 series, Technologie Keysight, Fuel cell stack, H series, Tandem Technologies Ltd.

7.7. Organization/co-organization of conferences, seminars and professional courses

5th Polish Conference 'CORROSION '96 - Theory and Practice', Gdańsk 1996, International Society of Electrochemistry Meeting, Warsaw 2000, 3rd Baltic Conference on Electrochemistry 'Corrosion and Materials', Gdańsk-Sobieszewo 2003, International Conference 'Corrosion Today', Gdańsk – Sobieszewo 2008, European Federation of Corrosion Meeting, Working Party 14 'Coatings', Hel 2014, 9th Congress of Chemical Technology TECHEM, Gdańsk 2018, Scientific seminar 'InnDays ORLEN-Gdańsk University of Technology' Faculty of Chemistry 2017, Scientific seminar 'InnDays ORLEN-Gdańsk University of Technology', Faculty of Chemistry 2021, 27 editions of the professional course 'Training of the seagoing ship paint coat surveyor' according to the IMO SOLAS II-1/3-2, Det Norske Veritas, 2 editions of the course 'Cathodic protection inspector', Office of Technical Inspection.

8. SKILLS, INTERESTS and LICENSES

Foreign languages	English Russian
Organizational skills	Organization of conferences, seminars, scientific workshops, training Organization of academic didactic processes Management of scientific projects and research contracts
Technical knowledge	Knowledge of standards from the field of corrosion and anticorrosion protection: International Standardization Organization, American Petroleum Institute, American Standard Test Method, National Association of Corrosion Engineers, American Institute of Steel Construction, Polish Committee for Standardization Corrosion tests, standard tests, standard measuring equipment
Qualifications	Cathodic protection inspector, Office of Technical Inspection, cert. UDT- CERT/OKAT/008 /2014 Seagoing ship paint coat surveyor , Ministry of Infrastructure and Development and Det Norske Veritas Qualifications to produce and trade explosives, ammunition, weapons and products and technology for military or police purposes. Certificate No. 11/2008 Military Institute of Engineering Technology, Wrocław

9. REFERENCES

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1b. Affiliated member of EUROPEAN FEDERATION OF CORROSION, http://efcweb.org/Affiliate+Members.html
2a. Letters of reference, homepage https://chem.pg.edu.pl/kekiim/referencje/referencje-dydaktyczne
2b. Letters of reference, homepage https://chem.pg.edu.pl/kekiim/referencje/referencje-technologiczne
3. 'World's Top 2 % Scientists' ranking, Stanford University-Elsevier BV-SciTech.
4. KBN – State Committee for Scientific Research , MNSW – Ministry of Science and Higher Education, NCBR – National Centre for Research and Development, NCN – National Science Centre, KEJN – National Evaluation Committee for Scientific Units, FNP – Foundation for Polish Science.

10. BIOGRAM

Biographical information:
https://pl.wikipedia.org/wiki/Kazimierz_Darowicki
https://mostwiedzy.pl/pl/kazimierz-darowicki,6103-1
Darowicki, K. - Author details - Scopus

I completed my higher education in June 1981 after passing the diploma examination and defending my master's thesis. The supervisor of the master's thesis was Ph.D. Eng. Tadeusz Szauer. On 27th November 1991 I obtained my academic degree with a Ph. D. thesis entitled 'Simulation and correlation analysis of the immittance spectra of the inhibited electrode reaction'. The supervisor of the thesis was prof. Ph.D. Eng. Józef Kubicki (Faculty of Chemistry of the Wrocław University of Science and Technology), while the reviewers were prof. Ph.D. Eng. Antoni Nowakowski (Faculty of Electronics, Telecommunications and Informatics of the Gdańsk University of Technology), prof. Ph.D. Kazimierz Sykut (Faculty of Chemistry of the Maria Curie-Skłodowska University) and prof. Ph.D. Eng. Witold Gnot (Faculty of Chemistry of the Silesian University of Technology). I defended my habilitation thesis entitled 'The influence of the amplitude of the excitation signal on the immittance of the electrode process' on 13th December 1995. The reviewers in the habilitation thesis were Prof. Ph.D. Janusz Flis (Institute of Physical Chemistry of the Polish Academy of Sciences), Prof. Ph.D. Zbigniew Galus (Faculty of Chemistry, University of Warsaw) and Prof. Ph.D. Eng. Romuald Juchniewicz (Faculty of Chemistry, Gdańsk University of Technology). On 12th July 1999 the President of the Republic of Poland, Aleksander Kwaśniewski, signed the application of the Central Commission for Scientific Degrees and Titles, awarding me the title of professor of technical sciences.

