Name: Jarosław Serafin
Date of birth: 23.03.1989
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Carrer Marroc 5-9; 3-4
08018 Barcelona
Spain

Education:

- **2008-2012**- B. Sc. degree in biotechnology; University of Szczecin, Szczecin, Poland. Title of my dissertation ,, Using of the biotechnological methods in the treatment of anticancer drugs";
- **2012-2014**- M. Sc. degree in biotechnology; University of Szczecin, Szczecin , Poland. Title of my dissertation ,, Preparation of biofuels - testing the transesterification of rapeseed oil with methanol using potassium hydroxide as a catalyst";
- **2014-2019**- Ph.D. degree in material engineering; West Pomeranian University of Technology in Szczecin, Szczecin, Poland. Title of my dissertation ,, The analysis of properties of activated carbons produced from arboreal fungus (*Trametes gibbosa*) and common fern (*Polypodium vulgare*) with special consideration of CO_2 adsorption capacity";
- **2016-2017**- PG.D. degree in industrial safety; West Pomeranian University of Technology in Szczecin, Szczecin, Poland. Title of my dissertation „*Brucella spp*. As a biological threat factor in the work environment´´;
- **2018-2022**- Ph.D. degree in chemical engineering; Universitat Politecnica de Catalunya, Barcelona, Spain. – Title of my dissertation ,, Titanium dioxide and nanoshaped ceria for solar hydrogen production".

Experience:

- **09.-10.2015**- internship in University in Alicante, Spain where I prepared activated carbon from different materials.
- **11.-12.2016-** internship in Los Andes Universidad in Bogota, Colombia where I prepared activated carbon from different materials and measured calorimetric potential
- **05.2016- 04.2017-** researcher in the project ,,Post-Combustion CO_2 Capture on New Solid Sorbents and Application in a Moving Bed Reactor" carried out in West Pomeranian University of Technology in Szczecin, Poland
- **01.2018-01.2019**- internship in Universitat Politècnica de Catalunya in Barcelona, Spain where prepared experiments of hydrogen production.

Research area:

CO_2 conversion, biomass conversion, CO_2 adsorption, CH_4 adsorption, H_2 adsorption, drugs adsorption, biomass to value-added products, photocatalyst hydrogen generation, catalyst processes, cerium oxide, activated carbons, graphene, nanotubes, prodrugs, simulations, medicine.

Publications:

