

PortASAP Meeting – Program

18 - 19 June, Web conference



Thursday, June 18

- 9:00 - 9:10 **Opening remarks G. Erny, E. Psillakis, M. Segundo**
- 9:10 - 9:25 **PL1. Advanced Analytical Strategies and Technology in Food Characterization, Control and Processing**
C. Bicchi, C. Cagliero, B. Sgorbini, P. Rubiolo, E. Liberto, C. Cordero
Laboratory of Pharmaceutical Biology and Food Chemistry - Dipartimento di Scienza e Tecnologia del Farmaco, Torino, Italy
- 9:30 - 9:45 **PL2. 3D Printed Portable Devices and Detection Systems: Hype or reality?**
M. Miró
FI-TRACE group, Department of Chemistry, University of the Balearic Islands, Palma de Mallorca, Spain
- 9:50 - 10:00 **KL1. High Efficiency Microfabricated Planar GC Columns for the Analysis of Plant and Food Volatile Fractions**
C. Cagliero¹, S. Galli², B. Sgorbini¹, P. Rubiolo¹, C. Bicchi¹
(1) Dipartimento di Scienza e Tecnologia del Farmaco, Università di Torino, Torino, Italy
(2) MEGA s.n.c., Legnano, Italy
- 10:05 - 10:15 **KL2. Fabric Phase Sorptive Extraction as a Novel Technique for the Determination of Multiclass Fungicides in Water**
M. Celeiro¹, Lua Vazquez¹, T. Dagnac², A. Kabir³, M. LLompart¹
(1) CRETUS Institute, Department of Analytical Chemistry, Nutrition and Food Science, Faculty of Chemistry, Universidade de Santiago de Compostela, Santiago de Compostela, Spain
(2) Agronomic and Agrarian Centre (AGACAL-CIAM), Unit of Organic Contaminants, A Coruña, Spain
(3) International Forensic Research Institute, Department of Chemistry and Biochemistry, Florida International University, Miami, USA
- 10:20 - 10:30 **KL3. Development of optical and electrochemical sensors for food safety, environmental protection and biomarker detection**
M. Yüce
Sabanci University Nanotechnology Research and Application Centre, Istanbul, Turkey

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- 10:35 - 10:45 **Presentation of WG1: Validation and Dissemination of Open Source Hardware**
E. Karamehmedović (WG Leader)
Faculty of Engineering and Natural Sciences, International University of Sarajevo, Bosnia and Herzegovina
- 10:50 - 11:00 **Presentation of WG2: Information and Communication Technology and Software Development**
M. Panella (WG Leader)
Department of Information Engineering, Electronics and Telecommunications, University of Rome "La Sapienza", Rome, Italy
- 11:05 - 11:15 **WG2.O1. An Application of Deep Learning for Air Quality Control**
M. Panella, A. Rosato
Department of Information Engineering, Electronics and Telecommunications, University of Rome "La Sapienza", Rome, Italy
- 11:20 - 11:30 **WG2.O2. Development of Software for Fast Analysis of Spectroscopic Data (IR and UV/Vis)**
M. Ródenas¹, B. Picquet², A. Muñoz¹
(1) F. CEAM, EUPHORE Labs., Valencia, Spain
(2) LISA, U. Paris-E. Créteil, Créteil, France
- 11:35 - 11:45 **WG3.O1. Urban Networks of Compact Lower Cost Air Quality Sensors within the TRAF AIR Project**
A. Bigi, O. Zivan, G. Veratti, S. Fabbi, L. Po, G. Ghermandi
Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Modena, Italy
- 11:50 - 12:00 **WG3.O2. Precision Medicine - Translational Sensors for Real-Time Health Monitoring**
R.P. Shukla¹, R. Cazelles¹, D.L. Kelly², H. Ben-Yoav¹
(1) Nanobioelectronics Laboratory (NBEL), Department of Biomedical Engineering and Ilse Katz Institute of Nanoscale Science and Technology, Ben-Gurion University of the Negev, Beer-Sheva, Israel.
(2) Maryland Psychiatric Research Center, University of Maryland, School of Medicine, Baltimore, USA
- 12:00 - 13:00 **Lunch break**
- 13:00 - 14:00 **Poster session**

