

| Lp. | Tematyka                                                                           | Najważniejsze osiągnięcia (projekty, wdrożenia, publikacje, patenty, itp.)                                                                                                                                                                                                                                                                              | Wydział/-y/Katedra/-y                                              | Lider/-rzy zespołu                               |
|-----|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------|
| 1.  | <b>Badania i rozwój materiałów dla technologii wodorowych i ochrony środowiska</b> |                                                                                                                                                                                                                                                                                                                                                         |                                                                    |                                                  |
|     | Poszukiwania nowych nanomateriałów jako katalizatorów do produkcji wodoru          | <b>publikacje:</b>                                                                                                                                                                                                                                                                                                                                      |                                                                    |                                                  |
|     | Badania strukturalne nowych materiałów i nanomateriałów                            | Wenelska, K; Dymerska, AG; Mijowska, E (2023). Promotion of borophene/NiO-based electrocatalyst for oxygen evolution reaction. Chemical Engineering Journal, DOI: 10.1016/j.cej.2023.146714 (IF- 13.4, 200 pkt.)                                                                                                                                        |                                                                    |                                                  |
|     | Rozwój nowych materiałów do rozkładu/pochłaniania zanieczyszczeń środowiskowych    | Mijowska, E; Dymerska, AG; Leniec, G; Maślana, K; Aleksandrak, M; Zairov, R; Nazmutdinov, R; Chen, X (2024) Ni-based compounds in multiwalled graphitic shell for electrocatalytic oxygen evolution reactions. Advanced Composites and Hybrid Materials, DOI: 10.1007/s42114-024-00981-9 (IF- 23.2, 200 pkt.)                                           |                                                                    |                                                  |
|     |                                                                                    | Małgorzata Aleksandrak, Daria Baranowska, Tomasz Kędzierski, Krzysztof Sielicki, Shuai Zhang, Marcin Biegun, Ewa Mijowska, Superior synergy of g-C3N4/Cd compounds and Al-MOF-derived nanoporous carbon for photocatalytic hydrogen evolution, Applied Catalysis B: Environmental, 2019, 257, 117906, 10.1016/j.apcatb.2019.117906 (IF- 20.3, 200 pkt.) |                                                                    |                                                  |
|     |                                                                                    | Daria Baranowska, Klaudia Zielinkiewicz, Tomasz Kędzierski, Ewa Mijowska, Beata Zielińska, Heterostructure based on exfoliated graphitic carbon nitride coated by porous carbon for photocatalytic H2 evolution, International Journal of Hydrogen Energy, 2022, 47, 35666, 10.1016/j.ijhydene.2022.08.151 (IF- 8.1, 140 pkt.)                          |                                                                    |                                                  |
|     |                                                                                    | Daria Baranowska, Tomasz Kędzierski, Marcel Dworczak, Martyna Baca, Ewa Mijowska, Beata Zielińska, Bifunctional catalyst based on molecular structure: Spherical mesoporous TiO2 and gCN for photocatalysis, Materials Research Bulletin, 2022, 146, 111608, 10.1016/j.materresbull.2021.111608 (IF- 5.3, 100 pkt.)                                     |                                                                    |                                                  |
|     |                                                                                    | Tryba, B.; Miądlicki, P.; Rychtowski, P.; Trzeciak, M.; Wróbel, R.J. The Superiority of TiO2 Supported on Nickel Foam over Ni-Doped TiO2 in the Photothermal Decomposition of Acetaldehyde. Materials 2023, 16, 5241. <a href="https://doi.org/10.3390/ma16155241">https://doi.org/10.3390/ma16155241</a>                                               | Katedra Fizykochemii Nanomateriałów, Katedra Inżynierii Materiałów | prof. dr hab. Ewa Mijowska, prof. Xuecheng Chen, |
