

Grzegorz Żywica, DSc, PhD, Eng., Associate Professor

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SCIENTIFIC CURRICULUM VITAE

PERSONAL DATA

Nationality: Polish
Year and place of birth: 1980, Mrągowo, Poland

PLACE OF WORK

Institute of Fluid-Flow Machinery, Polish Academy of Sciences (IMP PAN)
Department of Turbine Dynamics and Diagnostics
Fiszera 14, 80-231 Gdańsk (Poland)

PROFESSIONAL EXPERIENCE

Institute of Fluid Flow Machinery, Polish Academy of Sciences, since 2005
2022 – Deputy Director for Scientific Issue of IMP PAN (until now)
2019 – Associate Professor of IMP PAN (until now)
2014 – Head of the Department of Turbine Dynamics and Diagnostics (until now)
2011 – Research Associate
2005 – Research Assistant

EDUCATIONAL BACKGROUND

Habilitation in technical sciences (mechanics), scientific achievement “Development of modelling methods for unconventional bearing systems of rotating machinery”, IMP PAN in Gdańsk, 2019

Postgraduate studies in Law and Management, Gdańsk University of Technology, Faculty of Management and Economics, 2011–2012

Doctor of technical sciences (construction and exploitation of machinery, speciality: machine dynamics), doctoral dissertation “Analysis of the supporting structure defects regarding the dynamic state of the rotating machine”, IMP PAN in Gdańsk, 2011

Master's degree in engineering, MSc thesis entitled “Optimization of the pressure tank design using CAD/CAE systems”, Faculty of Technical Sciences, UWM in Olsztyn, 2005

MANAGING OF RESEARCH PROJECTS

Leader of the IMP PAN research team in NCN Opus project no. 2017/27/B/ST8/01822 entitled “Mechanisms of stability loss of high-speed foil bearings - modelling and experimental studies of thermomechanical interactions”, 2018–2022

Leader of the IMP PAN research team in the field of mechanical issues in the NCBR application project no. POIR.04.01.04-00-0014/17 entitled “A versatile gas turbine micro CHP system” (acronym: VoltAeris), 2018–2022

Project manager in the NCN project no. 2016/21/D/ST8/01711 entitled “Examination and modelling of anti-vibration processes occurring in the high-speed bearings with variable geometry”, 2017–2020

Main contractor in the NCBR project entitled “The use of thermo-electric materials to improve thermostability of bearing technologies for the high-speed rotors”, 2013–2016

Leader of the IMP PAN research team in the project no. POIG.01.03.01-00-027/08 entitled “The use of intelligent materials and smart constructions to design and implement an innovative bearing technology for the energy microturbines”, 2009–2014

Coordinator in the project no. POIG.01.01.02-00-016/08 entitled “Model agro-energy complexes as an example of distributed cogeneration based on local renewable energy sources”, 2008–2014

SCIENTIFIC PUBLICATIONS

Co-author of 5 monographs. Author and co-author of more than 100 articles in peer-reviewed scientific journals. Author and co-author of more than 150 presentations at national and international scientific conferences.

Selected publications:

- Żywica G., Olszewski A., Bagiński P., Andrearczyk A., Żochowski T., Klonowicz P., Theoretical analysis and experimental tests of tilting pad journal bearings with shoes made of polymer material and low-boiling liquid lubrication, *Tribology International* 2023, 189, 108991
- Żywica G., Bagiński P., Bogulicz M., Martowicz A., Roemer J., Kantor S., Numerical identification of the dynamic characteristics of a nonlinear foil bearing structure: Effect of the excitation force amplitude and the assembly preload, *Journal of Sound and Vibration* 2022, 520, 116663
- Bagiński P., Żywica G., Experimental study of various low-friction coatings for high-temperature gas foil bearings under cold-start conditions, *Journal of Engineering for Gas Turbines and Power - Transactions of the ASME* 2022, 144(8), 0181007
- Żywica G., Bagiński P., Andrearczyk A., Experimental and numerical evaluation of the damping properties of a foil bearing structure taking into account the static and kinetic dry friction, *Journal of the Brazilian Society of Mechanical Sciences and Engineering* 2021, 43(1), 7
- Martowicz A., Roemer J., Lubieniecki M., Żywica G., Bagiński P., Experimental and numerical study on the thermal control strategy for a gas foil bearing enhanced with thermoelectric modules, *Mechanical Systems and Signal Processing* 2020, 138, 106581

Table 1. Bibliographic indicators (October 2024)

Data source	Number of publications	Number of citations	<i>h</i> -index
Web of Science	64	529	13
Scopus	89	778	16
Google Scholar	177	1285	19

Reviewer of more than 100 scientific publications (e.g. for: Mechanism and Machine Theory, Mechanical Systems and Signal Processing, Structural Health Monitoring, Shock and Vibration, Journal of Sound and Vibration, Energy, Journal of Theoretical and Applied Mechanics, Engineering Optimization, Journal of Engineering Tribology).

IMPLEMENTATIONS AND EXPERT OPINIONS FOR INDUSTRY

Author and co-author of more than 20 technical expert opinions developed for the manufacturers and owners of rotating machines (e.g. water and steam turbines, compressors, pumps). Co-author of 5 patents and 5 utility models.

MEMBERSHIP OF SCIENTIFIC AND TECHNICAL ORGANISATIONS

Member of the scientific committee of the international conference SIRM - Dynamics of Rotating Machines, since 2021

Member of the IFToMM Technical Committee for Rotordynamics, since 2019

Member of the American Society of Mechanical Engineers (ASME), 2013–2020

Member of the Board of the Polish Society of Technical Diagnostics (PTDT), since 2012

SCIENTIFIC INTERNSHIPS AND TRAININGS (selected)

Scientific internship at the University of Twente, Faculty of Engineering Technology, Enschede (The Netherlands), 14 Nov - 9 Dec 2016

SuPREME Summer School on macro-scale energy systems, Aalborg University (Denmark), 29 Aug - 2 Sep 2016

SuPREME Intro Course on sustainable development, planning and management of energy systems, University of Twente, Enschede (The Netherlands), 22-24 Mar 2016

Training on rotor dynamics “Rotor Dynamic Seminar” DELTA JS AG, Zurich (Switzerland), 21-23 Oct 2009

Training on “New approaches to analysis and testing of mechanical and structural systems”, International Centre for Mechanical Sciences, Udine (Italy), 18-22 June 2007

AWARDS AND HONOURS (selected)

Energy Globe Award - National Award 2015 for the project POIG.01.01.02-00-016/08 entitled "Model agro-energy complexes ..." (G. Żywica was a project coordinator), Tehran, 2016

Silver Medal in the 2015 Innovations competition at Technicon Innovation Fair awarded for the micro CHP ORC power plant (G. Żywica was a project coordinator), Gdańsk 2015

Awarded by the Polish Prime Minister for an outstanding doctoral dissertation in 2012

Award from the Technical Sciences Department of the Polish Academy of Sciences for an outstanding doctoral dissertation, 2011

Team Award from the Rector of the Warsaw University of Technology for the participation in the research work of the Faculty of Automotive and Construction Machinery Engineering, 2007