KONRAD **KWIECIEŃ**

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EDUCATION

PhD Degree | Krakow Interdisciplinary Doctoral School, AGH University of Krakow
2020.10. – 2024.09.
PhD in technical sciences, field of materials engineering, as part of the National Science Centre research project entitled "Inhalable polymeric delivery systems of antibiotics and quorum sensing inhibitors for the treatment of respiratory infections".
Doctoral dissertation defended at the AGH University of Kraków on March 28, 2025. The degree of Doctor of Engineering and Technical Sciences was awarded by resolution of the Discipline Council of Materials Engineering on May 19, 2025. The doctoral dissertation received 10/10 points and was considered outstanding.
Title: "Polyanhydride-based dry powders for inhalation as drug delivery systems of antibacterial drugs to the lungs"

Master's degree | AGH University of Krakow
2019.02. – 2020.07.
Studies in Materials Science and Engineering, specializing in Biomaterials and Composites, at the Faculty of Materials Science and Ceramics. Full-time, general academic studies in technical sciences, completed with the highest possible grade (5.0) and with honors.
Thesis title: "Study of the physicochemical properties of new polymeric materials for tissue engineering".

Engineer's degree | AGH University of Krakow
2015.10. – 2019.01.
Studies in Materials Science and Engineering at the Faculty of Materials Science and Ceramics. Full-time, general academic studies in technical sciences completed with a very good grade (5.0).
Thesis title: "Study of synthetic cannabinoids by mass spectrometry".

EXPERIENCE

Assistant | AGH University of Krakow
2023.12.01 –
Full-time employment as an academic teacher at the Faculty of Materials Science and Ceramics, Department of Biomaterials and Composites.

Scientific internship | University of Minho (Braga, Portugal)
2024.08. – 2024.09., 2025.06.-2025.07., 2025.09.-2025.10.
Internship carried out at the 3Bs Institute - Research Institute on Biomaterials, Biodegradables and Biomimetics of the University of Minho, in the team of Prof. Miguel Oliveira - acquiring experience in working with microfluidic devices and 3D bioprinting in diagnostic applications, and implementation of the Horizon MSCA EngVIPO grant.

Scientific internship | University of Reykjavik (Reykjavik, Iceland)
2023.05. – 2023.07.
An internship at the School of Science and Engineering at the University of Reykjavik and at the Iceland Blood Bank in the team of Prof. Olafur Sugurjonsson – improving skills in working under sterile conditions in a cell research laboratory, and a course in researching embryonic stem cells..

Scientific internship | University of Groningen (Groningen, Holandia)
2022.06. – 2022.08.
Research internship carried out at the Institute of Pharmacy at the University of Groningen in the team of Prof. Peter Olinga – conducting studies of the size distribution of dry powders using laser diffraction and ex vivo cytocompatibility studies.

Member of the board, shareholder| FlexAndRobust Systems (Kraków, Polska)
2024.09. –
A company implementing polyurethane flexible joint technology.

R&D industrial internship | Getzner GmbH. (Bürs, Austria)
2017.08. – 2017.09.
Development of a research method for measuring porosity distributions of vibration-isolating polyurethane materials with statistical analysis and creation of three VBA programs for processing porosity data. The work was conducted in German and English.

Acceleration program | NCBR-NAP (Reno, Las Vegas, NV, USA)
2022.02. – 2022.05.
Participation in the Polish National Center for Research and Development's acceleration program supporting Polish companies planning to enter the American market, representing FlexAndRobust Systems, a company offering systems based on flexible connectors. Four days of training, one day of competition (second place), awarded a week-long training and business trip to Nevada – networking, familiarization with the American market, legal aspects of business, etc.