Thursday, June 18

- 14:00 - 14:10 **Presentation of WG4: Sample Treatment and Microfluidic**
E. Psillakis (WG Leader)
School of Environmental Engineering, Technical University of Crete, Chania, Greece
- 14:15 - 14:25 **WG4.01. Paper-origami Device Enabling Low-Cost and Rapid Microbial Analysis**
Y. Pan, **Z. Yang**
Cranfield University, Cranfield, UK
- 14:30 - 14:40 **WG4.02. Is There a Real Potential of Solid Phase MicroExtraction for On-Site Analysis in OR and ICU?**
B. Bojko
Department of Pharmacodynamics and Molecular Pharmacology, Faculty of Pharmacy, Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz, Poland
- 14:45 - 14:55 **WG4.03. Development of High Throughput SPME-LC-MS/MS Method for Determination of Oxidative Stress Biomarkers**
E. Boyaci, K. Kahremanoglu, E. Temel, A.A. Nalbant
Department of Chemistry, Middle East Technical University, Ankara, Turkey
- 15:00 - 15:10 **WG4.04. Vacuum-Assisted HSSPME For Food Analysis**
S. Mascrez¹, E. Psillakis², **G. Purcaro**¹
(1) Gembloux Agro-Bio Tech, University of Liege, Gembloux, Belgium
(2) School of Environmental Engineering, Technical University of Crete, Chania, Greece
- 15:15 - 15:25 **WG4.05. Recent Molecularly Imprinted Polymers-based Microextraction Techniques**
A. Martín-Esteban
Department of Environment & Agronomy, INIA, Madrid, Spain
- 15:30 - 15:40 **WG4.06. Molecularly Imprinted Polymers for Isolation of Bioactive Molecules from Plants**
P. Cakir Hatir
Istanbul Arel University, Istanbul, Turkey
- 15:45 - 15:55 **WG4.07. Magnetic Textile Solid Phase Extraction for the Preconcentration of Target Analytes**
I. Safarik^{1,2}, J. Prochazkova¹, E. Baldikova¹, K. Pospiskova²
(1) Department of Nanobiotechnology, Biology Centre, ISB, CAS, Ceske Budejovice, Czech Republic
(2) Regional Centre of Advanced Technologies and Materials, Palacky University, Olomouc, Czech Republic
- 16:00 - 16:10 **WG4.08. Application of Flow Principles in Sample Pretreatment**
H. Sklenářová, B. Horstkotte, P. Chocholouš, D. Šatínský, P. Solich, F. Švec
Department of Analytical Chemistry, Faculty of Pharmacy, Charles University, Hradec Králové, Czech Republic
- 16:15 - 16:25 **WG4.09. Lab-In-Syringe as a Tool for Automated Sample Pretreatment Exploiting 3D Printed Gadgets**
B. Horstkotte, I.H. Šrámková, H. Sklenářová, P. Chocholouš, D. Šatínský, P. Solich, F. Švec
Department of Analytical Chemistry, Faculty of Pharmacy, Charles University, Hradec Králové, Czech Republic

Thursday, June 18

- 16:30 - 16:40 **WG4.O10. Portable Centrifugal Microfluidic Platforms for On-site Analysis of Herbicides**
M. Vázquez, J. Kane, L. Grimes
School of Chemical Sciences, National Centre for Sensor Research, Dublin City University, Dublin, Ireland
- 16:45 - 16:55 **WG4.O11. Microfluidics and Surface-Enhanced Raman Scattering for the In-Flow Detection of Foodborne Pathogens**
S. Abalde-Cela,¹ A. Garrido-Maestu,¹ A. K. Bhunia,² B. Espiña,¹ M. Prado,¹ L. Diéguez,¹ L. Rodríguez- Lorenzo¹
(1) International Iberian Nanotechnology Laboratory (INL), Braga, Portugal
(2) Molecular Food Microbiology Laboratory, Department of Food Science; Department of Comparative Pathobiology; Purdue Institute of Inflammation, Immunology and Infectious Disease, Purdue University, West Lafayette, Indiana, USA
- 17:00 - 17:10 **WG4.O12. Using Magnetic Beads, poly-HRP and Microfluidic Paper Electrodes for Fast Malaria Infection Quantitation**
G. Ruiz-Vega¹, K. Arias-Alpizar¹, E. de la Serna¹, L.N. Borgheti-Cardoso^{2,3}, E. Sulleiro⁴, I. Molina⁵, X. Fernandez-Busquets^{2,3,6}, F.J. del Campo⁷, A. Sánchez-Montalvá⁵, **E. Baldrich**¹
(1) Diagnostic Nanotools Group, Cibim-Nanomedicine, Vall Hebron Research Institute (VHIR), Barcelona, Spain
(2) Nanomalaria Group, Institute for Bioengineering of Catalonia (IBEC), Barcelona, Spain
(3) Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain
(4) Microbiology Department, Vall Hebron University Hospital (VHUH), UAB, Barcelona, Spain
(5) Infectious Diseases Department, VHUH, UAB, PROSICS (Catalan International Health Program), Barcelona, Spain
(6) Nanoscience and Nanotechnology Institute (IN2UB, UB), Barcelona, Spain
(7) Centro Nacional de Microelectrónica (IMB-CNM, CSIC), Barcelona, Spain

