



# ACADEMIC TEACHER PROFESSIONAL EXPERIENCE

## DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

### 1. Basic information

Name, surname:	Bartosz Zajaczkowski
Grade / Title:	PhD, DSc, Assoc. Prof.
Scientific discipline	<b>inżynieria środowiska, górnictwo i energetyka / environmental engineering, mining, and energy</b>
Faculty:	W9 Wydział Mechaniczno-Energetyczny / Faculty of Mechanical and Power Engineering
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Link to home page and/or research profiles (Google Scholar, ResearchGate, etc.)	<a href="https://wme.pwr.edu.pl/pracownicy/bartosz-zajaczkowski">https://wme.pwr.edu.pl/pracownicy/bartosz-zajaczkowski</a>

### 2. Publication record

*Up to 10 most important papers published over the period of previous 10 years.*

No.	Description (authors, publication title, journal / conference, DOI)	Publication year
1.	Stanisława Hałon, Zbigniew Królicki, Rémi Revellin*, Bartosz Zajaczkowski, Local flow patterns distribution during flow boiling in a micro channel array. <i>Experimental Thermal and Fluid Science</i> . 2023, vol. 141, art. 110792, s. 1-18.	2023
2.	Robert Mulka, Bartosz Zajaczkowski, E. Neuber, M.H. Buschmann, Contact angle of the ferronanofluid and influence of the magnetic field on the drying droplet, <i>International Journal of Thermofluids</i> , Volume 14, 2022, 100152	2022
3.	Tomasz Hałon, Bartosz Gil, Bartosz Zajaczkowski, Comparative investigation of low-GWP binary and ternary blends as potential replacements of HFC refrigerants for air conditioning systems. <i>Applied Thermal Engineering</i> . 2022, vol. 210, art. 118354, s. 1-8.	2022
4.	Stanisława Hałon, Zbigniew Królicki, Rémi Revellin*, Bartosz Zajaczkowski, Heat transfer characteristics of flow boiling in a micro channel array with various inlet geometries. <i>International Journal of Heat and Mass Transfer</i> . 2022, vol. 187, art. 122549, s. 1-19	2022
5.	Bartosz Gil, Amaury Fievez, Bartosz Zajaczkowski: Pool boiling heat transfer coefficient of dimethyl ether and its azeotropic ternary mixtures / Bartosz Gil, Amaury Fievez, Bartosz Zajaczkowski. <i>International Journal of Heat and Mass Transfer</i> . 2021, vol. 171, art. 121063, s. 1-14, 21 rys., 4 tab., bibliogr. 31 poz. ISSN: 0017-9310; 1879-2189	2021
6.	Krzysztof Dutkowski*, Marcin Kruzel, Bartosz Zajaczkowski, Bogusław Białko: The experimental investigation of mPCM slurries density at phase change temperature / Krzysztof Dutkowski [i in.]. <i>International Journal of Heat and Mass Transfer</i> . 2020, vol. 159, art. 120083, s. 1-8, 6 rys., 1 tab., bibliogr. 51 poz. ISSN: 0017-9310; 1879-2189	2020
7.	Karolina Wojtasik, Bartosz Zajaczkowski, Romuald Rulliere*, Jocelyn Bonjour*: Novel sensor for local analysis of bubble dynamics at low pressure / Karolina Wojtasik [i in.]. <i>Experimental Thermal and Fluid Science</i> . 2019, vol. 104, s. 175-185, 18 rys., 1 tab., bibliogr. 24 poz. ISSN: 0894-1777; 1879-2286	2019



8.	Stanisława Sandler, Bartosz Zajączkowski, Zbigniew Królicki: Review on flow boiling of refrigerants R236fa and R245fa in mini and micro channels / Stanisława Sandler, Bartosz Zajączkowski, Zbigniew Królicki. International Journal of Heat and Mass Transfer. 2018, vol. 126, Pt. A, s. 591-617, 16 rys., 3 tab., bibliogr. 67 poz. ISSN: 0017-9310	2018
9.	Tomasz Hałon, Bartosz Zajączkowski, Sandra Michaie*, Romuald Rulliere*, Jocelyn Bonjour*, Enhanced tunneled surfaces for water pool boiling heat transfer under low pressure. International Journal of Heat and Mass Transfer. 2018, vol. 116, s. 93-103	2018
10.	Bartosz Zajączkowski, Optimizing performance of a three-bed adsorption chiller using new cycle time allocation and mass recovery. Applied Thermal Engineering. 2016, vol. 100, s. 744-752.	2016

### 3. Projects and grants

List of the most important 5 projects/grants with basic description including: title, source(s) of funding, name of the call, role in the project (e.g., principal investigator).