At the Faculty of Chemistry of the Gdańsk University of Technology, I went through subsequent levels of professional development. In March 1981, while still a diploma year student, I was employed as a specialist. In 1991, I was employed as an assistant, and after defending my Ph. D. thesis in 1992, I was promoted to the position of assistant professor. Defending my habilitation thesis resulted in my promotion to the position of associate professor in 1997. I was appointed full professor by the Minister of Education and Science, Prof. Ph.D. Eng. Edmund Wittbrodt in 2001. I held the position of head of the Department of Electrochemistry, Corrosion and Materials Engineering from 1996 to 2023. At the Gdańsk University of Technology, I represent the field of engineering and technology in the discipline of chemical engineering.

Currently, I am a member of the Committee of Chemical and Process Engineering of the Polish Academy of Sciences. My scientific specialty is corrosion engineering and electrochemistry. I served as president of the Polish Corrosion Society for two terms. I represented Poland in the World Corrosion Organization and the European Federation of Corrosion. For many terms, I worked in various teams of the State Committee for Scientific Research, the Ministry of Science and Higher Education, the National Centre for Research and Development, the National Science Centre and the National Evaluation Committee for Scientific Units. Among other things, I served as head of the N204 Chemistry review panel, chairman of the Specialized Team of Exact and Technical Sciences for scientific grants and chairman of the National Evaluation Committee for Scientific Units, Team SI-1CT and SI-2CT (Exact and Engineering Sciences). In 2014 and 2015, the Royal Swedish Academy of Sciences invited me to nominate candidates for the Nobel Prize in Chemistry. I also prepared an opinion in the procedure for awarding the dignity and title of Doctor Honoris Causa of the Warsaw University of Technology to the Nobel Prize laureate in chemistry, prof. Stanley WHITTINGHAM. I served as a scientific expert of the Flemish Scientific Foundation METHUSALEM, a scientific expert of the French National Research Agency, a scientific expert of the European Research Executive Agency and an expert of the Foundation for Polish Science.

In my research work, I develop the concept of nonlinear impedance measurements and impedance measurements in non-stationary conditions. My basic achievement is the development of a theoretical basis and an implementation to the measurement practice of Dynamic Electrochemical Impedance Spectroscopy (DEIS). This novel, original measurement method created new, unique research possibilities, breaking the basic limitation of classical impedance spectroscopy EIS, which is the stationarity of the investigated system. The DEIS method enabled the extension of the range of impedance spectroscopy applications to new, non-stationary research areas of electrochemistry and corrosion [1-2]. The DEIS method has been successfully implemented in studies of the kinetics and mechanisms of electrode reactions [3,4], in studies of modified electrodes [5-8] and in studies of corrosion processes and their inhibition [9-15]. he DEIS method has been used in the study of pitting corrosion [16-22], in the study of corrosion-cavitation [23-25], intergranular corrosion [26,27], stress corrosion and corrosion cracking [28-35]. The developed DEIS technique was successfully used in the process of impedance surface mapping and in local impedance measurements in the atomic force microscopy mode [36-42]. Another area where the DEIS method is successfully used is the study of electrochemical cells and fuel cells [43-53] under non-stationary operating conditions. An important achievement is the development of a methodology for determining differential, integral and relative impedance

spectrograms and their validation [54,55]. A separate issue is the original time-frequency analysis of chemical and electrochemical oscillatory reactions [56-60] and the non-stationary analysis of electrochemical noise [61-67].