Friday, June 19

- 9:00 - 9:05 **Presentation of WG4: Sample Treatment and Microfluidic (II)**
E. Psillakis (WG Leader)
School of Environmental Engineering, Technical University of Crete, Chania, Greece
- 9:10 - 9:20 **WG4.O13. A Microdroplets-Based Platform for the Phenotypic Characterisation of Single Cancer Cells**
A. Teixeira¹, K. Oliveira¹, J.M. Fernandes¹, S. Rodal-Cedeira², J. Pérez-Juste², I. Pastoriza-Santos², S. Abalde-Cela¹, L. Diéguez¹
(1) International Iberian Nanotechnology Laboratory (INL), Braga, Portugal
(2) Departamento de Química Física, Universidade de Vigo, Vigo, Spain
- 9:25 - 9:35 **WG4.O14. Microfluidic Properties of Laser Exposed Metallic Surface**
I. Urzica, A. Simon, C. Udrea, M. Lucian Pascu
National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania
- 9:40 - 9:50 **WG4.O15. Multiplex DNA Mutation Analysis with a SERS-Microfluidic Chip**
L. Wu, A. Teixeira, S. Abalde-Cela, A. Garrido-Maestu, J.R.L. Guerreiro, S. Carvalho, M. Prado, L. Diéguez
International Iberian Nanotechnology Laboratory (INL), Braga, Portugal
- 9:55 - 10:05 **WG4.O16. Simple and Complex Surfactant Formulations Determination by Low-Cost Surfactant Direct Potentiometric Sensor**
N. Sakač¹, M. Jozanović², M. Kraševac Sakač², M. Karnoš³
(1) Faculty of Geotechnical Engineering, University of Zagreb, Varazdin, Croatia
(2) Department of Chemistry, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia
(3) Faculty of Agrobiotechnical Sciences Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia
- 10:10 - 10:20 **Presentation of WG5: New Instrumentation**
R. Asquini (WG Leader)
Dept. of Information Engineering, Electronics and Telecommunications, University of Rome "La Sapienza", Italy
- 10:25 - 10:35 **WG5.O1. Open source capillary electrophoresis – hardware, software, tips**
P. Kubáň^{1,2}, F. Foret^{1,2}, G. Erny³
(1) Department of Bioanalytical instrumentation, CEITEC Masaryk University, Brno, Czech Republic
(2) Department of Bioanalytical Instrumentation, Institute of Analytical Chemistry, Czech Academy of Sciences, Brno, Czech Republic.
(3) LEPABE - Laboratory for Process Engineering, Environment, Biotechnology and Energy, Chemical Engineering Department, Faculty of Engineering - University of Porto, Porto, Portugal
- 10:40 - 10:50 **WG5.O2. Aptasensors: an Opportunity for the Future**
J.L. Marty
Sensbiotech, Ceret, France
- 10:55 - 11:05 **WG5.O3. Home-made CE Devices with Multidimensional Detection Systems for Analysis and Characterization of (Bio)molecules**
V. Kašička¹, D. Koval¹, R. Konášová¹, S. Štěpánová¹, V. Šolínová¹, P. Sázelová¹, V. Pokorný², P. Mudra²
(1) Laboratory of Electromigration Methods, Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences, Prague, Czech Republic
(2) Development Center, Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences, Prague, Czech Republic

