



Division of Chemistry and the Environment



Newsletter

Dear colleagues

With this newsletter, we inaugurate our direct communication with our members and scientist worldwide, who are active in environmental research and relevant disciplines, such as analytical chemistry, environmental engineering, and green and sustainable chemistry. On a bi-annual basis, we will inform you about upcoming scientific events, and the outcome of conferences and seminars that took place in the previous period. We also intend to host opinion as well as short research-oriented articles, describing projects or initiatives. Therefore, you are welcome to contribute to the contents of our newsletter, by contacting our responsible editor.

Since, it is the first release of our newsletter, let me briefly write a few words about the history of the division.

The idea of forming a Working Party (later a Division) came from Professor Dr. C. Trojanowsky, who was the first Chair of division and convened the first meeting held on 8 December 1976 in Paris. C. Trojanowsky was succeeded by G. Dickes (1985-90), A. Hackl (1991-93), G. Mihályi (1994-96), A.A. Jensen (1997-2002), P. Garrigues (2003-08), W. Giger (2009-14), S. Luis (2015-17) and the current Chair, I. Katsoyiannis (2018-present). The DCE meets twice a year and has 38 members who are the delegates of 38 chemical societies in 35 countries. DCE is organizing since 1980 the biennial International Conference on Chemistry and the Environment (ICCE). The first took place in Paris, in 1980 and in 2019, the 17th ICCE took place in Thessaloniki, Greece. During these conferences, the division awards regularly the DCE-Life-Long Achievement Award to a scientist who has played a pivotal role in the development of important scientific topics within environmental chemistry. Furthermore, since

1997 the official scientific publication and communication tool of DCE is the peer review scientific journal 'Environmental Science and Pollution Research' (ESPR, published by SpringerNature). In addition to its broad scientific publication profile, ESPR publishes summaries of DCE meetings, reports and selected papers from our international conferences, special articles on environmental education in our member countries written by committee members and, from time to time, articles explaining the role and development of the division. Editor in chief of ESPR is Professor Philippe Garrigues (University of Bordeaux, FR), member and previous chair of the division, and many DCE members are active as topic editors.

With these few words, I would like to welcome you to the activities of our division, hoping that soon we can meet again in person in one of our scientific events and exchange ideas on topical scientific issues, concerning the protection of the environment.

Ioannis Katsoyiannis

Chair of the Division of Chemistry and Environment

News from the DCE

DCE Conference in 2021

Due to the pandemic situation the DCE 2021 conference was postponed to 2023. For 2021 in cooperation with the Analytical Chemistry Committee Polish Academy of Sciences, we would like to invite you to Opole **23-27 JUNE 2021** at the **QUO VADIS Life Sciences** conference.



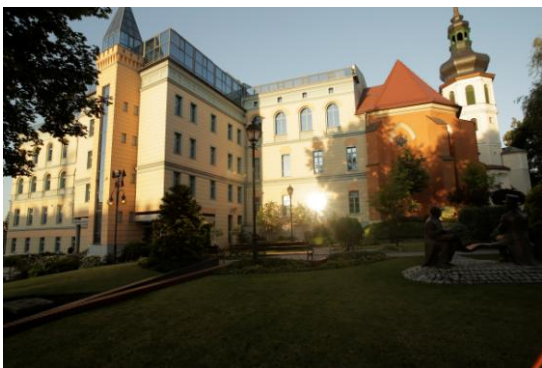
The conference includes the XIIth Polish Chromatography Conference, the XIIIth International Scientific Conference on

Chromatography and Related Techniques and the IInd International Conference on Ion Analysis as well as topics from DCE conferences. The conference is focused on: **separation sciences**, (chromatography, related techniques, MS, ion determination, sample preparation, application, speciation analysis, biological active compounds, validation techniques, etc.); **environmental sciences** related to: water, wastewaters, sediments, soil and air pollution, modeling, green chemistry/technology and inorganic & organic pollutants, xenobiotics, toxicity aspects, etc.

The conference program, in its classic form, will include keynote lectures, lectures, short communications as well as an oral poster presentation (e-poster) for scientists from the country and guests. A panel for discussions, open for all conference guests will be organized.

The conference is an opportunity for developing a large scientific cooperation.

The address for the conference is: <http://opoleconference2021.wch.uni.opole.pl>



Due to the Covid 19 situation the traditional ICCE conferences will be held as follows:

- ICCE 2023 in Venice, Italy;
- ICCE 2025 in Belgrade, Serbia;
- ICCE 2027 in Gdańsk, Poland.

The announcement will be done in due time.