In the area of DEIS research of non-stationary processes, I have a high established international position. It is reflected in the leader position in the SCOPUS classification regarding the 'Dynamic Electrochemical Impedance Spectroscopy' keyword. I am the author or co-author of over 260 papers published in journals catalogued in the SCOPUS database, which are cited over 4,500 times, and my scientific impact factor is H = 35. In addition to these publications, I am the author or co-author of over 100 papers published in the journals uncatalogued in the SCOPUS database and 8 scientific monographs. Additionally, I co-authored a chapter titled „Cathodic and Anodic Protection" in the fundamental 'Materials Science and Technology' series, published by Wiley-VCH Verlag GmbH & Co.

I care about the development of the utilitarian side of scientific research. This activity, focused on practical applications, gravitates around anticorrosion coating protection, electrochemical protection as well as corrosion monitoring and diagnostics. According to the SCOPUS database, in these areas I am one of the 40 most recognizable scientists in the world. The most important thing, however, is the implementation of approximately 500 significant research works for various companies and concerns, such as: KGHM S.A., LOTOS S.A., PKN ORLEN S.A., Police GRUPA AZOTY S.A., Refinery Trzebinia S.A., TAURON S.A., Power Plant Kozienice S.A., Power Plant Bełchatów S.A., Power Plant Rybnik S.A., Shipyard CRIST Gdynia S.A., Remontowa Shiprepair Yard S.A., NAFTOPORT, PERN 'Przyjaźń S.A. Biały, Construction Company, Brewery Company (Tychy, Poznań, Białystok), Municipal Water and Sewerage Company in Warsaw, Municipal Water and Sewerage Company in Krakow, Municipal Water and Sewerage Company in Elbląg, SAUR Neptun Gdańsk, Gdańsk Water and Sewerage Infrastructure and many others. I have carried out a number of research works for foreign contractors such as Alcan Ltd. (Canada), Keramchemie GmbH. (Germany), K&W GmbH. (Germany) or MetPro Ltd. (Ireland).

The basic anticorrosion protection technology is coating systems. The most important works I have done in this area include an analysis of the condition of coating protection of the Narva power plant in Estonia and an assessment of the protection of the Eugeniusz Kwiatkowski Route in Gdynia. In field investigation on anticorrosion coatings, I was a precursor of the use of electrochemical impedance spectroscopy [68,69]. I have developed and implemented into practice a method for quick assessment of the condition of rubber and polymer linings in flue gas desulfurization installations of the Bełchatów Power Plant [70-72]. In the area of electrochemical protection, one of the most important achievements were sacrificial protection of the slipways and locks of the Ostróda-Elbląg Canal, sacrificial protection of the Czerniaków water intake of the City of Warsaw and sacrificial protection of the Baltic Beta Petrobaltic oil production platform [73-77]. Another original achievement was the development of a method for assessing the impact of stray currents on the underground infrastructure of gas pipelines of Mazowiecka Spółka Gazownicza S.A. [78,79]. A significant research work was the assessment of the degradation status of installations and facilities of the SOLINO ORLEN Group fuel storage facility. In the area of corrosion monitoring and diagnostics, the main achievement was the development and implementation of maintenance-free corrosion monitoring systems for water installations in Gdańsk and Kraków along with cathodic protection systems [80-82]. Of particular importance to me is the development and implementation of a wireless monitoring system for catalytic cracking installations, hydrocracking installations and gudron hydrodesulfurization installations of ORLEN S.A., as well as research work on the corrosion of various refinery units and the organization of a corrosion management system in LOTOS Group S.A. and the ORLEN S.A. [83-87]. An important research project was work on the identification and cataloguing of corrosion problems at the Ore Enrichment Plant and the Hydrotechnical Plant at KGHM Polska Miedź. Recently, my activities have focused on developing quick impedance methods for monitoring the content of biocomponents, water and electrostatic agents in fuels and hydroraffinates produced by ORLEN S.A. This work resulted in two industrial Ph. D. theses. Preservation and corrosion protection of the former Auschwitz concentration camp facilities were an extraordinary experience and emotional challenge [88-90].