- **J. Serafin,** U. Narkiewicz, A.W. Morawski, R.J. Wróbel, B. Michalkiewicz; ,,Highly microporous activated carbons from biomass for CO_2 capture and effective micropores at different conditions, **Journal of CO_2 Utilization (IF=5.35)**, 18, **2017**, 73-79.
- J. Kapica- Kozar, B. Michalkiewicz, R.J. Wróbel, S. Mozia, E. Piróg, E. Kusiak- Nejman, **J. Serafin**, A.W. Morawski, U. Narkiewicz; ,,Adsorption of carbon dioxide on TEPA-modified TiO_2/titanate composite nanorod", **New Journal of Chemistry(IF=3.28)**, 41, **2017**, 7870.
- D. Sibera, J. Sreńscek- Nazzal, A.W. Morawski, B. Michalkiewicz, **J. Serafin**, R.J. Wróbel, U. Narkiewicz; ,,Microporous carbon spheres modified with EDA used as carbon dioxide sorbents'', **Advanced Materials Letters (IF=1.15)**, 9, **2018**, 432-435.
- D. Sibera, U. Narkiewicz, J. Kapica, **J. Serafin**, B. Michalkiewicz, R.J. Wróbel, A.W. Morawski; ,,Preparation and characterisation of carbon spheres for carbon dioxide capture", **Journal of Porous Materials (IF=1.91)**, 26, **2019**, 19-27.
- **J. Serafin**; ,,Utilization of spent dregs for the production of activated carbon for CO_2 adsorption", **Polish Journal of Chemical Technology (IF=1.02)**, 2, **2019**, 44-50
- **J. Serafin**, A.K. Antosik, K. Wipliszewska, Z. Czech; ,,Preparation of activated carbon from biodegradable film for CO_2 capture applications", **Polish Journal of Chemical Technology (IF=1.02)**, 20, **2018**, 75-80.
- **J. Serafin**, M. Baca, M. Biegun, E. Mijowska, R.J. Kaleńczuk, J. Sreńscek- Nazzal, B. Michalkiewicz, ,,Direct conversion of biomass to nanoporous activated biocarbons for high CO_2 adsorption and supercapacitor applications-", **Applied Surface Science (IF=6.18)**, 497, **2019**, 143722.
- A. Wróblewska, **J. Serafin**, A. Gawarecka, P. Miądlicki, K. Urbaś, Z.C. Koren, J. Llorca, B. Michalkiewicz; ,,Carbonaceous catalysts from orange pulp for limonene oxidation", **Carbon Letters (IF=2.31)**, **2019**
- **J. Serafin**, L. Soler, D. Vega, A. Rodriguez, J. Llorca; ,,Marcoporous silicon coated with M/TiO_2 (M=Au, Pt) as a higly efficient photoreactor for hydrogen production, **Chemical Egineering Journal (IF=10.65)**, 393, **2020**, 124701.
- Y. Chen, L. Soler, Ch. Xie, X. Vendrell, **J. Serafin**, D. Crespo, J. Llorca; ,,A straightforward method to prepare supported Au clusters by mechanochemistry and its application in photocatalysis", **Applied Materials Today (IF=7.97)**, 21, **2020**, 100873.
- **J. Serafin**, M. Ouzzine, O. Cruz Junior, J. Sreńscek- Nazzal; ,, Preparation of low-cost activated carbons from Amazonian nutshells for CO_2 storage", **Biomass and Bioenergy (IF=3.74)**, 144, **2021**, 105925.
- C. A. Ray-Mafull, D. Hotza, R.García-Gallardo , O. F. Cruz Junior, **J. Serafin** ; ,,Adsorption and thermodynamic parameters of activated carbon-,,Diazepam systems in simulated gastric fluid", **Advanced Materials Letters (IF=1.15)**, 6, **2021**, 12.
- M. Kwiatkowski, **J. Serafin**, A.M. Booth, B. Michalkiewicz; ,, Computer Analysis of the Effect of Activation Temperature on the Microporous Structure Development of Activated Carbon Derived from Common Polypody", **Materials, (IF= 3.50)**, 14, **2021**, 2951.

- **J. Serafin**, E. Kusiak- Nejman, A. Wanag, A. W. Morawski, J. Llorca; ,, Hydrogen photoproduction on TiO_2-reduced graphene oxide hybrid materials from water-ethanol", **Journal of Photochemistry and Photobiology A: Chemistry**. **(IF=4.291)**, 418, **2021**, 113406.
- M. Ouzzine, **J. Serafin**, J. Sreńscek- Nazzal; ,, Single step preparation of activated biocarbons derived from pomegranate peels and their CO_2 adsorption performance", **Journal of Analytical and Applied Pyrolysis, (IF=5.54)**, 160, **2021**, 105338.
- **J. Serafin**, M. Ouzzine, O. F. Cruz Jr., J.Sreńscek-Nazzal, I. Campello Gómez, F.Z. Azar, C. A. Rey Mafull, D. Hotza, C. R. Rambo; ,, Conversion of fruit waste-derived biomass to highly microporous activated carbon for enhanced CO_2 capture'', **Waste Management (IF=7.145)**, 136, **2021**, 273-282.
- **J. Serafin**, K. Kiełbasa, B. Michalkiewicz; ,, The new tailored nanoporous carbons from the common polypody (Polypodium vulgare): The role of textural properties for enhanced CO_2 adsorption'', **Chemical Engineering Journal (IF=13.273)**, 429, **2022**, 131751.
- J. Nazzal-Sreńscek, A. Kamińska, P. Miądlicki, A. Wróblewska, K. Kiełbasa, R. J. Wróbel, **J. Serafin**, B. Michalkiewicz; ,, Activated carbon modification towards efficient catalyst to High Value-added Products synthesis from alpha-pinene'', **Materials (IF=3.623**)- 14, **2021**, 7811..
- A. Kamińska, P. Miądlicki, K. Kiełbasa, **J. Serafin**, J. Sreńscek- Nazzal, R. Wróbel, A. Wróblewska; ,, FeCl3-modified carbonaceous catalysts from orange peels for solvent-free alpha-pinene oxidation'', **Materials (IF=3.623)**, 14, **2021**, 7729.
- K. K. Kishibayev, **J. Serafin**, R. R. Tokpayev, T. N. Khavaza, A. A. Atchabarova, D. A. Abduakhytova, Z. T. Ibraimov, J. Sreńscek-Nazzal,,Physical and chemical properties of activated carbon synthesized from plant wastes and shungite for CO_2 capture'', **Journal of Environmental Chemical Engineering (IF=5.909)**-9, **2021**, 106798.
- **J. Serafin,** M. Ouzzine, J. Sreńscek- Nazzal, J. Llorca; ,, Photocatalytic hydrogen production from alcohol aqueous solutions overTiO_2-activated carboncomposites doped with Au and Pt'', **Journal of Photochemistry and Photobiology A: Chemistry. (IF=4.291)**-425, **2022**, 113726.
- **J. Serafin,** J. Nazzal- Sreńscek, A. Kaminska, O. Paszkiewicz, B. Michalkiewicz; ,, Characterization of Activated Carbons Produced from Face Mask Waste and Application as CO_2 Sorbents", **Journal of CO_2 Utilization (IF=7.132)**- 59, **2022**, 101970.