Participation in grants | AGH University of Krakow
2025.02 – 2028.02.
PI Polish National Science Center Grant PRELUDIUM 2024/53/N/ST5/03127 Strong bonds make perfect relationships. Covalent interactions between antibiotics and polymeric matrix as a key factor of effective polyanhydride-based drug delivery systems.
2025.01 – 2028.12
Co-Investigator HORIZON MSCA 101183041 EngVIPO. Engineering Vascularized Implants for Personalised Osteochondral Tissue Regeneration: From medical imaging to pre-clinical validation.
2025.03 – 2025.12
PI Minigrant IDUB Research University Excellence Initiative for the AGH University of Krakow D4-12349, Obtaining modified antibiotics doped with antibacterial metal ions for greater effectiveness of targeted therapies.
2020.10 – 2025.09
Scholar and co-investigator, Polish National Science Center Grant OPUS 2019/35/B/ST5/01103 pt. Inhalable polymeric delivery systems of antibiotics and quorum-sensing inhibitors for the treatment of respiratory infections
2021.08. – 2022.03.
PI Minigrant IDUB Research University Excellence Initiative for the AGH University of Krakow D4-2028 Assessment of the potential of modern poly(ester-anhydrides) based on sebacic acid for use as drug delivery systems for bone tissue
2022.07. – 2026.07.
Scholar and co-investigator, Polish National Science Center Grant OPUS-LAP 2021/43/I/ST8/00554 Diagnostics and Mechanical tests of aged adhesive layers used in joints of wooden structures

ACHIEVEMENTS AND REWARDS

16 scientific publications (cited 128 times, H=6, according to Scopus as of October 23, 2025), 23 presentations at international conferences and symposia (2 invited presentations, 11 papers, 11 poster presentations), 4 awards for scientific presentations at conferences, 3 awards for teaching achievements

Conferences

1. 34th Annual Conference Biomaterials in Medicine and Veterinary Medicine 9 – 12.10.2025, Rytro (Poland) oral presentation “Poly(ester-anhydride) microparticles as an inhalable curcumin carrier to the lungs”

2. Polish-Portuguese Symposium on Biomaterials 8.10.2025, Kraków (Poland), invited presentation "Inhalable dry powders from polyanhydride microparticles as a weapon against pulmonary infections"
3. 34th Annual Conference of the European Society for Biomaterials, 7-11.09.2024, Torino (Italy), poster presentation "Poly(ether-anhydride) microparticles containing azithromycin as dry powders for inhalation to treat lung bacterial infections"
4. Joint 20th Nordic-Baltic Conference on Biomedical Engineering and the 24th Polish Conference on Biocybernetics and Biomedical Engineering (NBC 2025 & PCBBE 2025), 16-18.06.2025, oral presentation "Synergy between antibiotics and α-linolenic acid as a promising cure for biofilm bacterial infections"
5. 18th Scandinavian Society for Biomaterials Meeting, 6-9.05.2025, Hämeenlinna (Finland) poster and rapid fire presentation "The copolymer of sebacic acid and poly(ethylene glycol) as azithromycin carrier in pulmonary drug delivery" – award: best rapid fire presentation.
6. 33rd Annual Conference Biomaterials in Medicine and Veterinary Medicine 10 – 13.10.2024, Rytro (Poland) oral presentation "Advantages and limitations of drug encapsulation in polyanhydride-based drug delivery systems".
7. 17th Scandinavian Society for Biomaterials Meeting, 23-26.04.2024, Helsingoer (Denmark), poster presentation "Drug to polymer conjugates – a novel use of polyanhydrides in drug delivery systems".
8. 32nd Annual Conference Biomaterials in Medicine and Veterinary Medicine 12 – 15.10.2023, Rytro (Poland) poster and "Rapid fire" presentation "Anhydride-based copolymers of sebacic acid and poly(ethylene glycol) as inhalable carriers of curcumin".
9. XXIII Polish Conference on Biocybernetics and Biomedical Engineering 27-29.09.2023, Łódź (Poland), oral presentation "Novel polyanhydrides as potential carriers of azithromycin to the lungs".
10. 33rd Annual Conference of the European Society for Biomaterials, 4-8.09.2023, Davos (Switzerland), poster presentation "Poly(sebacic-co-ethylene glycol anhydride) microparticles loaded with azithromycin as drug delivery systems to the lungs".
11. International Workshop on Biomaterials for Tissue Engineering and Drug Delivery 21.07.2023, Chennai (India), oral presentation "Potential of polyanhydrides in the field of pulmonary drug delivery".
12. 16th Scandinavian Society for Biomaterials Meeting 21-24.03.2023, Røros (Norway), poster presentation "Poly(ester-anhydride) microparticles dedicated for curcumin drug delivery to the lungs".
13. UK-Poland-Ukraine Bioinspired Materials Conference, 29-30.11.2022, online, oral presentation "Hydrophobic gentamycin-loaded microparticles form poly(sebacic anhydride) as a drug delivery system against pulmonary infections".
14. 31st Annual Conference Biomaterials in Medicine and Veterinary Medicine 13-16.10.2022 Rytro (Poland), oral presentation "Superiority of hydrophobic gentamycin in drug delivery to the bone tissue".
15. 32nd Conference of European Society for Biomaterials; Bordeaux (France), 4-8.09.2022, poster presentation, "Inhalable polyanhydride microparticles for delivery of hydrophobized gentamycin to treat bacterial pulmonary infections".
16. International Conference on Wood Adhesives; Portland, OR (USA), 11-13.05.2022, oral and poster presentations under the same title "PUFJ and FRPU innovative polyurethane bonding systems for wood envelopes in nearly zero energy building" – award: second award best student competition,
17. Biomaterials World Forum; Barcelona (Spain), 17-18.03.2022, invited speech "Poly(sebacic anhydride) microparticles loaded with hydrophobic gentamycin for the treatment of pulmonary infections" and poster presentation "Preliminary study of novel poly(anhydride-ester)s as potential drug delivery materials for bone tissue".
18. Mechanics Of Masonry Structures Strengthened With Composite Materials - Online conference, Bologne (Italy), 24-26.11.2021, oral presentation "Durability of polyurethane matrix in composite strengthening for masonry".

