



ASSOCIATION OF CHEMISTRY AND THE ENVIRONMENT

Newsletter 2019

edited by Branimir Jovančičević

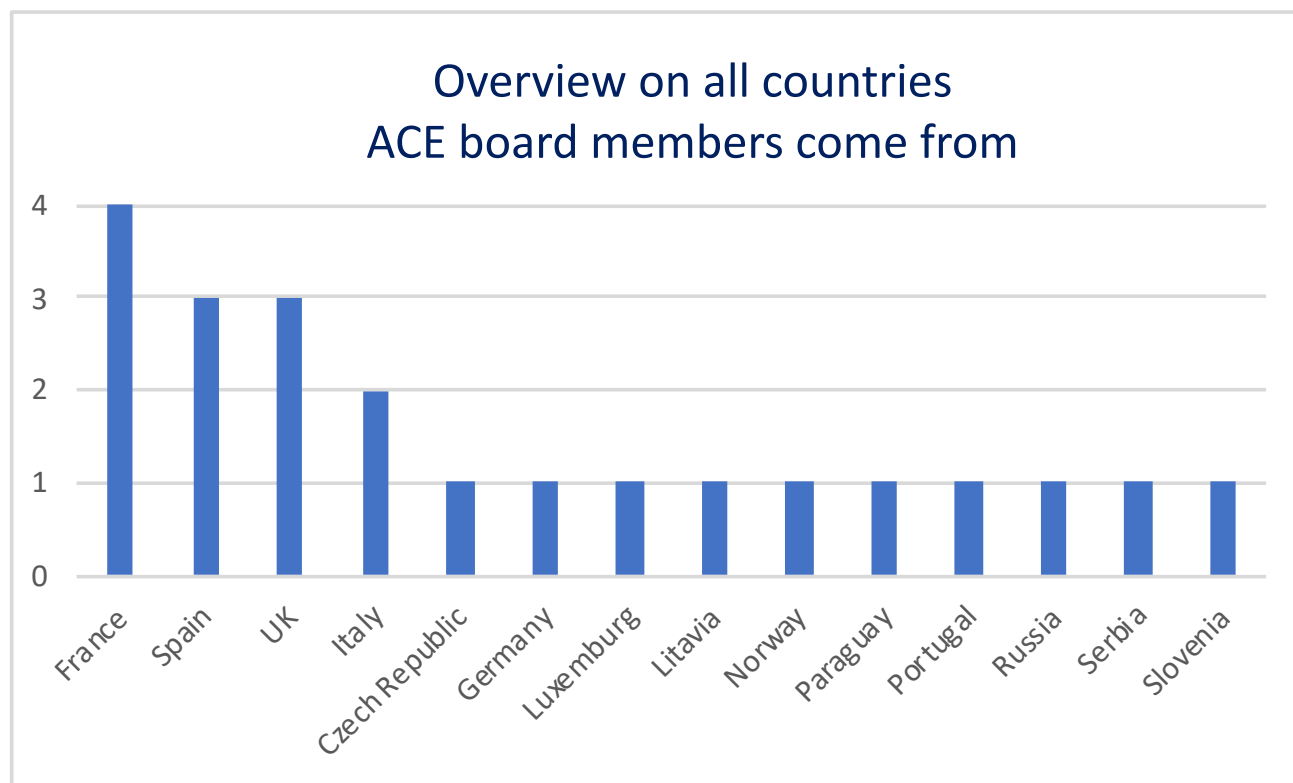
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1) Jan Schwarzbauer:
Board members of ACE - past and current

Over the whole lifetime of the *Association of Chemistry and the Environment* ACE many scientists got involved and were highly committed with the associations development and progress. In particular, many persons participated actively as board members which will be introduced here shortly.