|     |                                                                                    | Tryba, B.; Prowans, B.; Wróbel, R.J.; Szotłdra, P.; Pichór, W. Application of TiO2 Supported on Nickel Foam for Limitation of NOx in the Air via Photocatalytic Processes. Molecules 2024, 29, 1766. <a href="https://doi.org/10.3390/molecules29081766">https://doi.org/10.3390/molecules29081766</a>                                                  | Katalitycznych i Sorpcyjnych/WTiCh                                 | prof. dr hab. inż. Beata Tryba                   |

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|    |                                                                                              | <p>P. Rychtowski, B. Prowans, P. Miądlicki, P. Felczak, and B. Tryba, Enhanced Ethylene Removal in a Fluidized Bed Photoreactor with Polystyrene as a Novel Bed, Industrial &amp; Engineering Chemistry Research 2024 63 (4), 1802-1813, DOI: 10.1021/acs.iecr.3c03609</p> <p><b>Projekty:</b></p> <p>Xuecheng Chen; Wykorzystanie chemicznej modyfikacji odpadów kawowych i ligniny: nowe podejście do zrównoważonych systemów magazynowania energii; OPUS; Źródło finansowania: NCN. Termin rozpoczęcia i zakończenia: 07.2024 – 07.2028</p> <p>Ewa Mijowska; Borofen i jego pochodne do magazynowania energii – projektowanie procesów wytwarzania; OPUS; Źródło finansowania: NCN. Termin rozpoczęcia i zakończenia: 02.2022 – 02.2026; UMO-2021/41/B/ST5/03279</p> <p>"Projekt NCN OPUS Nr 2020/39/B/ST8/01514, Badania fotokatalitycznego rozkładu lotnych związków organicznych (LZO) w reaktorze ze złożem fluidalnym, okres realizacji: 27.07.2021-26.07.2025."</p> <p>Projekt NCN Preludium Nr 2023/49/N/ST11/01737, Wpływ pola magnetycznego na właściwości fotokatalityczne złoża fluidalnego na bazie kompozytu pianka niklowa/nano-TiO2, okres realizacji: 16.01.24-16.01.26.</p> <p>B. Tryba, P. Rychtowski, P. Miądlicki, Patent nr P.441626 pt.: „Złoże fluidalne zwłaszcza do reaktora fotokatalitycznego”.</p> <p>Projekt: PRELUDIUM BIS-4, Umowa nr 2022/47/O/ST8/03074 pt. „Fotokatalityczna konwersja siloksanów”,</p> |  |  |
| 2. | <b>Projektowanie nowych (nano)materiałów do magazynowania energii</b>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |
|    | Badania nowych (nano)materiałów do magazynowania energii z wykorzystaniem superkondensatorów | <b>publikacje:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |
|    | Wykorzystanie surowców odnawialnych do produkcji nowych nanomateriałów                       | <p>Kędzierski, T., Mijowska, E. Lanthanoid sesquioxide ultrafine nanoparticles on graphene via general approach of Ultrafast Redox Reaction and their performance as anodes in lithium-ion batteries, ACS Applied Materials &amp; Interfaces, 2025, 17 (1), str. 488-856, pkt. MEIN: 200, (IF: 8,5; 200 pkt.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |

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|    | Badania nowych (nano)materiałów do magazynowania energii z wykorzystaniem baterii                           | <p>Jiaxin Li, Yumeng Hua, Yanshen Gao, Shiyun Li, Tomasz Kędzierski, Ewa Mijowska, Paul K. Chu, Rudolf Holze, Yi He, Wuguo Bi, and Xuecheng Chen, Size-Dependent Effects of ZIF-8 Derived Cathode Materials on Performance of Zinc-Ion Capacitors, Small 2024, 20, 2406187, DOI: 10.1002/sml.202406187 (IF-13; 200 pkt.)</p> <p>Xiaodong Xu, Jiaxin Li, Anna Dymerska, J. Justin Koh, Jiakang Min, Siqi Liu, Jalal Azadmanjiri, Ewa Mijowska, MIL-53(Al) assisted in upcycling plastic bottle waste into nitrogen-doped hierarchical porous carbon for high-performance supercapacitors, Chemosphere, 340, 2023, 139865, DOI: doi.org/10.1016/j.chemosphere.2023.139865 (IF-8.1; 140 pkt.)</p> <p>Lennart Singer, M. A. A. Mohamed, Henrik Hahn, Ignacio G. Gonzalez-Martinez, Martin Hantusch, Karolina Wenelska, Ewa Mijowska, Bernd Büchner, Silke Hampel, Nico Gräbler and Rüdiger Klingeler, Elucidating the electrochemical reaction mechanism of lithium-rich antiperovskite cathodes for lithium-ion batteries as exemplified by (Li2Fe)SeO, J. Mater. Chem. A, 2023, 11, 14294-14303; DOI: 10.1039/D3TA00552F (IF-10.7; 140 pkt.)</p> | Katedra Fizykochemii Nanomateriałów, WTilCh | prof. dr hab. Ewa Mijowska |
| 3. | <b>Badania nad syntezą i charakterystyką materiałów polimerowych z wykorzystaniem surowców odnawialnych</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                             |                            |
|    | Wykorzystanie nowych surowców odnawialnych (w tym biomasy) do syntezy nowych materiałów polimerowych        | <p><b>publikacje:</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                            |