Friday, June 19

- 11:10 - 11:20 **WG5.04. LSPR Immunosensor for 17 β -Estradiol Determination Based on Gold Nanoparticles Aggregation**
B. Della Ventura¹, A. Minopoli^{1,2}, N. Sakač³, B. Lenyk^{2,4}, R. Campanile¹, D. Mayer², A. Offenhäusser², R. Velotta¹
(1) Department of Physics "E. Pancini" – Università di Napoli Federico II – Via Cintia, 26 Ed. 6 – 80126 Napoli, Italy
(2) Institute of Complex Systems (ICS-8), Bioelectronics, Forschungszentrum Jülich, 52428 Jülich, Germany
(3) Faculty of Geotechnical Engineering, University of Zagreb, Hallerova 7, 42000 Varaždin, Croatia
(4) Department of Physics, University of Konstanz, 78457 Konstanz, Germany
- 11:25 - 11:35 **WG5.05. Low-Cost Plasmonic Biosensors using Nanosphere Lithography**
H. Kurt^{1,2}, M. Yuce³
(1) Nanosolar Plasmonics Ltd, Kocaeli, Turkey
(2) School of Engineering and Natural Sciences, Istanbul Medipol University, Istanbul, Turkey
(3) Sabanci University Nanotechnology Research and Application Center (SUNUM), Orta Mah. Universite., Istanbul, Turkey
- 11:40 - 11:50 **WG5.06. Application of New Laccase-Based Biosensors Constructed by Soft Plasma Polymerization Technique in Photocatalytic Degradation of Dihydroxybenzene Isomers**
Sz. Malinowski¹, I. Grčić², L. Radetić², C. Wardak³
(1) Lublin University of Technology, Civil Engineering and Architecture Faculty, Department of Geotechnical Engineering, Lublin, Poland
(2) University of Zagreb, Faculty of Geotechnical Engineering, Varaždin, Croatia
(3) Maria Curie-Skłodowska University in Lublin, Faculty of Chemistry, Institute of Chemical Sciences, Department of Analytical Chemistry, Lublin, Poland
- 12:00 - 13:00 **Lunch break**
- 13:00 - 14:00 **Poster session**
- 14:00 - 14:10 **Presentation of WG6: Exploitation of Results**
L. Vidal (WG Leader)
Department of Analytical Chemistry, Nutrition and Bromatology, University of Alicante
- 14:15 - 14:25 **WG6.01. European Chemical Society- Division of Analytical Chemistry: Activities of Professional Network**
S. Ražić¹, **M.A. Segundo**²
(1) Department of Analytical Chemistry, Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia
(2) LAQV, REQUIMTE, Faculty of Pharmacy, University of Porto, Porto, Portugal
- 14:30 - 14:40 **WG6.02. The Sample Preparation Task Force of the European Chemical Society- Division of Analytical Chemistry**
E. Psillakis
Laboratory of Aquatic Chemistry, School of Environmental Engineering, Technical University of Crete, Chania, Greece
- 14:45 - 15:45 **Networking + Work Group Meetings**
- 15:45 - 16:00 **Closing session**

Poster presentations

Poster sessions are scheduled on Thursday, June 18 (13:00 - 14:00) and on Friday, June 19 (13:00 - 14:00).

WG1.P1. Validation of an Open-Source Dispenser for Lateral Flow

L. Franco-Martínez¹, L. Anfossi², M.D Contreras-Aguilar¹, F. Di Nardo², J.J.Cerón¹, S. Martínez-Subiela¹, **A. Tavijonaviute**¹

(1) Interdisciplinary Laboratory of Clinical Analysis Interlab-UMU, Regional Campus of International Excellence Mare Nostrum, University of Murcia, Murcia, Spain

(2) Department of Chemistry, University of Torino, Torino, Italy

WG2.P1. Combining Raman Spectroscopy and Machine Learning for the Label-Free Assessment of Liver Cancer Margins