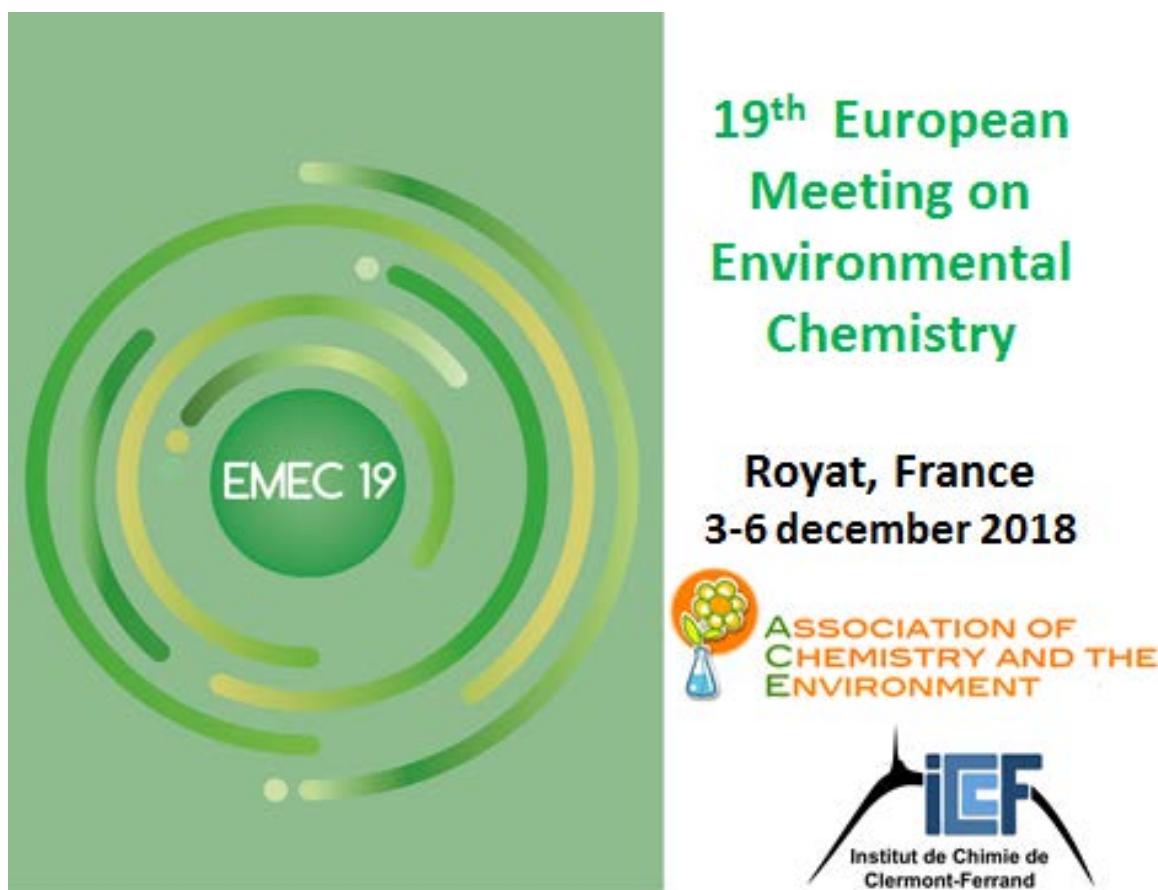
In total 22 board members led the association over the last nearly 19 years, 9 women and 13 men. They belong to a wider spectrum of 14 European countries as illustrated in the following figure. Noteworthy since 2017 also a colleague from Paraguay is active in the board.



In 2000 only Eric Lichtfouse and a few further board members have founded the Association, from which only two persons are still active: the current president Branimir Jovancevic and the current secretary Jan Schwarzbauer. In the first years the group expanded and a ‘first generation’ of board members was formed: Eric Lichtfouse, Branimir Jovancevic, Josef Caslavsky, Mark Fitzsimons, Montserrat Filella, Michelle Aresta, Uuve Kirso, Roland Kallenborn, Brigitte Elbisser, Didier Robert, Stephanie Dudd, and Jan Schwarzbauer. All of them participated several years at the board in changing compositions. However, in the mid 2000’ies some members finished their activities, but new members appeared continuing the boards work. These persons were: Anne-Marie Delort, Isabel Villaescusa and Albert Lebedev. Later on, third generations of members joint the board around 2013, namely Polonca Trebse, Stuart Gibb and Davide Vione. And very recently the board faced new and young colleagues which substituted in particular retired members. In 2017/18 Nuno Ratola, Marian Olazabal, Juan Facetti and Nuria Fiol became involved in the boards work.

The association has profited very much from all the input of its board members. In particular the wide range of ages, nations, scientific disciplines etc. allowed a very creative, constructive and efficient work over the past two decades. And hopefully, the same will count for the future!

2) Anne-Marie Delort:
Clermont-Ferrand, 2018 - EMEC19 that lies behind us



The 19th European Meeting on Environmental Chemistry (EMEC 19) was held at Royat (close to Clermont-Ferrand) in France from the 3rd to 6th of December 2018.

The main objectives of this conference were to bring together scientists working in the field of environmental chemistry, to report the most advanced research progress in this field, and to pave the way for future research and challenges. **125 participants were present, from 20 different countries** (Algeria, Czech Republic, Denmark, Estonia, Federation of Russia, Finland, France, Germany, Italy, Israel, Luxemburg, Poland, Portugal, Republic of Korea, Saudi Arabia, Serbia, Slovenia, Spain, United Kingdom, and United States).

