(BIO)Sensors, Sensor Arrays and Surface Chemistry




Head

Wojciech Wróblewski

Staff

Patrycja Ciosek
Urszula Wawrzyniak
Kamil Wojciechowski

Current PhD students

Paweł Ćwik
Martyna Jańczyk
Aleksandra Kezwoń
Marta Orczyk
Iwona Ufnalska
Małgorzata Wesoły
Magdalena Wiloch

Former PhD students

Patrycja Ciosek
Renata Toczyłowska-Mamińska
Marta Żubrowska
Anna Kutyła-Olesiuk

Current research

- Potentiometric sensor arrays for the analysis of pharmaceuticals – release and taste masking effect studies
- Electrochemical studies of coordination properties of synthetic tailored oligopeptides and neutral peptides of biological importance (e.g. beta-amyloid)
- Application of organoboron receptors in recognition and sensing of various analytes
- Interaction of biomolecules at liquid-gas, liquid-liquid and liquid-solid interfaces
- Mechanism of interaction of saponins with biological membranes using Langmuir monolayer and bilayer models

Selected publications

Ciosek P., Wróblewski W., *Sensor Arrays for Liquid Sensing – Electronic Tongue Systems*, Analyst, 132, 963, 2007

Wojciechowski K., *Hydration Energy or Hydration Force? Origin of Ion-specificity in Ion Selective Electrodes*, Current Opinion in Colloid & Interface Science, 16, 601, 2011

Wojciechowski K., Orczyk M., Gutberlet T., Trapp M., Marcinkowski K., Kobiela T., Geue T., *Unusual Penetration of Phospholipid Mono- and Bilayers by Quillaja Bark Saponin Biosurfactant*, Biochimica et Biophysica Acta – Biomembranes, 1838, 1931, 2014

Kezwon A., Wojciechowski K., *Interaction of Quillaja Bark Saponins with Food-Relevant Proteins*, Advances in Colloid and Interface Science, 209, 185, 2014

Ciosek P., Wróblewski W., *Potentiometric Electronic Tongues for Foodstuff and Biosamples Recognition – an Overview*, Sensors, 11, 4688, 2011

Witkowska Nery E., Jastrzębska E., Żukowski K., Wróblewski W., Chudy M., Ciosek P., *Flow-Through Sensor Array Applied to Cytotoxicity Assessment in Cell Cultures for Drug-Testing Purposes*, Biosensors and Bioelectronics, 51, 55, 2014

phone: (0048) 22 234 56 31 | e-mail: wuwu@ch.pw.edu.pl | http://www.ch.pw.edu.pl
Old Chemistry Building, 00-664 Warsaw, Noakowskiego Street, 3 | rooms: 16, 20, 327

Research profile

New architecture of sensors and biosensors
Sensor arrays, (bio)electronic tongues, hybrid electronic tongues
Flow-through and flow-injection analysis with sensor detection
Chemometrics
Langmuir monolayers, bilayers
Colloids and interfaces
Surface tension and surface rheology
Biosurfactants, especially saponins

Collaboration

Helmholtz-Zentrum Berlin (Germany)
Paul Scherrer Institute (Switzerland)
Queen Mary University of London (UK)
Universitat Autònoma de Barcelona (Spain)

Scientific Awards

- Go8 European Fellowship – Patrycja Ciosek
- Grant for Outstanding Young Scientists of the Polish Ministry of Science and Higher Education – Patrycja Ciosek

Research equipment

- Multichannel potentiostats, multichannel milivoltmeters
- Spectrophotometers, spectrofluorometer, microplate reader
- Drop Shape Analysis tensiometers
- Dynamic Light Scattering instrument
- Electrokinetic (zeta) Potential analyzer