

Działalność naukowa:

Tematyka badawcza:

- Wykorzystanie nowoczesnych materiałów funkcjonalnych w projektowaniu i konstrukcji czujników elektrochemicznych
- Badania właściwości nowych ligandów i ich kompleksów w aspekcie zastosowania jako substancji aktywnych jonoczułych membran polimerowych
- Elektrochemiczne bioczujniki enzymatyczne

Publikacje naukowe ostatnich lat:

- K. Morawska, S. Malinowski, C. Wardak, Enhancing analytical performance of ammonium potentiometric sensors with carbon nanocomposites, **Molecules** **31**(2026) **759**.
- C. Wardak, M. Grabarczyk, M. Suljkanović, J. Suljagić, M. Wardak, A new way to use hydrophobic deep eutectic solvents - improved lead detection using an ion-selective electrode with a polymer membrane modified by tchem, **ChemPhysChem** **26** (2025)e202500500
- K. Morawska, M. Czichy, P. Janasik, M. Lapkowski, C. Wardak, Novel usage of perinone polymer as solid contact in ion-selective electrodes, **Sensors and Actuators: B Chemical** **422** (2025) 136662
- K. Morawska, S. Malinowski, J. Krawczyk, C. Wardak, (2024), Multi-walled carbon nanotubes and copper oxide nanoparticles composite used as transducer medias in nitrate ion-selective electrodes, **Journal of the Electrochemical Society**, **171**,(2024) **087511**.
- S. Malinowski, M. Wardak, C. Wardak, Effect of modification of a laccase-based electrochemical biosensor with carbon nanotubes on signal separation of dihydroxybenzene isomers, **Langmuir** **40** (2024), 3472–3485
- K. Morawska, C. Wardak*, Application of ionic liquids in potentiometric sensors. A review. **ChemPhysChem** **25** (2024) e202300818.
- C. Wardak, K. Morawska, K. Pietrzak, new materials used for the development of anion-selective electrodes—A review. **Materials** **16** (2023) 5779.
- C. Wardak, K. Pietrzak, K. Morawska, M. Grabarczyk, Ion-selective electrodes with solid contact based on composite materials: A review, **Sensors**, **23** (2023) 5839.
- C. Wardak, K. Pietrzak, K. Morawska, Nanocomposite of copper oxide nanoparticles and multi-walled carbon nanotubes as a solid contact of a copper-sensitive ion-selective electrode: intermediate layer or membrane component—comparative studies, **Applied Nanoscience** (2023) **13** (2023) 7017–7028
- C. Wardak, K. Morawska, B. Paczosa-Bator, M. Grabarczyk, Improved lead sensing using a solid contact ion-selective electrode with polymeric membrane modified with carbon nanofibers and ionic liquid nanocomposite, **Materials** **16** (2023) 1003.
- K. Pietrzak, N. Krstulović, D. Blažeka, J. Carb, S. Malinowski, C. Wardak, Metal oxide nanoparticles as solid contact in ion-selective electrodes sensitive to potassium ions, **Talanta** **243**, (2022) 123345
- K. Pietrzak, C. Wardak, B. Cristóvão, Copper ion-selective electrodes based on newly synthesized salen type Schiff bases and their complexes, **Ionics** **28**, (2022)2423–2435.

- K. Pietrzak, C. Wardak, Comparative study of nitrate all solid state ion-selective electrode based on multiwalled carbon nanotubes-ionic liquid nanocomposite, **Sensors and Actuators: B Chemical** **348** (2021) 130720.
- C. Wardak, B. Paczosa-Bator, S. Malinowski Application of cold plasma corona discharge in preparation of laccase-based biosensors for dopamine determination, **Materials Science and Engineering C**, **116** (2020) 111199.
- S. Malinowski, C. Wardak, K. Pietrzak, Effect of multi-walled carbon nanotubes on analytical parameters of laccase-based biosensors received by soft plasma polymerization technique, **IEEE Sensors Journal** **20** (2020) 8423-8428
- S. Malinowski, C. Wardak, J. Jaroszyńska-Wolińska, P. A. F. Herbert, K. Pietrzak, M. Malinowski, New electrochemical laccase-based biosensor for dihydroxybenzene isomers determination in real water samples, **Journal of Water Process Engineering** **34** (2020) 101150.
- C. Wardak, M. Grabarczyk, J. Lenik, Effect of structure and properties of membrane active substance on analytical performance of ion-selective electrodes, **Physicochemical Problems of Mineral Processing** **55**(6), 2019, 1413-1421.
- K. Pietrzak, C. Wardak, R. Łyszczek, Solid contact nitrate ion-selective electrode based on cobalt(II) complex with 4,7-diphenyl-1,10-phenanthroline, **Electroanalysis** **32**(2019) 724-731.