Website: <https://emec19.sciencesconf.org/>



Participants in the conference hall

1- The Scientific Program

EMEC 19 covered a broad range of topics within the field of environmental chemistry including:

- **Sustainable chemistry** (new compounds, green processes)
- **Compartments of the environment** (atmosphere, soils, marine and surface waters) with a focus on **monitoring, processes** (biological and chemical), **remediation and ecotoxicology**
- **Modeling and Methodologies.**

The scientific program was organized around five scientific sessions introduced by the plenary lectures of one invited speaker per session:

Prof. Karine DE OLIVEIRA VIGIER (University of Poitiers, France) introduced the session “Sustainable chemistry” with a talk entitled “*Catalytic Conversion of Carbohydrates to Value Added Chemicals: Alternative Solvents and Technologies*”

Prof. Frank KEPPLER (University of Heidelberg, Germany) gave a lecture entitled “*The Global Chloromethane Cycle*” to introduce the session “Atmosphere”.

Dr. Annette Elisabeth ROSENBOM (Geological Survey of Denmark and Greenland (GEUS)) presented a talk entitled “*Detailed Pesticide Fate Descriptions and Realistic Hydrogeological Settings Applied in the Aesticide Leaching Risk Assessment for Clay Till Fields*” to introduce the session “Soil and Sediments”.

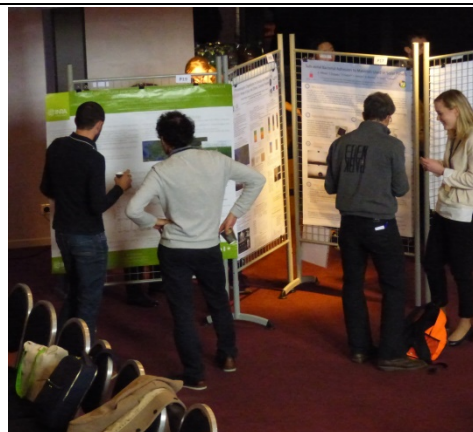
Prof. José Antonio SÁNCHEZ PÉREZ (University of Almería, Spain) was the invited speaker of the session “Waters” and talked about “*Solar photo-Fenton as a tertiary wastewater treatment. From mechanisms to reactor design*”.

Dr Barbara ERVENS (National Oceanic and Atmospheric Administration (NOAA) USA, now at ICCF, France) introduced the last session “Modeling and Methodologies” by a talk entitled “*Modelling Chemical Processes in Clouds*”.

These plenary lectures were completed by **40 oral presentations** and **69 posters**.



Coffee break



Poster session

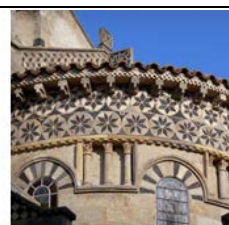
2-The Social program

In addition to the scientific program, a full social program was organized: A guided tour allowed the participants to discover the rich history of Clermont-Ferrand. In parallel, we organized a short-film presentation to pay tribute to Clermont-Ferrand as the host of the renowned annual International Short Film Festival. A gala dinner and a welcome party at the City Hall completed this social program.



**International
Short Film
Festival**

**Clermont-Ferrand
History**

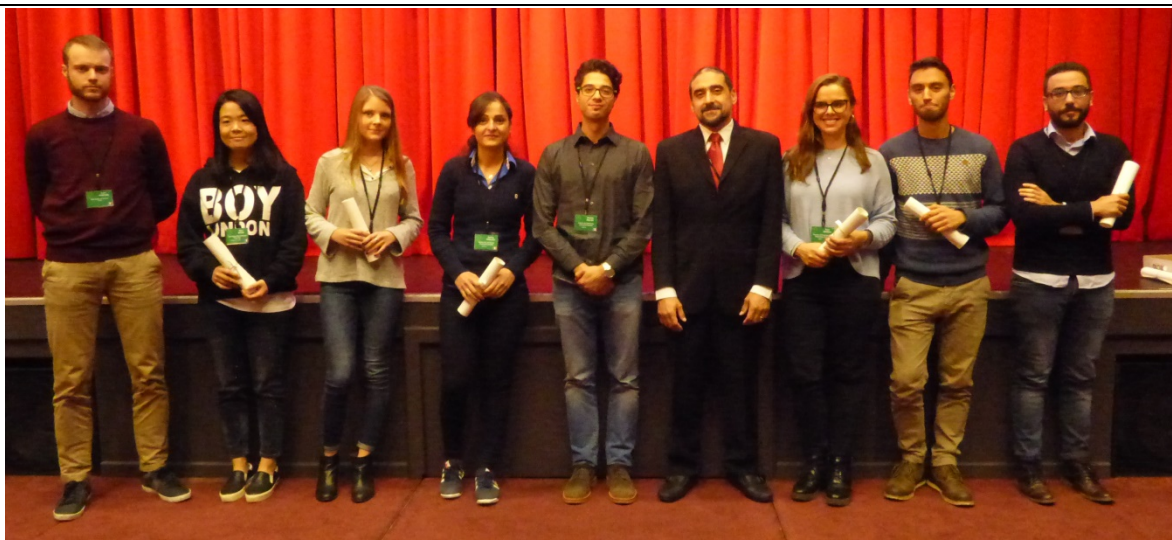


3-The Awards

The organization of the EMEC 19 granted eight awards for outstanding contributions thanks to the sponsorship of “The Prince Sultan Bin Abdulaziz International Prize for Water: Recognizing Innovation”.