|    | Wykorzystanie enzymów jako katalizatorów reakcji polimeryzacji                                              | <p>Ciecholewska-Juśko, D., Żywicka, A., Broda, M., Kovalcik, A., Fijałkowski, K., YourTuber matters: Screening for potato variety for the synthesis of bacterial cellulose in its tuber juice, International Journal of Biological Macromolecules, 2024, 278, 134892.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                            |
|    | Wykorzystanie nowych rozpuszczalników (IL, DES) do biokonwersji i modyfikacji polimerów                     | <p>Ciecholewska-Juśko, D., Broda, M., Żywicka, A., ... Junka, A., Fijałkowski, K., Potato juice, a starch industry waste, as a cost-effective medium for the biosynthesis of bacterial cellulose, International Journal of Molecular Sciences, 2021, 22(19), 10807.</p> <p>Żywicka A., Junka A., Szymczyk P., Chodaczek G., Grzesiak J., Sedghizadeh P.P., Fijałkowski K., Bacterial cellulose yield increased over 500% by supplementation of medium with vegetable oil, Carbohydrate Polymers, 2018, 199, 1, 294-303.</p> <p>M. Kwiatkowska, I. Kowalczyk, K. Kwiatkowski, A. Szymczyk, Z. Rostanec „Fully biobased multiblock copolymers of furan-aromatic polyester and dimerized fatty acid: Synthesis and characterization”, Polymer 99 (2016) 503-512</p>                                                                                                                                                                                                                                                                                                                                                                               |                                             |                            |

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| <p>O.Gálvez, O.Toledano, F.J. Hermoso, A. Linares, M. Sanz, E. Rebollar, A. Nogales , M.C. García-Gutiérrez, G. Santoro, I. Irska, S. Paszkiewicz, A. Szymczyk, T.A. Ezquer ra “Inter and intra molecular dynamics in poly(trimethylene 2,5-furanoate) as revealed by infrared and Broadband Dielectric Spectroscopies” Polymer 268 (2023) 125699</p>              |                                                                                                                                       |                                                                                                                                                                                           |
| <p>A. Zubkiewicz, A. Szymczyk, J. Dryzek, Z. Rozwadowski, R.J. Sablong, M. Soccio, G. Guidotti, V. Siracusa, N. Lotti “Superior barrier performance, mechanical properties and compostability in relation to supramolecular structure of renewable based poly(trimethylene furanoate) modified with suberic acid” , European Polymer Journal 223 (2025) 113673</p> |                                                                                                                                       |                                                                                                                                                                                           |
| <p>K. Pypec, E. Piesowicz, S. Paszkiewicz, I. Irska, “Effect of EPDM recyclate dust filler on the mechanical properties of rubber mixtures” Przemysł Chemiczny 100 (2021) 1071-1076</p>                                                                                                                                                                            |                                                                                                                                       |                                                                                                                                                                                           |
| <p>S. Paszkiewicz, G. Kramek, K. Walkowiak, I. Irska, E. Piesowicz, M. Rzonsowska, B. Dudziec, M. Barczewski „Thermal and mechanical properties of PLA/ENR thermoplastic vulcanizates compatibilized with tetrafunctional double-decker silsesquioxanes” Polimery 68 (2023) 593</p>                                                                                | <p>Katedra Mikrobiologii i Biotechnologii, WBiHZ; Katedra Technologii Materiałowych,</p>                                              |                                                                                                                                                                                           |
| <p>S. Paszkiewicz, J. Andrzejewski, D. Grochala, K. Adamczyk, P. Figiel, E. Piesowicz, K. Pokwicka-Croucher „Thinking Green on 3D Printing: Sustainable Polymer Compositions of Post-Consumer Polypropylene and Tire Rubber Crumbs Intended for Industrial Applications” Materials 17 (2024) 1-20</p>                                                              | <p>WIMiM; Katedra Inżynierii Polimerów i Biomateriałów, WTiCh; Centrum Bioimmobilizacji i Innowacyjnych Materiałów Opakowaniowych</p> | <p>prof. dr hab. inż. Karol Fijałkowski;<br/>dr hab. inż. Magdalena Kwiatkowska, prof. ZUT,<br/>prof. dr hab. inż. Mirosława El Fray;<br/>dr hab. inż. Magdalena Zdanowicz, prof. ZUT</p> |