L. Diéguez¹, S. Abalde-Cela¹, M. Bastuck², M. Niu³, K. Kant¹, T. Sauerwald²

(1) International Iberian Nanotechnology Laboratory (INL), Braga, Portugal

(2) Laboratory for Measurement Technology, Saarland University, Saarbrücken, Germany

(3) Department of Radiology, China Medical University, Shenyang, People's Republic of China

WG2.P2. Quartz Crystal Microbalance Coupled to Assist the Multilayer Protein Assembly by Langmuir-Blodgett Technique

C. Larosa, A. Converti

Department of Civil, Chemical and Environmental Engineering, University of Genoa, Pole of Chemical Engineering, Genoa, Italy

WG3.P1. Portable NIR Spectroscopy for Fast Estimation of Ethanol Content in Bulgarian Rose Oil Samples

V. Markuliev¹, K. Getchovska¹, G. Gudi², V. Deneva¹, D. Antonova¹, A. Krähmer², H. Schulz², **L. Antonov**¹

(1) Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria

(2) Julius Kühn Institute (JKI), Institute for Ecological Chemistry, Plant Analysis and Stored Product Protection, Berlin, Germany

WG3.P2. Application of Amberlite XAD-7 Resin to Removal of Interferences in Voltammetric Procedures of Trace Elements Determination in Environmental Water Samples

M. Grabarczyk, M. Adamczyk, C. Wardak

Department of Analytical Chemistry, Institute of Chemical Sciences, Faculty of Chemistry, Maria Curie Skłodowska University in Lublin, Poland

WG3.P3. Design and Installation of a System using Low-Cost Sensors for Air Quality Measurements in Urban Sites

M. Ródenas, A. Muñoz

F. CEAM, EUPHORE Labs., Valencia, Spain

WG3.P4. Elements of Flexible Electronics based on Metal Nanostructures in the Pores of Ion-Track Membranes

A. Shumskaya¹, A. Kozlovskiy²

(1) SSPA "Scientific-Practical Materials Research Centre of NAS of Belarus", Minsk, Belarus

(2) L.N.Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan

WG3.P5. Nitrate Monitoring in Natural Waters Using Solid Contact Ion-selective Electrode Based on Carbon Nanotubes and Ionic Liquid Nanocomposite

C. Wardak, K. Pietrzakl, M. Grabarczyk

Department of Analytical Chemistry, Institute of Chemical Sciences, Faculty of Chemistry, Maria Curie-Skłodowska University in Lublin, Lublin, Poland

WG4.P1. Quantum Dots-Labeled Oligonucleotides as a Base of the Biosensor for the Detection of the African Swine Fever Virus

D. Banas^{1,5}, A. D. Aksu^{2,3}, M. Pay^{2,3}, M. V. Noguera⁴, B. Hosnedlova⁵, **R. Kizek**^{2,5,6}

- (1) Department of Biochemistry, Masaryk University, Bohunice, Czech Republic
- (2) Faculty of Pharmacy, University of Veterinary and Pharmaceutical Sciences Brno, Brno-Kralovo Pole, Czech Republic
- (3) Faculty of Pharmacy, Bezmialem University, Fatih/Istanbul, Turkey
- (4) Pharmaceutical Faculty, University of Barcelona, Barcelona, Spain
- (5) Veterinary Research Institute, Brno, Czech Republic
- (6) Department of Biomedical and Environmental Analyses, Faculty of Pharmacy with Division of Laboratory Medicine, Wrocław Medical University, Wrocław, Poland

WG4.P2. Paper-based Microfluidic Devices for Rapid Detection of Microbial Contamination in Water

Y. Pan¹, K. Mao², Z. Yang³, J. Reboud¹, J. Cooper¹

- (1) School of Engineering, University of Glasgow, Glasgow, UK
- (2) Institute of Geochemistry, Chinese Academy of Sciences, China.
- (3) Cranfield Water Science Institute, Cranfield University, Bedfords, UK

WG4.P3. Determination of Hemolytic Activity of Nanoparticles Suitable for Biosensors

K. Sehnal^{1,2}, M.V. Noguera³, B. Hosnedlova⁴, B. Ruttkay-Nedecky^{1,4}, M. Baron⁴, J. Sochor⁴, M. Kepinska⁵, **R. Kizek**^{1,2,5}