1.	Role in the project (e.g., principal investigator, work package leader, etc.)	Principal Investigator
	Project title	Influence of the geometry of the tube bundle on pool boiling heat transfer in thermodynamic conditions close to the triple point
	Sources of funding	National Science Center
	Name of the call	OPUS 22
	Implementation period	2022-2025
2.	Role in the project (e.g., principal investigator, work package leader, etc.)	Research Supervisor
	Project title	The influence of the external magnetic field on the heat transfer parameters in the flow of ferromagnetic nanofluid through an inclined convection heat exchanger
	Sources of funding	National Science Center
	Name of the call	PRELUDIUM 20
	Implementation period	2022-2023
3.	Role in the project (e.g., principal investigator, work package leader, etc.)	Research supervisor
	Project title	Identification of two-phase flow structures and the dominant heat exchange mechanism during high-temperature boiling in micro channels with different inlet geometry
	Sources of funding	National Science Center
	Name of the call	PRELUDIUM 13
	Implementation period	2018-2020
4.	Role in the project (e.g., principal investigator, work package leader, etc.)	Research supervisor
	Project title	Improvement of heat transfer parameters due to the influence of nanoparticles on the evaporator surface during the boiling of nanofluids in a thermosiphon.
	Sources of funding	National Science Center



	Name of the call	PRELUDIUM 12
	Implementation period	2017-2019
5.	Role in the project (e.g., principal investigator, work package leader, etc.)	
	Project title	
	Sources of funding	
	Name of the call	
	Implementation period	

#### 4. International experience

*Brief description of international cooperation and experience (e.g., research stays, cooperation with foreign entities, coordination or participation in international projects or programmes, keynote speeches and presentations delivered at renowned international conferences, visiting professor stays, invited lectures).*

No.	Description	Year(s)
1.	COST Innovators Grant CIG-15119: Nanofluids for convective heat transfer devices - Team member, ITC Conference Grant Coordinator	2020-2021
2.	COST Action CA16144 RESTORE - Management Committee member, CORE Group member, Science Communication Officer, Member of WG0 (management) and WG1.	2017-2021
3.	COST Action CA15119 NANOUP TAKE - Management Committee member (substitute), member of WG4 (Boiling and Solar), ITC Conference Grant Coordinator.	2016-2020
4.	Top 500 Innovators Programme at Stanford University, Palo Alto, CA, USA	2012
5.	Postdoctoral researcher at Stirling Cryogenics, Son en Bruegel (n. Eindhoven), the Netherlands.	2009-2010
6.	Postdoctoral researcher at San Diego State University, San Diego, CA, USA	2009

#### 5. Experience in teaching doctoral students

*Brief description of experience in teaching doctoral students (e.g., courses in doctoral schools and PhD studies, summer/winter schools for doctoral students, tutorials, trainings, etc.).*

No.	Description	Year(s)
1.	Grant Writing for Early-Stage Researchers	2022, 2023
2.	Recent research trends in environmental, engineering, mining and energy	2022, 2023
3.	Reporting seminar of environmental, engineering, mining and energy W09	2022, 2023

#### 6. List of supervised doctoral students

*List of all supervised doctoral students that defended the PhD including: name of the student, dissertation title, year of awarding PhD.*

No.	Name, surname	Dissertation title	Year of awarding PhD
1.	Tomasz Hałon, PhD	Optimization of the parameters of the refrigerant boiling process in a low-pressure adsorption trigeneration system	2017



2.	Agnieszka Kujawska, PhD	Heat transfer processes in thermosyphon employing nanofluid	2020
3.	Wiktoria Lada, MSc		Exp. 2024
4.	Robert Mulka, MSc		Exp. 2024
5.	Bartłomiej Nalepa, MSc		Exp. 2025
6.	Dominika Kaczmarek, MSc		Exp. 2026

## 7. Prizes and awards

*The most important national and international prizes and awards related to research, development and teaching activities.*

No.	Description	Year
1.	Bronze Medal for Long Service	2021
2.	Marie Skłodowska-Curie Actions Seal of Excellence (MC-IF-2017)	2018
3.	WUST Rector's Award	2010, 2016, 2017, 2019, 2022

## 8. Other significant achievements

*Information on other significant achievements related to research, development and teaching activities.*

Total IF: 87.621; Google Scholar: h-index: 13, citations: 364; Scopus h-index: 12, citations: 319

My most important scientific contributions so far are in the area of adsorption refrigeration technology (or grown from this topic), and the below inputs and inventions are worth mentioning in particular:

- Intensification of the low-pressure refrigerant boiling process through the use of surfaces developed in the refrigerant adsorption evaporator; realization of phase transformations in heat exchangers forming part of the sorption system; possibility of intensification of boiling processes in low pressure evaporator.
- Thermodynamics and numerical analysis of the dynamics of the absorption systems - use of differential equation systems to describe the work of components (adsorption beds and heat exchangers) and their simultaneous solution by means of the self-written computer program. Optimizing the capacity and the efficiency of the adsorption equipment by implementation of advanced operating modes - heat recovery and mass recovery that lead to increased capacity and efficiency. Introduction of cycle time allocation asymmetry, i.e. modification of the length of the phases that comprise the adsorption cycle.
- Intensification of heat and mass transfer in the adsorbent bed by means of invented and patented sorption composite.
- Building and conducting experimental research of the sorption system fed from the district heating network.

The above advances are confirmed by cited papers, funded projects, supervised or co-supervised three completed PhD theses (Tomasz Halon, Agnieszka Kujawska, Karolina Wojtasik), four ongoing PhD tracks (Wiktoria Lada, Robert Mulka, Bartłomiej Nalepa, Dominika Kaczmarek) and a patent.

<https://wme.pwr.edu.pl/en/employees/bartosz-zajackowski>