| <p>Koźtowska A., Gorący K., El Fray M., Biodegradable Polymer Composites Based on poly(butylene succinate) copolesters and wood flour, Polymers, 2025, 17,883. <a href="https://doi.org/10.3390/polym17070883">https://doi.org/10.3390/polym17070883</a></p>                                                                                                       |                                                                                                                                       |                                                                                                                                                                                           |
| <p>Zdanowicz M., Paszkiewicz S., El Fray M., Zdanowicz M., Paszkiewicz S., El Fray M., Polyesters and deep eutectic solvents: from synthesis through modification to depolymerization”, Progress in Polymer Science, 2025, 101930 <a href="https://doi.org/10.1016/j.progpolymsci.2025.101930">https://doi.org/10.1016/j.progpolymsci.2025.101930</a></p>          |                                                                                                                                       |                                                                                                                                                                                           |
| <p>Zdanowicz, M., Mizielińska, M., &amp; Kowalczyk, A. (2024). Cast Extruded Films Based on Polyhydroxyalkanoate/Poly(lactic acid) Blend with Herbal Extracts Hybridized with Zinc Oxide. Polymers, 16(14), 1954. <a href="https://doi.org/10.3390/POLYM16141954/S1">https://doi.org/10.3390/POLYM16141954/S1</a></p>                                              |                                                                                                                                       |                                                                                                                                                                                           |

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| <p>Zdanowicz M., Sałasińska k., Lewandowski K., Skórczewska K., Thermoplastic starch/ternary deep eutectic solvent/lignin materials: study of physicochemical properties and fire behavior, ACS Sustainable Chemistry and Engineering, 2022, 10, 4579–4587</p> | <p>Zdanowicz M., Starch treatment with deep eutectic solvents, ionic liquids and glycerol. A comparative study, Carbohydrate Polymers, 2020, 229, 115574, doi.org/10.1016/j.carbpol.2019.115574</p>                                                  |
| <p>Polyak P., Sasidharan Pillai A., Molnar K., Mijowska E., El Fray M., Puskas J.E., Synthesis of biodegradable polysulfides from renewable resources”, Journal of Molecular Liquids, 2024, 411, 125677, https://doi.org/10.1016/j.molliq.2024.125677</p>      | <p>Sokołowska M., Molnar K., Puskas J.E., El Fray M., Improving the sustainability of enzymatic synthesis of poly(butylene adipate)-based copolyesters: polycondensation reaction in bulk vs diphenyl ether, ACS Omega, 2024, 9(37), 38385-38395</p> |
| <p><b>Projekty:</b></p> <p>“GREEN-MAP” H2020 no. 872152 “Novel green polymeric materials for medical packaging and disposables to improve hospital sustainability”</p>                                                                                         |                                                                                                                                                                                                                                                      |

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| 4. | Inżynieria powierzchni materiałów                                                |  |  |
|    | Wykorzystanie metod bezrozpuszczalnikowych do modyfikacji powierzchni materiałów |  |  |
|    | Badania funkcjonalne powtok                                                      |  |  |
|    | Projektowanie i badanie materiałów do adsorpcji gazów                            |  |  |

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| <p><b>publikacje:</b></p>                                                                                                                                                                                                  | <p>R. Jedrzejewski, J. Piwowarczyk, A. Jedrzejewska, K. Kwiatkowski, J. Baranowska, „Poly(propylene)/carbon composite thin films obtained by pulsed electron-beam deposition” <i>Plasma Processes and Polymers</i> 15 (2018) 1-6</p> |