- (1) Faculty of Pharmacy, University of Veterinary and Pharmaceutical Sciences Brno, Brno-Kralovo Pole, Czech Republic
- (2) Department of Research and Development, Prevention Medicals, Studenka-Butovice, Czech Republic
- (3) Pharmaceutical Faculty, University of Barcelona, Barcelona, Spain
- (4) Institute of Viticulture and Wine Production, Faculty of Horticulture, Lednice, Czech Republic
- (5) Department of Biomedical and Environmental Analyses, Faculty of Pharmacy with Division of Laboratory Medicine, Wrocław Medical University, Wrocław, Poland

WG4.P4. Vacuum-assisted Headspace Sorptive Extraction of Polycyclic Aromatic Hydrocarbons from Water Samples

Nicoleta Solomou¹, Carlo Bicchi², Barbara Sgorbini², Elefteria Psillakis¹

- (1) Laboratory of Aquatic Chemistry, School of Environmental Engineering, Technical University of Crete, Chania, Crete, Greece
- (2) Dipartimento di Scienza e Tecnologia di Farmaco, Università degli Studi di Torino, Torino, Italy

WG4.P5. Nanofibers in Solid Phase Extraction

I. H. Šrámková, B. Horstkotte, P. Solich, F. Švec, D. Šatínský

Department of Analytical Chemistry, Faculty of Pharmacy, Charles University, Hradec Králové, Czech Republic

WG4.P6. Miniaturized Solid Phase Microextraction for the Identification of Specific Aroma Markers in Honey

L. Vazquez¹, M. Sergazina², M. Celeiro¹, T. Dagnac³, M. Llompert¹

- (1) CRETUS Institute, Department of Analytical Chemistry, Nutrition and Food Science, Faculty of Chemistry, Universidade de Santiago de Compostela, Santiago de Compostela, Spain
- (2) Department of Chemistry, Institute of Natural Science and Geography, Abai Kazakh National Pedagogical University, Almaty, Kazajstan
- (3) Agronomic and Agrarian Centre (AGACAL-CIAM), Unit of Organic Contaminants, A Coruña, Spain

WG4.P7. Lab-on-valve Platforms for Automation of Sample Treatment and Total Analysis Systems

B.J.R. Gregório, I.I. Ramos, S.S. Marques, S.R. Fernandes, L. Barreiros, **M.A. Segundo**

LAQV, REQUIMTE, Departamento de Ciências Químicas, Faculdade de Farmácia, Universidade do Porto, Porto, Portugal

WG4.P8. Graphene Oxide in Siloxanes Quantification from Wastewaters

N. Ratola¹, J. Medina², L. Vidal², A. Canals²

- (1) LEPABE-DEQ, Faculty of Engineering, University of Porto, Porto, Portugal
- (2) Departamento de Química Analítica, Nutrición y Bromatología e Instituto Universitario de Materiales, Universidad de Alicante, Alicante, Spain

WG5.P1. The Use of a Platinum Electrode as a Working Electrode for the Simple Determination of Nitrite Ions

M. Grabarczyk, C. Wardak, M. Adamczyk

Department of Analytical Chemistry, Institute of Chemical Sciences, Faculty of Chemistry, Maria Curie Skłodowska University in Lublin, Poland

WG5.P2. Smart Device Assembly for Ionizing Radiation Sensor

L. Mikac^{1,2}, C. Larosa³, M. Ivanda^{1,2}, A. Converti³

(1) Center of Excellence for Advanced Materials and Sensing Devices, Research Unit New Functional Materials, Ruđer Bošković Institute, Zagreb, Croatia

(2) Molecular Physics and New Materials Synthesis Laboratory, Ruđer Bošković Institute, Zagreb, Croatia

(3) Department of Civil, Chemical and Environmental Engineering, University of Genoa, Pole of chemical engineering, Genoa, Italy

WG5.P3. New Miniature Ion-Selective Electrode Based on Gold Microelectrode Array

C. Wardak, K. Pietrzakl, M. Grabarczyk

Department of Analytical Chemistry, Institute of Chemical Sciences, Faculty of Chemistry, Maria Curie-Skłodowska University in Lublin, Lublin, Poland