Two awards for the best oral presentations (500€ each) and five for the best poster presentations (250€ each) by young scientists were selected by scientific juries.

One poster award (250€) was selected by all conference participants who took part in this election.



The winners of the prizes during the award ceremony

- The winners of the best oral presentation awards are:

Mathilde GODERE (University of Aix-en-Provence, France)

Luca CARENA (University of Turin, Italy) **and Davide PALMA** (Université Clermont Auvergne, France).

- The winners of the best poster awards are:

Hani FARHAT (Université Clermont Auvergne, France): Session “Sustainable Chemistry”

Miao WANG (Université Clermont Auvergne, France): Session “Atmosphere”

Filipe ROCHA (University of Porto, Portugal): Session “Soil and Sediments”

Paula SORIANO-MOLINA (University of Almería, Spain): Session “Waters”

Sara RAMOS (University of Porto, Portugal): Session “Modeling and Methodologies”

- The winner of the “Public best poster award” is:

Amina KHALED (Université Clermont Auvergne, France).

4-The Organizers: The Institute of Chemistry of Clermont-Ferrand (ICCF)

The conference was organized by the Institute of Chemistry of Clermont-Ferrand (ICCF) from Université Clermont Auvergne/CNRS/Sigma-Clermont, on behalf of the Association of Chemistry and the Environment (ACE).

The Institute of Chemistry of Clermont-Ferrand brings together 250 people organized in six teams in various chemistry disciplines and five technical administrative and scientific platforms to form the basis of the academic research in chemistry of Clermont-Ferrand.

ICCF focuses its research efforts on the urgent issues that civil society poses to chemists. Its assets lie in the broad spectrum of its research activities such as inorganic materials, thermodynamics and molecular interactions, photochemistry, materials for health, biocatalysis and metabolism, and organic and medicinal chemistry.

ICCF is also organized in three interdisciplinary projects with high social impacts: “Chemistry and Environment”, “Chemistry and Life Sciences”, “Chemistry and Materials”.

In the field of environmental chemistry, interdisciplinary topics concern:

- **Sustainable chemistry (green processes)**
- **Bio-physico-chemistry of the atmosphere**
- **Fate of contaminants in the environment (soil, water, plants).**
-

The chemists of ICCF actively contribute to the activity of the **Federation of Research in Environment (FRE)** of Clermont-Ferrand and the **Clermont Auvergne Project: I-Site CAP 20-25**.

Web sites:

<http://iccf.univ-bpclermont.fr/>

<http://www.recherche-environnement.univ-bpclermont.fr/wp/>

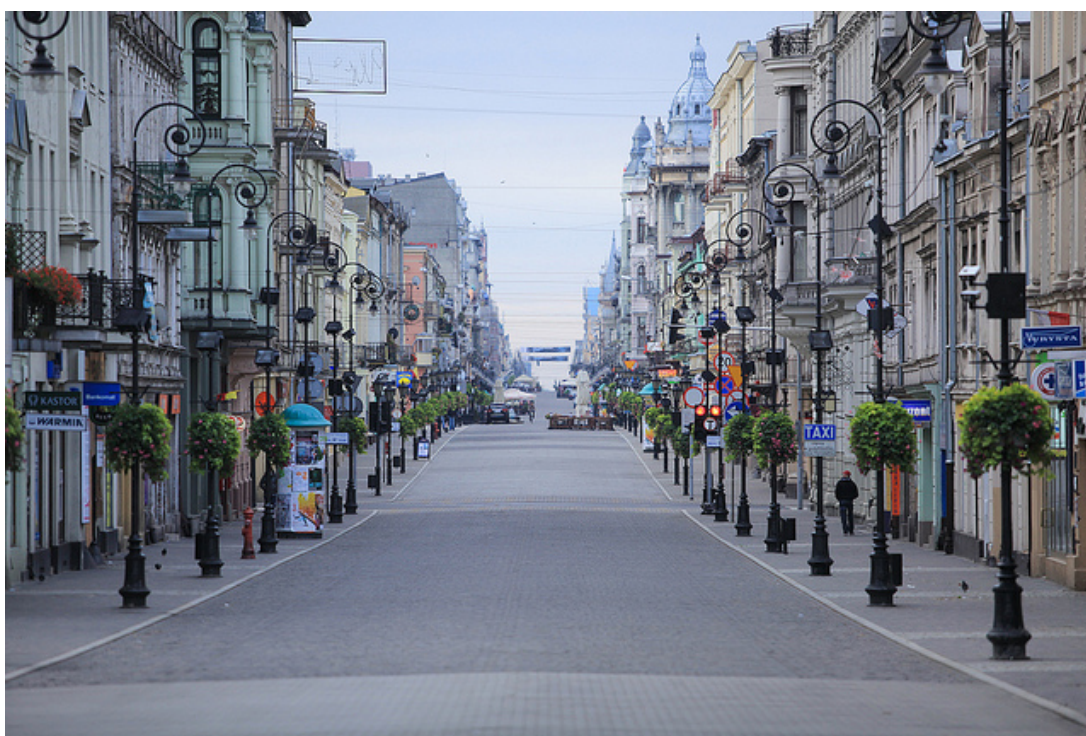
<http://cap2025.fr/en/>



The organizing committee during the closing ceremony

3) Malgorzata Szyrkowska: **Lodz, 2019 – EMEC20 is in front of us**

The 20th European Meeting on Environmental Chemistry (EMEC 20) will be held from the 2nd to 5th of December 2019 in Lodz, Poland.



Lodz, Piotrkowska Street

This conference covers a broad range of topics within the field of **environmental chemistry**, and interdisciplinary presentations are very welcome. The EMEC meeting always attracts high quality science presentations and invited talks from internationally renowned researchers working in environmental chemistry and related fields.

The conference will be organized by the **Faculty of Chemistry from the Lodz University of Technology** (TUL), on behalf of the Association of Chemistry and the Environment (ACE).

The main objectives of **EMEC 20** are to bring together scientists working in the field of **environmental chemistry&environmental monitoring**, to report the most advanced research progresses in this research area and to pave the way for the future collaboration, research and challenges.



Lodz, EC1- Centre for Science and Technology

We think that **EMEC 20** will be a useful occasion to enjoy science, network and meet old friends or new colleagues, to get new ideas for your scientific work, for establishing new cooperation, starting new projects in the unique charm, amazing history and culture of Lodz.

Main topics of EMEC 20 include:

- **Analytical methods for environmental science**
- **Environmental technologies, waste management and recycling**
- **Environmental compartments** (atmosphere, soils, marine and surface waters) with focus on **monitoring, processes** (biological and chemical)
- **Green chemistry and green technologies**
- **Agro-environmentally friendly processes and food chemistry**
- **Methodology and environmental modelling**
- **Remediation, ecotoxicology and biomarkers**
- **Sustainable chemistry** (new compounds, green processes)
- **Sustainable development, life cycle assessment, risk assessment**

Abstract submission

Each registrant is allowed to submit only one abstract for oral presentation as presenting/first author and max. two abstracts for poster presentation. Abstracts will be considered only if the guidelines are respected. Decision of acceptance of oral or poster communications will be made by the Scientific Committee upon evaluation of the submitted abstracts.

Guidelines for abstract preparation

Language: English

A4 page size

Margins: 2.0 cm

Title: Times New Roman 10, bold, in capital letters

Name of the authors: Times New Roman 8 in italics, underline the name of the author who will make the presentation

Authors address: Times New Roman 8 in italics, Research Institute, City, Country

Text: Times New Roman 9

Oral

Plenary lectures: 35 min + 10 min for discussion;

Regular oral presentations: 12 min + 3 min for discussion.

Poster

Posters should be size A0 (841 x 1189 mm) and presented in portrait orientation.

Posters should be on display for the three days of the meeting.

Keydates

- Submission opening: March 18, 2019
- Abstract submission deadline: September 20, 2019
- Decision of acceptance oral/poster: October 7, 2019
- Early bird payments deadline: October 11, 2019
- Regular payments deadline: November 15, 2019

Venue

EMEC 20 will be held at Lodz, Poland.

The conference site will be located in the TUL Sports and Education Center '*Sports Bay*'. This facility includes not only modern conference auditoria fully equipped that provide a perfect venue for **20th European Meeting on Environmental Chemistry** but also olympic-size swimming pool (the only pool of this size in the region, is perfect for the pursuit of water sports, especially swimming,

water polo, and triathlon) and one of the largest climbing walls in Poland, which is another source of pride for us.