Conferences:
Oral presentation in English:

- 19.05.2016 ,,XVIII International Student's Scientific Session - Material and Technologies of XXI century" Katowice, Poland- oral presentation ,, Preparation of activated carbon from lumpy bracket to CO_2 adsorption" – 2nd place winner in the English- language section

- 7-8.06.2016 ,,IV International Maritime Youth Congress", Szczecin, Poland - oral presentation ,, Preparation of activated carbon from waste materials to CO_2 adsorption"

- 2-3.03.2017 Ecological & Environmental Chemistry –Chisinau, Moldova, 2017 - oral presentation ,,Preparation of activated carbon from fern leaves to CO_2 adsorption"

- 15-17.03.2017 XLIX Ogólnopolskie Kolokwium Katalityczne, Krakow, Poland - oral presentation, ,,Preparation of activated carbons from fern leaves for CO_2 adsorption”

Oral presentation in Polish:

- 05.11. 2016, Poznań III Poznańskie Sympozjum Młodych Naukowców, Poznan, Poland- oral presentation ,,Otrzymywanie węgli aktywnych z liści dębu (*Qurcus robur L*.)- charakterystyka i zastosowanie w procesie adsorpcji CO_2”
- Konferencja Puzzel 2017, Wroclaw, Poland- oral presentation, ,,Otrzymywanie i charakterystyka węgli aktywnych z biomasy”,
- 11.03.2017 NATURALni 2017,, Łódź - oral presentation ,,Otrzymywanie węgli aktywnych z biomasy¨

Posters:

- 16-18.03.2015 XLVII Ogólnopolskie Kolokwium Katalityczne, Kraków, Poland ,,Otrzymywanie węgli aktywnych z biomasy - charakterystyka i zastosowanie w procesie adsorpcji CO_2”

- 30.07.-04.09.2015 8. Kongres Technologii Chemicznej „Surowce - energia - materiały” Rzeszów, Poland ,,Wysoka adsorpcja CO_2 na węglach aktywnych otrzymywanych z surowców roślinnych”

- 9-10.06.2016 ,,II International conference ,,Human Ecology”, Szczecin, Poland,, Use of waste from coffee and herbs grounds for activated carbons production”

- 05.11. 2016 Poznań III Poznańskie Sympozjum Młodych Naukowców, Poznań, Poland,, Nowe kompleksy żelaza (III) i ich zastosowanie jako adsorbent CO_2”

- 04-07.09.2016 9th International Conference "INTERFACES AGAINST POLLUTION", Lleida, Spain, ,,Preparation of activated carbon from common polypody for H_2 adsorption ´´

- 04-07.09.2016 9th International Conference "INTERFACES AGAINST POLLUTION", Lleida, Spain, ,,Activated carbon from waste of carboxymethyl starch film as CO_2 adsorbent´´

- 04-07.09.2016 9th International Conference "INTERFACES AGAINST POLLUTION", Lleida, Spain, ,,Preparation of activated carbon from birch polypore for CO_2 adsorption´´

- 15-17.03.2017 XLIX Ogólnopolskie Kolokwium Katalityczne, Kraków, Poland ,,Utlenianie limonenu za pomocą nadtlenku wodoru i wodorotlenku t-butylu, w obecności ZSM-5 o różnej zawartości Si i Al.”