The presented projects are only a small group of research works commissioned by various business and industry units. Publishing the results of this work in scientific journals documents the significant cognitive values and scientific level of the developed technological solutions. Additionally, the presented research works show the complexity and diversity of practical achievements that, like all other scientific works, are evaluated. In the case of implementations outside scientific evaluation, the ultimate reviewer is practice understood as the effectiveness of the developed solutions and their usefulness. These values are reflected in the relevant recommendations [91] presented by the clients.

Two achievements of the team led by me were selected for submission to the parametric evaluation of scientific units for the period 2017-2021 following the 'Law on Higher Education and Science' Act of July 20, 2018, in the discipline 'Chemical Engineering', in the area of the third criterion 'Description of the impact of scientific activities on the functioning of society and economy'. The first implementation achievement was 'Ensuring the technical safety of installations and facilities in the fuel sector of ORLEN S.A. and LOTOS Group, including LOTOS PETROBALTIC' [92]. The second achievement was 'Ensuring increased efficiency and durability of hydrogen fuel cells' [92]. This topic was carried out in cooperation with DLR (German Aerospace Centre), ZSW (Centre for Solar Energy and Hydrogen Research Baden-Württemberg) and the Polish company IMPACT Clean Power Technology. Parametric evaluation for 2017-2021 period awarded 'Chemical Engineering' discipline at the Gdańsk University of Technology with the distinctive A^+ cathegory.

I was a supervisor in twenty-five completed Ph. D. theses, and eight of my Ph. D. graduates obtained the academic degree of habilitated doctor. On my initiative, an inter-faculty direction of study 'Materials Engineering' was established at the Gdańsk University of Technology. I also organized the following directions of study: 'Conservation and Degradation of Materials' and 'Corrosion'. I co-organized the direction of study 'Hydrogen technologies and electromobility'. I was the initiator and driving force behind the establishing of the 'Chemical Engineering' discipline at the Faculty of Chemistry of the Gdańsk University of Technology in 2020. As a result of my activities, the Industrial Doctoral School and the Hydrogen Technologies Centre of the Gdańsk University of Technology were established. I created the Anticorrosion Protection Group as part of the Security and Defence Technologies Centre of the Gdańsk University of Technology. I organized postgraduate studies 'Anticorrosion Protection' and a specialized course 'Marine ship paint coating supervision inspector' in accordance with the International Maritime Organization SOLAS II-1/3-2 convention. The course was created at the Gdańsk University of Technology in cooperation with the Ministry of Transport, Construction and Maritime Economy and obtained the approvals of the classification societies Det Norskie Veritas and the Polish Register of Shipping. The issued inspector certificates are honoured all over the world. I also co-organized the 'Cathodic protection inspector' course. This course was created in cooperation with the Office of Technical Inspection.

For my basic and applied scientific activities, I was awarded the Knight's Cross of the Order of Polonia Restituta by the President of the Republic of Poland. I received the highest awards in Gdańsk: the Jan Heweliusz Award of the Mayor of Gdańsk. and the St. Wojciech Medal awarded by the Gdańsk City Council for scientific achievements that spread beyond the region and the state. The Main Board of the Polish Chemical Society awarded me the Jan Zawidzki Medal for outstanding scientific achievements in physical chemistry and the Ignacy Mościcki Medal for outstanding scientific achievements in the field of chemical technology and chemical engineering. The Board of the 'Pomeranian Employers' organization awarded me the 'Primum Cooperatio' award for outstanding implementation achievements. My achievements were also recognized at the Gdańsk University of Technology by entering me in the 'Golden Book' and giving me the dignity 'Personality of the Gdańsk University of Technology'.