19. 30th Annual Conference Biomaterials in Medicine and Veterinary Medicine, Rytro (Poland), 14-17.10.2021, poster and "Rapid Fire" presentation "Poly(sebacic anhydride) microparticles loaded with curcumin for pulmonary purposes" – award: best poster and rapid-fire presentation,
20. The 10th International PhD Meeting, Dresden Fraunhofer Cluster Nanoanalysis, Dresden (Germany), 23.09.2021, oral presentation "Gentamycin loaded poly(ester-anhydride) microparticles for the treatment of pulmonary infections".
21. 31st Conference of European Society for Biomaterials; Porto (Portugal), 7.09.2021, poster presentation "Poly(sebacic acid) as a carrier of azithromycin delivered via inhalation for the treatment of bacterial lung infections" – award: best poster competition.
22. XXII Polish Conference on Biocybernetics and Biomedical Engineering Institute of Biocybernetics and Biomedical Engineering; Warsaw (Poland), 21.05.2021, oral presentation, "Manufacturing of poly(ester-anhydride) microparticles as drug delivery systems for pulmonary administration".
23. 29th Annual Conference Biomaterials in Medicine and Veterinary Medicine; Rytro (Poland), 16.10.2020, poster and "Rapid Fire" presentation, "Degradation studies of poly(diol citrates) for vascular tissue engineering purposes".

Rewards

• Best rapid fire presentation – award for a presentation at the 18th Scandinavian Society for Biomaterials Meeting, May 6-9, 2025, Hämeenlinna (Finland)
• Second prize in the "Best student competition" at the International Conference on Wood Adhesives, Portland, OR (USA), May 11-13, 2022
• Best poster and rapid fire presentation at the 30th Annual Conference Biomaterials in Medicine and Veterinary Medicine, Rytro (Poland), October 14-17, 2021
• Best poster competition at the 31st Conference of the European Society for Biomaterials; Porto (Portugal), September 7, 2021
• Twice one of the five best-rated teachers in student surveys at the Faculty of Materials Science and Ceramics at AGH University of Science and Technology for the winter 2024/2025 and summer 2023/2024 semesters
• Third place in the "Golden Chalk" plebiscite – elections of the best teachers at the Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering, October 1, 2025

Memberships

- Polish Society for Biomaterials (since 2021)
- European Society for Biomaterials (since 2021)
- Scandinavian Society for Biomaterials (since 2023)
- Japanese Society for Biomaterials (since 2025)
- Forest Products Society (2022-2023)