Lodz city of culture and education

Lodz is a crucial educational and cultural centre. There are 6 schools at the university level including the highly regarded Film School. Lodz is popular for its specific industrial ambience, interesting architecture and friendly atmosphere. It is the third largest Polish city, and has its own unique atmosphere. It is also sometimes known as the Polish Manchester due to its size and the fame of the textile industry that developed there in the 19th century. A visit to Lodz will undoubtedly leave you with memorable impressions and a better understanding of Poland.

The city of Lodz in Poland is highly promoting the work of street artists from around the world as a way of creating a cultural re-invigoration of this city whose population is three quarters of a million. As initiative of Urban Forms Gallery, which begun in 2009, over 100 murals (large square paintings on elevations in the city center) and installations have been created by the local and international artists.

Lodz BEST in TRAVEL 2019

The biggest campaign of British Travel Publishing – Lonely Planet including 10 countries, 10 regions, 10 cities and 10 most valued destinations, Lodz (pronounced woodge) takes the 2nd place on the worldwide list TOP VALUED DESTINATIONS 2019.

Venue

Reach Lodz city

✓ Located in the heart of Europe, in a distance up to 500 km there are many capital cities: Warsaw (120 km away), Berlin, Prague, Vienna, Bratislava, Budapest and Vilnius.

✓ Direct Ryanair connections from Lodz to London Stansted (STN – 6 days / week), East Midlands (EMA – twice a week), Dublin (DUB – twice a week) and Athens (ATH – once a week)

✓ Direct Lufthansa connection with Munich (MUC – weekdays)

The central location in Poland enables good connections with the largest Polish cities:

✓ A1 / A2 Crossing In Strykow – Routes To Warsaw, Poznan, Gdansk, Katowice

✓ S-8 To Wroclaw

✓ S-14 – Estimated Time Of The End Of Investment Till 2020

Website of the EMEC 20 conference

<https://chemia.p.lodz.pl/emec20.html>

The conference website will be progressively updated. We encourage to visit the conference webpage to find any important dates, information and author guidelines.

The EMEC 20 conference contact information

Conference Secretariat: emec20@info.p.lodz.pl

<p>4) Branimir Jovančičević: Retirement of Prof. Josef Caslavsky, ACE board member</p>

The 1st French Meeting on Environmental Chemistry was held in Nancy (France) in the middle of December 2000. During this scientific conference, a group of chemists met and agreed to organize similar conferences under the name European Meeting on Environmental Chemistry (EMEC) in the future, each year, during the first week of December. This was marked by the institutionalization of the Association of Chemistry and the Environment (ACE). Among the founders was Dr. Josef Caslavsky, full professor at the Faculty of Chemistry, Brno University of Technology (Czech Republic). Last December, at the nineteenth EMEC conference in Clermont-Ferrand (France), our colleague and member of the Board of the Association of Chemistry and the Environment, Prof. Caslavsky retired.

Professional career of Dr. Josef Caslavsky started in 1979 as a research scientist at the Czech Geological Survey, Branch Brno, Department of Organic Geochemistry. In 1991, he was elected as Assistant Professor at the Department of Environmental Chemistry and Ecotoxicology, Faculty of Science, Masaryk University, Brno. In 2006 he was elected as Associate Professor, and since 2016 he is full professor at the Faculty of Chemistry, Brno University of Technology.

Prof. Caslavsky is one of the few members of the ACE Board who participated in all 19 EMEC conferences. We all agree that he is one of the most innovative and most active members of the ACE board. He participated in the founding of the journal Environmental Chemistry Letters (Springer, current IF 3.125), as the official ACE journal. Since the founding of the journal he is the associate editor.



In 2006 he organized the 7th European Meeting on Environmental Chemistry in Brno, and 15th EMEC in 2014. The high scientific level and excellent organizations are the main features of these conferences.

In recent years, as part of the work in the Association, Prof. Caslavsky led the committee for granting scholarships to young researchers for participation in EMEC conferences.

In this period of 20 years prof. Caslavsky has had very close contacts with colleagues in the Association. There are a number of important activities, and among the most important ones should be mentioned those realized within TEMPUS and ERASMUS + projects. Chemists from Serbia are always looking forward to his visits to Serbian universities. His lectures and other various contributions have always been a source of great satisfaction.

Josef is our great friend. On behalf of all members of the ACE board, I express my gratitude for everything he has done for ACE. We wish him a lot of success and happiness in further work and in the life.

Branimir Jovančičević, on behalf of the Board of ACE

5) Albert Lebedev:
**To the Summer school about Instrumental Techniques in Environmental
Chemistry, Arkhangelsk, 2020**

In June 2020 ACE plans to organize the first International school dedicated to the application of various physico-chemical methods in environmental analysis. The school will be held in Arkhangelsk (North of Russia) in the period of “white nights”. Core facility “Arktica” belonging to the North Arctic Federal University possesses all types of equipment (about 100 instruments (chromatography of all types, mass spectrometry of all types, NMR, IR, UV, microscopy, etc.) applied in environmental studies. Theoretical lectures of the leading European scientists will be accompanied by practical courses. Classical environmental experiments as well as personal tasks of participants will be carried out during these practical studies.