My most important achievement, however, is the creation of the Department of Electrochemistry, Corrosion and Materials Engineering at the Faculty of Chemistry of the Gdańsk University of Technology in 1996, which is an affiliated member of the European Federation of Corrosion and is currently one of the biggest and most recognizable scientific and teaching corrosion units in Europe.

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11. CURRICULUM VITAE

Biographical information:
https://pl.wikipedia.org/wiki/Kazimierz_Darowicki
https://mostwiedzy.pl/pl/kazimierz-darowicki,6103-1
Darowicki, K. - Author details - Scopus

In 1981, I graduated from the Faculty of Chemistry of the Gdańsk University of Technology (GUT). My further professional and scientific career has been related to this faculty. At the Faculty of Chemistry of GUT, I obtained successive academic degrees and an academic title representing the field of engineering and technology. My scientific discipline is chemical engineering. Since 2024, I have been a member of the Committee of Chemical and Process Engineering of the Polish Academy of Sciences.

Professional degree, academic degrees and academic title

◙ Master of Science in Engineering (1981), ◙ Doctor of Philosophy (1991), ◙ Doctor of Philosophy, Doctor of Science (1995), ◙ Professor (1999).

Employment, positions and functions

◙ Chemist (1981-1991), ◙ Assistant (1991-1992), ◙ Assistant professor (1992-1997), ◙ Associate professor of GUT (1997 – 2001), ◙ Full professor at GUT (2001 –…..), ◙ Head of the postgraduate studies 'Anticorrosion Protection' (1996 –…..), ◙ Head of the Department of Anticorrosion Protection Technologies (1996-2001), ◙ Head of the Department of Electrochemistry, Corrosion and Materials Engineering (2001 – 2023), ◙ Head of the Anticorrosion Protection Team of Security and Defence Technologies Centre (2003 – 2023), ◙ Director of the Industrial Doctoral School (2020 – 2022), ◙ Director of the Hydrogen Technologies Centre (2021 – 2022), ◙ Full professor at Warsaw University of Technology (2022 –…)

Major achievements

Didactic achievements

◙ Establishment of the Department of Electrochemistry, Corrosion and Materials Engineering. ◙ Initiating the creation and co-organization of an inter-faculty direction of study Materials Engineering. ◙ Establishment of a direction of study Corrosion. Initiation of the creation and co-organization of a direction of study 'Hydrogen Technologies and Electromobility. ◙ Establishment of the first Industrial Doctoral School in Poland. ◙ Establishment of the Hydrogen Technologies Centre. ◙ Organization and management of postgraduate studies Anticorrosion Protection. ◙ Co-organization of a cyclic course for cathodic protection inspectors at NACE levels 2 and 3. ◙ Creation of a cyclic course for the seagoing ship paint coat surveyor at NACE 2, FROSIO III level. ◙ Co-authorship of the following manuscripts: 'Charakterystyka chemiczna żywic i rozpuszczalników do farb oraz powłok ochronnych', 'Powłoki malarskie w ochronie przeciwkorozyjnej, zasady stosowania i kontrola jakości', 'Ochrona katodowa', 'Podstawowe procedury pomiarowe w ochronie katodowej', 'Ochrona katodowa konstrukcji metalowych podziemnych i podwodnych'

Achievements in staff education

◙ Education of staff at doctoral, master, bachelor, postgraduate and professional course levels. ◙ Over 300 graduates of certified courses: 'Marine ship paint coating supervision inspector', 'Cathodic protection inspector'. ◙ Over 300 graduates of postgraduate studies 'Anticorrosion Protection'. ◙ 25 supervised Ph.D. ◙ Supervision of 3 currently ongoing Ph. D. theses.

