

Sebastian Skoczypiec

BENG, PHD, DSc, PROFiTIT · HEAD OF CHAIR

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Summary

Graduate of the Faculty of Mechanical Engineering at the Cracow University of Technology. Scientific discipline: mechanical engineering Specialisation in the field of machining technology, with a focus on electrophysical and chemical machining (electrochemical, electrodischarge, laser, etc.), hybrid and sequential machining. Author and co-author of more than 140 publications, speaker at dozens of international conferences. Contractor in 16 research and development projects. Vice-Chairman of the Production Engineering Committee of the Polish Academy of Sciences. Vice-President of the Polish Academy of Engineering.

Education

Cracow University of Technology

MSc IN MECHANICAL ENGINEERING

Faculty of Mechanical Engineering

June 1999

- Field of study: Mechanics and Machine Design, specialization: Biomechanics.

Cracow University of Technology

PHD IN MECHANICAL ENGINEERING

Faculty of Mechanical Engineering

June 2006

- Discipline: Machine Design and Operation; specialization: Systems and Processes of Manufacturing. Doctoral dissertation defended with honours: *Research on the ultrasonically assisted electrochemical machining with the use of a universal electrode tool*. Dissertation supervisor: Prof. Adam Ruszaj, PhD, DSc.

Cracow University of Technology

DSc (POST-DOCTORAL) DEGREE

Faculty of Mechanical Engineering

December 11, 2013.

- Discipline: Machine Design and Operation, specialization: Production Engineering. Monograph *Electrochemical methods of microparts manufacturing* (CUT Publishing House, 2013) constituted the basis for launching the DSc proceedings.

President of the Republic of Poland

TITLE OF PROFESSOR IN THE FIELD OF TECHNICAL SCIENCES

Poland

September 21, 2020

- The research work conducted for almost twenty years, presented synthetically in the monograph *Electrochemical methods of microparts manufacturing* (CUT Publishing House, 2019) constituted the basis for launching the ProfTit proceedings.

Work Experience

The Institute of Advanced Manufacturing Technology

TECHNOLOGIST (2000-2002), ASSISTANT ENGINEER (2002-2006), SENIOR ENGINEER (OD 2006)

Krakow, Poland

2000 - 2009

- Since 2004 – vice-director of the Division of Unconventional Manufacturing Technologies.
- 2008-2009 – member of the Research Council of the Institute.

Cracow University of Technology

ASSISTANT PROFESSOR (2007-2013), ASSISTANT PROFESSOR WITH POST-DOCTORATE DEGREE (2014-2015),

Krakow, Poland

od 2007

ASSOCIATE PROFESSOR OF CRACOW UNIVERSITY OF TECHNOLOGY (2015-2020), PROFESSOR (SINCE OCTOBER 2020)

- Member of the CUT Senate in the 2020-2024 term.
- Since December 2020 Head of Chair of Production Engineering.
- 09.2017 - 12.2020 Director of the Institute of Production Engineering.
- 09.2016-09.2017 Deputy Director for research at the Institute of Production Engineering.

Scientific activity

INTERESTS

Electrophysical and chemical methods of manufacturing machine parts and tools, i.e. electrochemical machining (ECM), electrical discharge machining (EDM) or laser machining (LBM). Theoretical and technological foundations for the integration of the above machining processes into sequential and hybrid technologies, including integration with selected additive manufacturing technologies. Problems of adaptation of the above processes in the field of micro-machining and the production of components with characteristic dimensions < 1 mm (micro-machining). Selected aspects of finishing of difficult-to-machine materials and incrementally manufactured parts.

PUBLICATIONS

Author and co-author of over 140 publications in international and national journals, monographs and conference proceedings. **Author of two scientific monographs.** Co-author of 14 unpublished research reports of the Institute of Advanced Manufacturing Technology in Krakow.

- WoS: 40 publications, 273 citations, index h=9 ([Web of Science ResearcherID Q-7318-2016](#)).
- Scopus: 49 publications, 380 citations, index h=11 ([Scopus ID: 36132081800](#)).
- [Google Scholar](#): 145 publications, 759 citations, index h=14.
- Sebastian Skoczypiec in [Cracow University of Technology employees' publications bibliography](#).

