

Head

Maciej Jarosz

Staff

Ryszard Łobiński
Krzysztof Jankowski
Katarzyna Pawlak
Stawomir Oszwałdowski
Katarzyna Lech
Lena Ruzik

Current PhD students

Katarzyna Brama
Katarzyna Gibuła
Jacek Giersz
Wioletta Jakubczak
Magdalena Matczuk
Agata Miszczak
Monika Prządka
Monika Truskolaska
Katarzyna Witkoś
Justyna Wojcieszek

Former PhD students

Jan Krzysztof Abramski
Mohamed Abduelrahman
Ackacha
Iwona Biatas
Katarzyna Lech
Robert Lipka
Elżbieta Lipiec-Abramska
Katarzyna Pawlak
Maria Puchalska
Lena Ruzik
Rafat Ruzik
Anna Tyburska-Staniewska

Current research

- Capillary and nanochromatography coupled with ESI/APCI MS/MS in the examination of natural dyestuffs and historical works of art
- In vitro investigation of processing anticancer metallodrugs and tumor-targeting nanomaterials using a multidimensional analytical methodology
- Investigation of bioavailability/bioaccessibility of metal species from diet supplements; identification of low molecular bioligands responsible for the deactivation of toxic metals in plants
- Implementation of digitally controlled rotating field plasmas in analytical spectrochemistry
- Development of electrophoretic methods for the characterization of nanostructures

Selected publications

Lech K., Wilicka E., Witowska-Jarosz J., Jarosz M., *Early Synthetic Dyes – a Challenge for Tandem Mass Spectrometry*, *Journal of Mass Spectrometry*, 48, 141, 2013

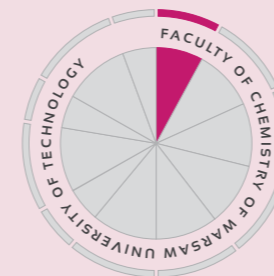
Matczuk M., Prządka M., Aleksenko S.S., Czarnocki Z., Pawlak K., Timerbaev A.R., Jarosz M., *Metalomics for Drug Development: a Further Insight into Intracellular Activation Chemistry of a Ruthenium(III)-Based Anticancer Drug Gained Using a Multidimensional Analytical Approach*, *Metalomics*, 6, 147, 2014

Miszczak A., Roslon M., Zbroja G., Brama K., Szalacha E., Gawrońska H., Pawlak K., *SEC ICP MS and CZE ICP MS Investigation of Medium and High Molecular Weight Complexes Formed by Cadmium Ions with Phytochelatins*, *Analytical and Bioanalytical Chemistry*, 405, 4667, 2013

Ruzik L., *Speciation of Challenging Elements in Food by Atomic Spectrometry*, *Talanta*, 93, 18, 2012

Jankowski K., Reszke E., *Recent Developments in Instrumentation of Microwave Plasma Sources for Optical Emission and Mass Spectrometry: Tutorial Review*, *Journal of Analytical Atomic Spectrometry*, 28, 1196, 2013

Oszwałdowski S., Roberts K.P., Timerbaev A.R., *Capillary Zone Electrophoresis of Quantum Dots Dispersed in Mixed Micelles: New Evidence of the Concentration Effect*, *Journal of Chromatography A*, 1305, 320, 2013



Research profile

Cultural heritage preservation, identification of natural and synthetic dyes in art objects
Kinetic studies of cytotoxic drug complexes and nanoparticles with plasma transport proteins

Metallo-medical diagnosis

Food control, speciation analysis of food products

Characterization of metal deactivation mechanisms in plants

Plasma sources and sample introduction devices for plasma spectrometry

Characterization of semiconductor nanocrystals

Collaboration

Vernadsky Institute of Analytical Chemistry and Geochemistry, Moscow (Russia) – Andrei Timerbaev

Institute of Inorganic Chemistry, Vienna University (Austria) – Bernhard Keppler

College of Chemical Engineering and Materials Science, Zhejiang University of Technology (China) – Zhou Ying

Ertec-Poland, Wrocław (Poland) – Edward Reszke

Scientific awards

- Professor Andrzej Waksmundzki Medal - Award of the Polish Academy of Sciences
- Young Scientist Medal - Award of the Warsaw University of Technology
- 3 Awards of HM Rector of the Warsaw University of Technology for scientific activity (since 2010)

Research equipment

Mass spectrometers:

- ESI/APCI - MS/MS QqQ (Agilent Technologies)
- ESI - MS 1100 (Agilent Technologies)
- ICP MS 7500 (Agilent Technologies)

Chromatographs HPLC:

- 3 of Agilent Technologies, Perkin Elmer, Waters
- Capillary HPLC system of Agilent Technologies
- Nanospray-Chip for ESI MS of Agilent Technologies

Capillary electrophoresis systems:

- Agilent Technologies
- Prince

Optical emission spectrometers:

- Integra XL ICP-OES (GBC Scientific Equipment)
- MIP 750MV MIP-OES (Analab)