Other scientific events of interest

The conference of the Division of

Green chemistry and Sustainable development.



and:

ContaSed2021 2nd International Conference on Contaminated Sediments



9 – 12 June 2021, University of Bern,
Switzerland

<http://oeschger.unibe.ch/contased2021>

Environmental education in Europe

Environmental Studies at Serbian Faculties Responsible for Chemistry Discipline

Education in the field of Environmental Chemistry in Serbia started at the University of Belgrade, Faculty of Chemistry (<https://www.chem.bg.ac.rs>). Environmental Chemistry course in 1978 and soon after that, Chemistry of Water and Wastewater, were introduced by Professor Petar Pfendt. First education track was designed in 1993. At the University of Novi Sad, Faculty of Sciences (<https://www.pmf.uns.ac.rs/>), Environmental Protection course was introduced for chemists during the 1980-ties. First study programmes dedicated to environmental studies were launched in 2002. Faculty of Science and Mathematics at University of Niš (<https://www.pmf.ni.ac.rs/>) and Faculty of Science at University of Kragujevac (<https://www.pmf.kg.ac.rs/>) followed this trend. All of them cooperated in Tempus MCHM project (2010-2014) and in the Erasmus+ project NETCHEM (2016-2020) (<http://www.netchem.ac.rs>) with the main goal to improve environmental related education. Currently they all offer environmental related studies for

chemists. In Belgrade they are organized as dedicated Environmental chemistry study programmes at BSc (4 years) and MSc level (1 year), while at PhD level dedicated courses are incorporated into Chemistry study programme (3 years). In Novi Sad environmental related studies are organized at all three levels (BSc, MSc and PhD). At BSc level (4 years) two programmes are accredited: Bachelor of Science in Chemistry-Quality Control and Environmental Management and Bachelor of Science in Environmental Protection. At MSc level (1 year) Master of Science in Environmental Protection is offered and also study programme in Chemistry has dedicated track, module Quality control and Environmental Management. At PhD level (3 years) dedicated environmental related courses are incorporated into the study programme PhD in Chemistry, but also separate study programme PhD in Environmental Protection is offered. In Niš, the programme of Chemistry studies at BSc (3 years) and PhD level (3 years) have incorporated environmental related courses while dedicated study programme Applied Chemistry - Module Environmental Chemistry is organized at MSc level (2 years). In Kragujevac, special Environmental Protection Modules (tracks) are organized within BSc (4 years) and MSc (1 year) studies in Chemistry.

In addition to environmental studies organized at Serbian faculties in charge of chemistry discipline, there are also study programmes at BSc, MSc and PhD level related to Environmental Engineering at the Faculty of Technology and Metallurgy of the University of Belgrade (<http://www.tmf.bg.ac.rs>) and at the Faculty of Technical Sciences, University of Novi Sad (<http://www.ftn.uns.ac.rs>).



Environmental chemists at 7th Symposium Chemistry and Environmental Protection-EnviroChem 2015, 9-12 June, 2015, Palić, Serbia.

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Professor Tatjana Andjelković from University of Niš and Professor Zoran Matović from University of Kragujevac for providing details related to study programmes at their respective institutions. I would also like to thank to Professor Vladimir Beškoski from University of Belgrade for providing the symposium photo.

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Traditions and experiences in education of trace analytics of environmental chemistry and human health in the Nicolaus Copernicus University in Toruń, Poland.

For 26 years at the Faculty of Chemistry of the Nicolaus Copernicus University in Toruń, Poland, there have been courses and trainings for university graduates (engineering and natural science) in the field of postgraduate studies: "Analytics in Environmental Protection and Human Health - Chromatography and related techniques in different variants of trace analysis". This educational activity is carried out by the Educational and Research Center for Separation and Bioanalytical Methods (BioSep), which is a scientific and educational center located in the organizational structures of the Faculty of Chemistry and the Interdisciplinary Center of Modern Technologies at the Nicolaus Copernicus University in Toruń. The Center was established by prof. dr hab. drh.c. mult. Bogusław Buszewski, member PAN and EASA, head of it.

The aim of these postgraduate studies is to broaden and improve professional qualifications as well as theoretical knowledge and practical skills in the field of environmental chemistry, toxicology and analytical chemistry. It includes the presentation of the newest achievements in the field of modern analytical techniques, especially separation and related techniques, along with useful achievements of specialized laboratory practice in control and measurement units, as well as in the quality control. Undoubtedly, an important aspect is getting better results in your professional work and solving various problems on your own knowledge. The study program provides education in theoretical and practical aspects: gas chromatography (GC), liquid

chromatography (TLC, HPLC, UPLC, IC, GPC), electromigration techniques (isotachopheresis-ITP, zone capillary electrophoresis-CZE and electrochromatography-CEC), atomic absorption spectrometry (AAS) and inductively coupled plasma mass spectrometry (ICP-MS), total carbon (TOC) and sulfur (TOS) determination, variable field function (FFF), sampling and sample preparation: distillation, mineralization, extraction (LLE, HS, P&T, TD, SPE, SPME, NDT, SFE, ASE), filtration, membrane processes (liquid and solid) as well as combining these techniques in various ways for trace chemical analysis (GC/MS, GC/FTIR/MS, GCxGC-TOF/MS, CZE-MS, TLCxLC-MS, LC-q-TOF-MS/MS, OrbiTrap, LCxLC-MS/MS, LC/ICP-MS, FFF/LC/ICP-MS, MALDI/NALDI, etc.). The study program also includes issues related to validation based on the theoretical and practical statistical analysis, determination of measurement errors and the use of computer programs in the process of results preparation. Postgraduate studies in "Analytics in environmental protection and human health" enjoy a rise in popularity in Poland and abroad. Over 600 people from Poland and 150 from abroad, who worked in pharmaceutical, analytical, biological and chemical laboratories, environmental protection inspectorates, sanitary and epidemiological stations, as well as graduates of universities and research institutes, have benefited from these studies increasing their professional qualifications. BioSep laboratories are equipped with the most modern instrumental equipment with newest software. The staff is experienced and can speak many languages. More information can be found on the website of the Department of Environmental Chemistry and Bioanalytics, Faculty of Chemistry, NCU in Toruń at the link: <http://www.chem.uni.torun.pl/~pinez/studium.html>