Achievements in applied research

About 500 research works, expert opinions and implementations. Main research areas: ◙ Corrosion monitoring and diagnostics, ◙ Electrochemical protection, ◙ Anticorrosion coatings ◙ Materials selection. According to the SCOPUS database, top 40 regarding of the most recognizable scientists in the world in each of these areas.

Achievements in basic research

H-index = 35/32, times cited N = 4550 /3700, over 260 papers published in journals catalogued in the Darowicki, K. - Author details - Scopus database. ◙ The development of a theoretical basis and an implementation to the measurement practice of Dynamic Electrochemical Impedance Spectroscopy (DEIS). ◙ Polynomial description of spectrograms, their differential and integral analysis. ◙ Relative impedance spectrograms. ◙ Nonlinear description of electrochemical impedance. ◙ Dynamic impedance analysis of pitting, intergranular and stress corrosion, erosion-corrosion. ◙ Impedance scanning of metallic surfaces in atomic force microscopy (AFM) scanning mode. ◙ Dynamic impedance analysis of hydrogen fuel cells. A worldwide leader regarding 'Dynamic Electrochemical Impedance Spectroscopy'.

Major awards, medals and recognitions

Medals: ◙ Medal of the National Education Commission (1988), ◙ European Federation of Corrosion 50th Anniversary Medal (2005), ◙ Ignacy Mościcki Medal (2016), ◙ Jan Zawidzki Medal (2021), ◙ Medal of the 100th Anniversary of the Gdańsk Scientific Society (2022), ◙ St. Wojciech Medal (2024).

Awards: ◙ Jan Heweliusz Award (2017), ◙ 'Primum Cooperatio' Award (2019), ◙ Platinum Award for the best invention in industrial applications, International Fair of Inventions and Innovations INTARG 2022, Katowice 2022, ◙ GRAND PRIX Award, International Fair of Inventions and Innovations INTARG 2022, Katowice 2022, ◙ Award and Silver Medal, iENA Trade Fair 'Ideas – Inventions – New Products', Nuremberg 2022, ◙ Award of the Minister of Science and Higher Education (2020), ◙ Award of the Minister of Education and Science (2023).

Records in albums and honorary recognitions: ◙ Scientific profile in the album 'Scholars of Gdańsk' (2018), ◙ Scientific profile in the album 'Graduates of the Gdańsk University of Technology and their achievements in the field of chemistry' (2019), ◙ Scientific profile in the album 'Gdańsk University of Technology. University and People' (2022), ◙ Record in the Golden Book of the Gdańsk University of Technology. (2021), ◙ Honorary title 'Personality of the Gdańsk University of Technology' (2021).

State distinctions: ◙ Silver Cross of Merit (1998), ◙ Knight's Cross of the Order of Polonia Restituta (2020).

Major reviews made

◙ Renewal of doctorate - prof. Z. Galus (2012), ◙ Title and dignity of Doctor Honoris Causa - prof. B. Fleszar (2017), ◙ Title and dignity of Doctor Honoris Causa, laureate of the Nobel Prize - prof. S. Whittingham (2020), ◙ 14 professor application reviews, ◙ 35 habilitation application reviews, ◙ 15 Ph. D. application reviews, ◙ two opinions regarding qualifications to award habilitated doctor degrees .

Organizational activities

Activities in national organizations

◙ Polish Chemical Society (2000 –…) ◙ Gdańsk Scientific Society (2013 –...) ◙ Standing Committee of the Congress of Chemical Technology (2018 –...). ◙ Polish Register of Shipping (2022-2027). ◙ Security and Defence Technologies Centre at GUT (2001 – 2023). ◙ Committee of Chemical and Process Engineering of the Polish Academy of Sciences (2024 - …)