6) Sara Ramos – researcher/scholar from EMEC19:
Does what we waste impact what we eat?
- An environmental issue

with Vera Homem and Lúcia Santos

LEPABE — Laboratory for Process Engineering, Environment, Biotechnology and Energy, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal
 *up200905181@fe.up.pt

People say “we are what we eat”, but is our daily routine somehow involved in what we eat? Currently, sewage sludge production is estimated to be around 800.000 ton/year as a result of an increase in the number of wastewater treatment plants (WWTPs). The main final destinations are either disposal in landfills (which are currently oversaturated), incineration or application in agricultural fields as fertilizers. So far, the possibility of accumulation of heavy metals and harmful pathogens are the main concerns regarding the sludge/compost application in agriculture (with legal limits defined in the European Union). Nevertheless, evidence shows that emerging compounds such as personal care products (PCPs), should be considered given their massive use and disposal, their persistence in the environment, ability to (bio)accumulate and (bio)magnify and their estrogenic potential [1].

Everyday millions of people consume toiletries in their daily routine like shampoo, shower gel, cosmetics, sunscreens, and household products as detergents, repellents, air fresheners, etc. In fact, they all contain different classes of PCPs such as synthetic musk compounds (SMCs), UV-filters (UVFs), siloxanes, parabens, antiseptics, etc. Depending on how they are used, they can enter the environment directly (via river or sea bathing), or indirectly (washed off at home and drained into WWTPs [2-4]).

So far, conventional WWTPs are not completely efficient in their removal. Therefore, parent compounds and/or degradation products are discharged through effluents into surface waters (mostly hydrophilic compounds) or sorb into sludge (lipophilic ones). Studies in literature report concentrations in treated sludge of SMCs and UVFs in the mg/g-dw range [3,4]. Legislation does not regulate their presence in sewage sludge to be used as fertilizer in agricultural fields. Therefore, massive amounts of SMCs and UVFs (and other emerging contaminants) can be introduced in soils by applying sludge as fertilizer, potentially contaminating them. Groundwater and crops can also be impacted on the process.

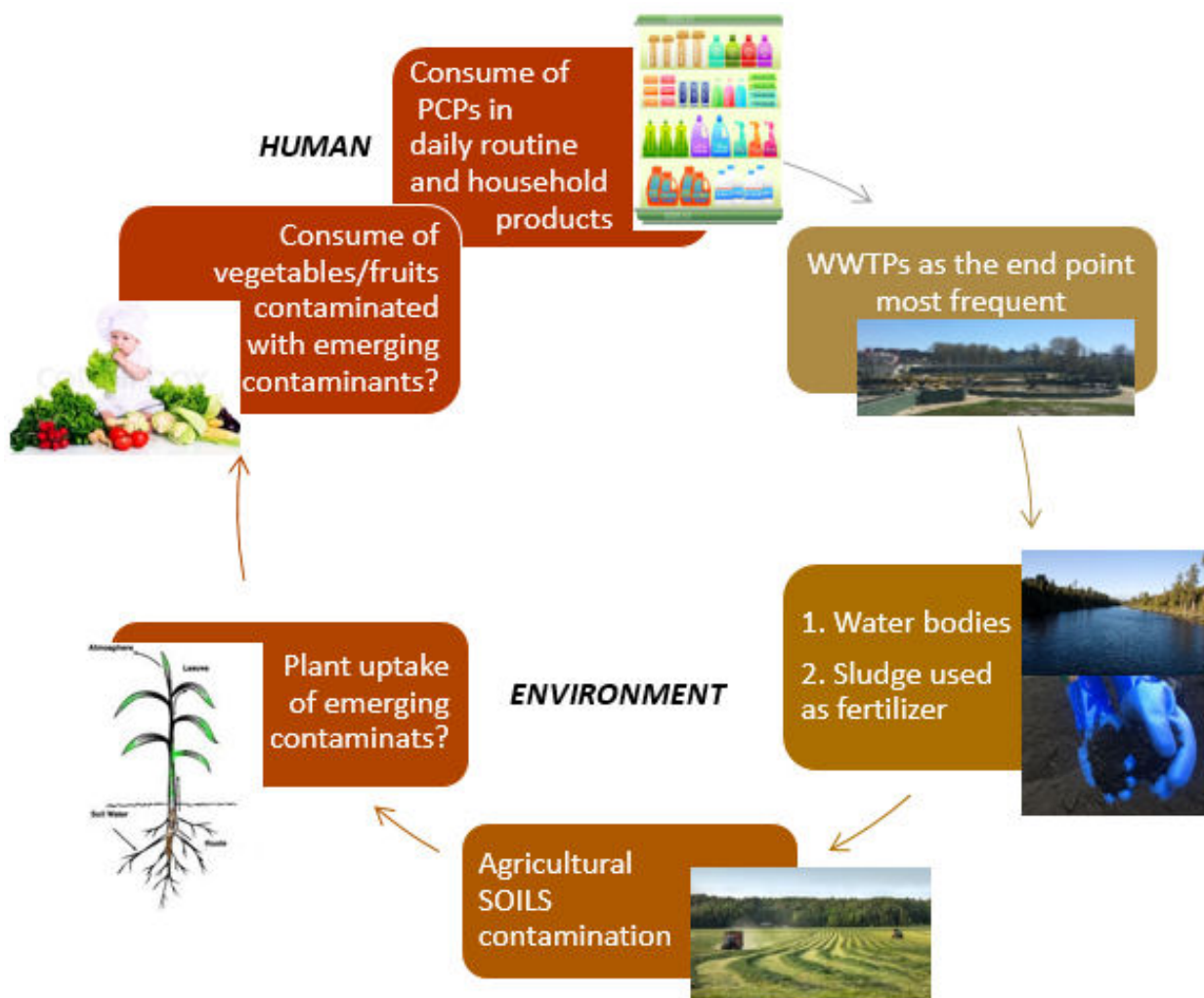
Agricultural soil contamination has been described either for PCPs and other emerging contaminants, proving their persistence and low degradation rates. Although contaminants may suffer leachate and microbial degradation in soils, their ubiquitous presence was reported several times in concentrations of $\mu\text{g/g-dw}$ [5-7].