- 15-17.03.2017 XLIX Ogólnopolskie Kolokwium Katalityczne, Kraków, Poland ,,Utlenianie l-pinenu na katalizatorach ZSM-5”

- 23-28 .07.2017 Carbon 2017, , Melbourne, Australia; ,,Preparation and characterisation of carbon spheres for carbon dioxide capture´´

- 6-9.06.2021 6th International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface; ,, Activated carbon from the Amazonian andiroba shells used as a CO_2 adsorbent and a cheap semiconductor material’’

- 19-23.09.2021 12 th International Conference on Hydrogen Production (ICH2P-2021); ,,SILICON-BASED MICRO-FUEL REFORMERS AND PHOTOREACTORS''

- 19-23.09.2021 12 th International Conference on Hydrogen Production (ICH2P-2021); ,, Integrating Au clusters over TiO_2 surface via one-step ball milling for boosted photocatalytic H2 generation"

Patents:

European:

- The method of preparation of activated carbon from fungi nr EP15461572.8

Polish:

- Sposób wytwarzania węgli aktywnych o wysokiej powierzchni właściwej nr w UP: 412395 (eng. A method for preparation activated carbons with a high specific surface area)

- Sposób wytwarzania węgli aktywnych z grzybów nr w UP: 412399 (eng. A method for preparation activated carbons from fungi)

- Sposób wytwarzania węgla aktywnego nr w UP: 416143 (eng. A method for preparation activated carbon)

- Sposób otrzymywania mikro- i mezoporowatych materiałów węglowych nr w UP: 416376 (eng. Method for preparation micro- and mesoporous carbonaceous materials)

- Sposób utleniania limonenu nr w UP: 416571 (eng. Method for the oxidation of limonene)

- Sposób wytwarzania katalizatora do utleniania limonenu nr w UP: 416570 (eng. A method for producing a catalyst for limonene oxidation)

- Sposób otrzymywania węgla aktywnego do adsorpcji CO_2 nr w UP: 422744 (eng. Method for preparation activated carbon for CO_2 adsorption)

- Sposób otrzymywania węgla aktywnego do adsorpcji CO_2 nr w UP:422202 (eng. Method for preparation activated carbon for CO_2 adsorption)

- Sposób otrzymywanie węgla aktywnego do adsorpcji CO_2 nr w UP:422200 (eng. Method for preparation activated carbon for CO_2 adsorption)

- Nowy kompleks żelaza (III) i jego zastosowanie jako adsorbent CO_2 nr w UP:418522 (eng. New iron complex (III) and its use as an adsorbent of CO_2)

Technical Skills:

Instrumental techniques: Powder X-ray diffractometer, BET-Surface area analyzer, FT-IR Spectrometer,UV-Visible spectrometer, Scanning Electron microscopy, Transmission Electron microscopy, X-ray photo electron spectroscopy, Pulse Chemisorption Techniques, Gas chromatography with Mass spectrometer, CO_2, CH_4, H_2, N_2 Quantachrome adsorb system, Raman spectroscopy.

Computer Skills: Widnows system, Linux system, Good command on Internet, MS Office and Power point presentations, Origin software, Xpert software, Quatachrome software, Gromacs software.

Supervision: Trained post graduate students towards the research for the Erasmus internship, International exchange (students from India, Egypt, Colombia, Poland, and Turkey).

Project Management: Writing projects and reports, presentations in group seminars, member of three projects:

- Preparation activated carbon from biomass;
- CO_2 adsorption on activated carbons;
- Recycled 3D masks with an activated carbon filter and a layer of silver-coated cerium oxide.

Collaboration:

- West Pomeranian University of Technology in Szczecin, Poland;
- Universidad Los Andes in Bogota, Colombia;
- Universidad Politécnica de Catalunya in Barcelona, Spain;
- Universidad de Alicante, Alicante, Spain;
- Université Sultan Moulay Slimane, Béni-Mellal, Marocco;
- Birla Institute of Technology and Science, Pilani, India;
- Instituto Nacional de Pesquisas da Amazônia, Brasil;
- Al-Farabi Kazakh National University, Kazahstan;
- Stanford University, Stanford, United State of America.

Curses:

- **2019-2020**- Responsible Conduct in Research and Innovation, UPC Doctoral School.
- **2020**- XRD Masterclass1- Characterization of Amorphous API- Malvern Panalytical Events

Other skills:

Languages:

- Polish - native,
- English - Pre-advanced,
- German- intermediate,
- Spanish- Pre-advanced,
- Catalan- during study,
- Arabic- during study.

Declaration:

I hereby declare that all the information given above is true to the best of my knowledge.

dr Jarosław Serafin