| <p>J. Piwowarczyk, R. Jedrzejewski, D. Moszynski, K. Kwiatkowski, A. Niemczyk, J. Baranowska, „XPS and FTIR Studies of Polytetrafluoroethylene Thin Films Obtained by Physical Methods” <i>Polymers</i> 11 (2019) 1-13</p> | <p>S. Fryska, J. Słowik, J. Baranowska, „Structure and mechanical properties of chromium nitride/S-phase composite coatings deposited on 304 stainless steel” <i>Thin Solid Films</i> 676 (2019) 144-150</p>                         |
| <p>A.Kochmańska, P. Kochmański „Cyclic oxidation of slurry silicide-aluminide coatings formed on Ti-6Al-4V alloy” <i>Surface Engineering</i> 39 (2023) 738-750;</p>                                                        |                                                                                                                                                                                                                                      |

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|    |                                                        | <p>P. Kochmanski, M. Dlugozima, J. Baranowska, „Structure and Properties of Gas-Nitrided, Precipitation-Hardened Martensitic Stainless Steel” <i>Materials</i> 15 (2022) 1-17</p> <p>P. Kochmański, J. Baranowska, S. Fryska „Microstructure of Low-Temperature Gas-Carbonitrided Layers on Austenitic Stainless Steel” 9 (2019) 1-13</p> <p>J. Serafin, K. Kietbasa, B. Michalkiewicz, The new tailored nanoporous carbons from the common polypody (<i>Polypodium vulgare</i>): The role of textural properties for enhanced CO2 adsorption, <i>Chem. Eng. J.</i>, 2022, 429, 131751</p> <p>K. Kietbasa, S. Bayar, E. A. Varol, J. Sreńscek-Nazzal, M. Bosacka, B. Michalkiewicz, Thermochemical conversion of lignocellulosic biomass - olive pomace – into activated biocarbon for CO2 adsorption, <i>Ind. Crop. Prod.</i>, 2022, 187, 115416</p> <p>J. Siemak, B. Michalkiewicz, Enhancement of CO2 adsorption on activated carbons produced from avocado seeds by combined solvothermal carbonization and thermal KOH activation, <i>Environ. Sci. Pollut. Res.</i>, 2024, 31, 40133 – 40141</p> | <p>Katedra Technologii Materiałowych, WiMiM;<br/>Katedra Inżynierii Materiałów<br/>Katalitycznych i Sorpcyjnych/WTiCh</p> | <p>prof. dr hab. inż.. Jolanta Baranowska;<br/>prof. dr hab. inż.. Beata Michalkiewicz</p> |
| 5. | <b>Zaawansowane materiały do zastosowań medycznych</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                           |                                                                                            |
|    | Rozwój nowych materiałów jako nośników leków           | <b>publikacje:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                           |                                                                                            |
|    | Badania i rozwój nowych materiałów opatrunkowych       | Haizhen Ding, Tenghui Xiao, Fangfang Ren, Yu Qiu, Zhiyang Shen, Xuecheng Chen, Ewa Mijowska, Hongmin Chen, Carbon-based nanodots for biomedical applications and clinical transformation prospects, <i>BMEMat.</i> 2024;2:e12085. DOI: 10.1002/bmm2.12085                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                           |                                                                                            |
|    | Badania i rozwój nowych materiałów dla implantologii   | Adam Junka, Marzenna Bartoszewicz, Mariusz Dziadas, Patrycja Szymczyk, Karolina Dydak, Anna Żywicka, Artur Owczarek, Iwona Bil-Lula, Joanna Czajkowska, Karol Fijałkowski, 2020, Application of bacterial cellulose experimental dressings saturated with gentamycin for management of bone biofilm in vitro and ex vivo, <i>Journal of Biomedical Materials Research - Part B Applied Biomaterials</i> , 108 (1), 30-37, DOI: 10.1002/jbm.b.34362.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                           |                                                                                            |
|    |                                                        | Daria Ciecholewska-Juśko, Anna Żywicka, Adam Junka, Radostaw Drozd, Peter Sobolewski, Paweł Migdał, Urszula Kowalska, Monika Toporkiewicz, Karol Fijałkowski, 2021, Superabsorbent crosslinked bacterial cellulose biomaterials for chronic wound dressings, <i>Carbohydrate Polymers</i> , 253, 117247, DOI: 10.1016/j.carbpol.2020.117247.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                           |                                                                                            |

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| <p>Daria Ciecholewska-Juśko, Adam Junka, Karol Fijałkowski, 2022, The cross-linked bacterial cellulose impregnated with octenidine dihydrochloride-based antiseptic as an antibacterial dressing material for highly-exuding, infected wounds, <i>Microbiological Research</i>, 263, 127125, DOI: 10.1016/j.micres.2022.127125.</p>                       |                                                             |                                            |