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Environmental research in European Universities and Research Institutions

NATIONAL RESEARCH AND DEVELOPMENT INSTITUTE
FOR INDUSTRIAL ECOLOGY

ECOIND

EXCELLENCE IN RESEARCH AND ENVIRONMENTAL SERVICES

The National Research and Development Institute for Industrial Ecology - **ECOIND** is an environmental research institute where multidisciplinary skills and technological know-how of approx. 150 scientists are brought together in 4 departments dealing with environmental protection and innovation. ECOIND performs advanced and applied research activities in the field of environmental biotechnologies: biological water and wastewater treatment, soil bioremediation, biological conversion of organic wastes. Within the research group, expertise exists in microbial community analysis and in the study of microbe-environment and microbe-microbe interactions as well as identification of biodegradation pathway and kinetics. Research activities include the analysis of microbial populations, analysis of gene expression as well as the functional analysis of bacterial, microalgae and fungal isolates. The group has more than 20 years of experience in the investigation and development of biotechnologies for removing organic contaminants from environmental matrices (soil, plant, groundwater, water, wastewater) and biosorption of inorganic contaminants. A special focus has been dedicated lately, in large collaborative European projects, to the development of new biotechnologies for wastewater treatment based on aerobic granular sludge, to developing and demonstrating in real environmental conditions innovative natural based solutions for decentralised wastewater treatment such as lumbrifiltration, daphniafiltration or biosolar purification (INNOQUA; GA689817-HORIZON2020, 2016-2020; Project coordinator: NOBATEK/INEF4; www.innoqua-project.eu) or for wastewater treatment and resources recovery based on granular activated algae technology (GRAALrecovery; RO-NO-2019-0691, Norway Grants for Collaborative Research Projects,

2020-2023; Project coordinator: INCD ECOIND). Broad range of studies of the ECOIND researchers (such as articles, doctoral thesis, projects, conference proceedings, etc.) can be found on the Institutional repository ECOLIB DIGITAL REPOSITORY (dspace.incdecoind.ro). ECOIND combines high scientific proficiency with extensive experience in the coordination and participation in national and international research projects as well as contract work. ECOIND has recently developed the research infrastructure, our endowment being diversified and substantially updated in order to meet the requirements of the most ambitious environmental biotechnology research project. The available infrastructure consists of equipment for: microbial diversity analysis based on state of the art molecular biology applications (PCR, qPCR, sequencing) and advanced microscopy imaging based on confocal laser scanning microscopy or scanning electron microscopy; infrastructure for advanced research of newly developed lab scale wastewater treatment technologies: incubated shakers, CSTR /SBR (photo) bioreactors, online/offline monitoring devices with data logging and control option, while state of the art analytical equipment (GC-MS, HRGC-HRMS, HPLC-MS, ICP-MS) act as high resolution support for efficiency assessment and process control.



Recently ECOIND is a part of a H2020 grant awarded consortium (project PROGENY; ID 899205-2019-HORIZON2020, 2021-2024; Project Coordinator: Technische Universität Dresden) tackling the bio-electronic medicine, sensing, prosthetics and augmented biological perceptions from their ecological impact point of view. For the first time, a radical, foundational and sustainable innovation, exploiting unique properties of designer soap films (highly biodegradable) as advanced functional materials will be used in a fundamentally new type of biomimetic devices and sensors categorized as proto-opto-electro-mechanical systems.

In 2019 ECOIND has founded a peer-reviewed, open access scientific Journal - **Romanian Journal of Ecology & Environmental Chemistry (RJEEC)** which focuses on publishing original scientific studies, review articles, short communications, meeting abstracts and conference proceedings covering topics from chemistry, ecology, environment, and biotechnology fields. Manuscript reviewing and publication are free of charge, more information being available on the website rjeec.ro. Also, ECOIND institute is the organizer of the yearly International Symposium "Environment and Industry" – SIMI (www.simiecoind.ro), the volume of abstracts being indexed in Crossref (doi:10.21698/simi.year.abxx), Google Scholar, CABI, Scilit, ROAR, and Open ONLY (open access platforms).

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DCE publication



Environmental Science and Pollution Research (ESPR) *A scientific journal with a broad interdisciplinary outlook.*

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