RESEARCH AND DEVELOPMENT PROJECTS

Contractor in sixteen research projects (international, development or personal ones and implemented in cooperation with national entrepreneurs i.e.: P.P.U.H. Witold Bryk, ERKO sp. z o.o., POLTRA, Sp. z o.o., Limatherm SA and international entrepreneurs i.e.: Philips, General Electric Superabrasives, Diamond Innovation). The most important projects:

- *Research on electrochemical machining microdetails (μ -ECM)*; a special research project within the Sixth Framework Programme (within the MNT ERA-NET net); main contractor; date of completion: February 2010; place of the research: Institute of Advanced Manufacturing Technology (until July 2009), Cracow University of Technology (August 2009–February 2010).
- *Electrochemical-electrodischarge hybrid microshaping of structural elements and tools*; research project; main contractor; date of completion: December 2010; place of the research: Cracow University of Technology.
- *Technological system of the innovative methods of machining materials with special properties*; research-development project; main contractor; date of completion: December 2013; place of research: Cracow University of Technology.
- *Hybrid electrodischarge-electrochemical system of micropart manufacturing*; research-development project; main contractor; date of completion: October 2013; place of research: Cracow University of Technology.
- *Application of electrochemical assistance to improve micromachining conditions*, research own project, project manager; date of completion: June 2014; place of research: Cracow University of Technology.
- Technological research and constructional works for firms General Electric Superabrasives and Diamond Innovation: *Electrochemical machining of composites*. Within the project, a technology for electrochemical drilling in composite materials was developed and a production line which consisted of 8-task electrochemical machines was designed, built and launched into operation (2004-2006).
- *Feasibility study – electrochemical machining* – experimental research aimed at determining the feasibility of the application of electrochemical machining for the modification of the properties of the surface layer of composite materials; studies conducted for Diamond Innovations, Inc., Worthington, USA; contractor; place of conducting the research: Cracow University of Technology (2012).
- *Advanced technologies of shaping the surface layer of tools made from superhard materials with the use of laser techniques* (project within the sector programme „Innolot – innovative aviation”); contractor; cooperation with P.P.U.H. Witold Bryk and ERKO Ltd. (2016-2017)

CONFERENCES

Participation and presentation of papers at several dozen national and international conferences i.e.: The International Symposium on Electromachining (2001, 2007, 2010, 2013 i 2016 rok), euspen International Conference & Exhibition (2006, 2012 and 2013), International Conference on Material Forming ESAFORM (2012, 2013, 2014, 2018, 2019, 2020 and 2023), Electromachining (2003, 2006, 2009, 2012, 2015, 2018 and 2023). Participant of 26 meetings of the Scientific School of Electromachining.

Teaching activities

Teaching activity related to electrophysical and chemical machining. Coordinating the work of the Micro- and Nanotechnology Laboratory at the Department of Production Engineering. The following test benches have been designed, built and put into operation in the laboratory: a test bench for hybrid sequential electrochemical-electrodischarge microtechnology, a training bench for electrochemically assisted micromachining, a research test bench for precise laser machining of difficult-to-machine materials. This equipment is used for project and laboratory classes associated with the following courses: Innovative Manufacturing Technologies, Hybrid Manufacturing Processes, Fundamentals of Electrophysical and Chemical Machining, Machining, Non-conventional and Additive Manufacturing Processes.

- **Supervisor of 3 doctoral theses completed with the award of a doctorate**, supervisor of 3 doctoral theses in progress including one doctoral thesis within the framework of the implementation of the doctorate programme of the Polish Ministry of Science and Higher Education)
- **Supervisor of over 60 engineering and master's theses.**
- **Academic supervisor of the Production Engineering field of study** at the Faculty of Mechanical Engineering, Cracow University of Technology (2014–2019).

Prizes and awards

- 2007 **Prize by the Director of the Institute of Advanced Manufacturing Technology**, prize for the best publication of 2007.
- 2014 **Reward of His Magnificence Rector of the Cracow University of Technology**, for the scientific achievements presented in the post-doctoral monograph.
- 2019 **Beneficiary of the project Leaders in University Management implemented by the Ministry of Science and Higher Education**, study visit at the Aalborg Universitet. Aalborg, Denmark
- 2020 **Reward of His Magnificence Rector of the Cracow University of Technology**, for the scientific achievements.

Expert and organisational activities

Expert of the European Commission

Brussels, Belgium

FP7 AND H2020 PROGRAMS

2007, 2016

- Remote evaluation of applications submitted within the Seventh Framework Programme of the European Community (in 2007).
- Two-phase evaluation of projects submitted within the initiative Clean Sky (programme H2020); a remote evaluation and participation in experts panels in mmission's headquarters in Brussels.

Polish Academy of Science, Committee of Production Engineering

MEMBER

since 2016

Polish Academy of Science, Committee of Production Engineering

VICE-CHAIRMAN OF THE COMMITTEE

since 2020

Academy of Engineering in Poland

MEMBER, MEMBER OF EXECUTIVE COMMITTEE OF THE ACADEMY

since 2019

Academy of Engineering in Poland

VICE-PRESIDENT

since 2022

Group in charge at the Ministry of Science and Higher Education

EVALUATE APPLICATIONS AND REPORTS UNDER THE PROGRAM OF IMPLEMENTATION DOCTORATES

since 2020

Appointment by the Order of the Minister of Science and Higher Education, September 16, 2020.

Air Force Institute of Technology

MEMBER OF SCIENTIFIC COUNCIL

Warsaw

since 20252