| <p>Anna Żywicka, Daria Ciecholewska-Juśko, Magdalena Charęza, Radosław Drozd, Peter Sobolewski, Adam Junka, Selestina Gorgieva, Mirosława El Fray, Karol Fijałkowski, 2022, Argon plasma-modified bacterial cellulose filters for protection against respiratory pathogens, <i>Carbohydrate polymers</i>, 120322, DOI: 10.1016/j.carbpol.2022.120322.</p> |                                                             |                                            |
| <p>Sokołowska M., Marchwiana M., El Fray M., Vitamin E-loaded polymeric nanoparticles from biocompatible adipate-based copolymer obtained using the nanoprecipitation method, <i>Polimery</i>, 2022, 67 (11-12), 11-12, DOI: 10.14314/polimery.2022.11.1</p>                                                                                              | <p>Katedra Inżynierii Polimerów i Biomateriałów, WTilCh</p> | <p>prof. dr hab inż. Mirosława El Fray</p> |
| <p>Piegat A., Niemczyk A., Boccaccini A.R., El Fray M., Liverani L., Hierarchical multi-layered scaffolds based on electrofluidodynamic processes for tissue engineering, <i>Biomedical Materials</i>, 2021, 16, 4, 1001</p>                                                                                                                              |                                                             |                                            |
| <p>Sokołowska M., Zarei M., El Fray M., Enzymatic synthesis of furan-based copolymers: materials characterization and potential for biomedical applications, <i>Polim. Med.</i> 2024; 54 (1), doi:10.17219/pim/184535</p>                                                                                                                                 |                                                             |                                            |
| <p>Zarei M., Żwir M.J., Michalkiewicz B., Gorący J., Template-assisted electrospinning and 3D printing of multilayered hierarchical vascular grafts, <i>J Biomed Mater Res Part B: Appl Biomater.</i>, 2025, 113:e35525 (doi.org/10.1002/jbm.b.35525)</p>                                                                                                 |                                                             |                                            |
| <p>Prowans P., Kowalczyk R., Wiszniewska B., Czapla N., Bargiel P., El Fray M., Bone Healing in the Presence of a Biodegradable PBS-DLA Copolyester and Its Composite Containing Hydroxyapatite, <i>ACS Omega</i>, 2019, 4, 19765-19771</p>                                                                                                               |                                                             |                                            |
| <p><b>Projekty:</b></p>                                                                                                                                                                                                                                                                                                                                   |                                                             |                                            |
| <p>“GREEN-MAP” H2020 no. 872152 “Novel green polymeric materials for medical packaging and disposables to improve hospital sustainability”</p>                                                                                                                                                                                                            | <p>Katedra Inżynierii Polimerów i Biomateriałów, WTilCh</p> | <p>prof. dr hab inż. Mirosława El Fray</p> |
| <p>NCN research project OPUS 25 “New biomaterials based on supramolecular and thermoresponsive polymer networks”, project period: 3.06.2024 – 2.06.2027</p>                                                                                                                                                                                               |                                                             |                                            |

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|  |  | NCN research project PRELUDIUM BIS “New composite biomaterials prepared by photocrosslinking”, project period: 1.03.2024 – 28.02.2028                                                       |                                          |                                       |
|  |  | “BIOMATDB+” HE no. 01058779 „Advanced Database for Biomaterials with Data Analysis and Visualisation Tools extended by a Marketplace with Digital Advisors”, HORIZON-CL4-2021-RESILIENCE-01 |                                          |                                       |
|  |  | “FURIOUS”, HE no. 101112541 “Versatile FURan-based polymers for strict and high value applications in packaging, automotive and underwater environments” HORIZON-JU-CBE-2022                | Katedra Technologii Materiałowych, WIMiM | dr hab. inż. Anna Szymczyk, prof. ZUT |