Activities in state agencies

◙ Member of the review team of T09A-Chemistry, KBN (2002–2004). ◙ Chairman of the review team of T09A-Chemistry, KBN (2004 – 2005). ◙ Member of the N204-Chemistry review panel, MNSW (2006 – 2008). ◙ Member of the N209-Chemical Technology review panel, MNSW (2007 – 2008). ◙ Member of the Specialist Team of ZS-2 Science, MNSW (2008 – 2011). ◙ Chairman of the N204-Chemistry review panel, MNSW (2007 – 2010). ◙ Chairman of the Specialist Team of Exact and Technical Sciences, MNSW (2011 – 2015). ◙ Member of the expert team, expert of the ST panel, NCN (2011 – 2014). ◙ Expert in the fields of materials engineering and chemistry, NCBR (2011 – 2015). ◙ Member of the Interdisciplinary Team, Polish Science and Technology Fund in MNSW (2011 – 2014). ◙ Reviewer for FNP (2014 – 2016). ◙ Chairman of the Scientific Units Evaluation Team SI-1CT and SI-2CT, KEJN (2013 – 2016). ◙ Member of the appeal team SI-15, KEJN (2013 – 2016). ◙ Expert in the SI-1 team - chemistry, chemical technology, materials engineering, KEJN (2017 – 2018).

Activities in international organizations

◙ Editorial Board of 'Progress in Organic Coatings' (2001 –….), ◙ International Society of Electrochemistry (2001 – 2023), ◙ Flemish Scientific Foundation METHUSALEM (2017 – 2021), ◙ French National Research Agency (2017-2021), ◙ European Research Executive Agency (2018 – 2021).

Sport

AZS GUT club affiliation - football section, B competition of the Pomeranian district class (1976-1981).

Ogniwo Sopot club affiliation - football section, A competition of the Pomeranian district class (1981-1986).

Interests and skills

◙ The history of Poland, ◙ English and Russian, ◙ Organization of academic didactic processes, conferences and courses, ◙ Certified inspection qualifications in the field of electrochemical protection and protective coatings.

12. SYNTHETIC DESCRIPTION OF SCIENTIFIC PROFILE

Academic title / academic degree / professional degree

Professor / Doctor of Philosophy, Doctor of Science/ Master of Science in Engineering

Employment

Faculty of Chemistry Gdańsk University of Technology

Field and discipline

Gdańsk University of Technology: engineering and technology field , chemical engineering discipline

Specialty

Corrosion engineering, electrochemistry

Profile keywords

Dynamic electrochemical impedance spectroscopy, electrochemical impedance spectroscopy, corrosion monitoring, cathodic protection, anticorrosion organic coatings.

Dominant

Balance and feedback between basic scientific activities and application activities.

Determinant

The sentence: „Everything you have learned so far loses its meaning if you cannot find an application for it", Paulo Coelho, 'Vida. Seleccion de citas', translation by Zofia Stanisławska, Świat Książki 2007.

Culminant

● Supervision over 25 Ph. D. ● Publishing over 260 scientific papers (H = 35/32, citations 4500/3600) catalogued in Darowicki, K. - Author details - Scopus. ● Elaboration of a theoretical basis and introduction to the measurement practice of Dynamic Electrochemical Impedance Spectroscopy ● Approximately 500 research works, expert opinions and implementations for various domestic and foreign industrial units. Implementation of corrosion monitoring systems for petrochemical and refining installations as well as water installations. Cathodic protection of marine structures, vessels, port infrastructure, mining towers and classifiers. Coating protection of industrial infrastructure and environmental installations.

Scientific status

● Inclusion to the group of the 2% most recognizable scientists in the world according to the database 'World's Top 2 % Scientists' Stanford University-Elsevier BV-SciTech. ● According to the SCOPUS database, a worldwide leader regarding 'Dynamic Electrochemical Impedance Spectroscopy' keyword, and top 30 regarding 'Electrochemical Impedance Spectroscopy' keyword. ● According to the SCOPUS database, top 100 regarding 'Corrosion' keyword, and top 40 regarding each of the 'Corrosion monitoring', 'Cathodic protection', 'Organic coatings' keywords.

End of part one