When crops are grown in sludge-amended soils, possible PCPs uptake needs to be considered. In fact, literature already reports PCPs uptake by different types of plants and in different conditions (*in vitro*, greenhouse and field studies). Only one study regarded UVFs, testing corn under field conditions. However, no concentrations were found in the plant [8]. Regarding SMCs, five field experiences, one *in vitro* and two in a greenhouse have been conducted, but the use of spiked samples in most cases did not allow definitive conclusions, only a potential for uptake of these chemicals. Concentrations found in plants, such as wheat, sugar beet leaves and alfalfa, were in the ng/g-dw range [9,10].

My PhD project is a contribution to disclose some of the still missing information. Its goal is to determine the levels of UVFs and SMCs in treated sludge, their behaviour in soils and the uptake onto tomato plants when grown in sludge-amended soil. So far, both classes of compounds were detected in treated sludge [11] and now, studies are being developed regarding tomato uptake. The high water content of the tomato fruit makes the sample preparation a complicated task. However, a Quick, Easy, Cheap, Effective, Rugged and Safe (QuEChERS) methodology coupled to GC-MS/MS analysis was already validated, showing good linearity, low limits of detection and quantification, very good accuracy (between 80 and 119%) and precision (intra and inter-day) below 10%. This method development was the work presented as poster in the EMEC19 conference, selected as Best Poster in the Session "Modelling".

Nevertheless, we must ask how many grams of carrots or peppers or lettuce do we have to eat to put ourselves in risk? How many other emerging compounds are not detected simply because they are not

looked for? Are we consuming products contaminated with emerging contaminants coming from WWTPs sludge? Does what we do reflect what we eat?



Representation of a continuous sequence of events in a circular flow from human use, through the environment contamination and back to human consumption.

Acknowledgments

This work was financially supported by the projects: (i) POCI-01-0145-FEDER-006939 (Laboratory for Process Engineering, Environment, Biotechnology and Energy – UID/EQU/00511/2013) funded by the European Regional Development Fund (ERDF), through COMPETE2020 - Programa Operacional Competitividade e Internacionalização (POCI) and by national funds, through FCT - Fundação para a Ciência e a Tecnologia; (ii) NORTE-01-0145-FEDER-000005 – LEPABE-2-ECO-INNOVATION, supported by North Portugal Regional Operational Programme (NORTE 2020), under the Portugal 2020 Partnership Agreement, through the European Regional Development Fund (ERDF); (iii) Doctoral Grant SFRH/BD/110831/2015 – Sara Ramos.

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7) Nuno Ratola:

ACE and young researchers - scholars at EMEC19 in Clermont-Ferrand

It is a tradition of the Association of Chemistry and the Environment to encourage the participation of master and Ph.D. students in the EMEC meetings by awarding scholarships covering the conference fee and travel and accommodation expenses up to € 500. For the 19th Edition in Clermont-Ferrand, and in line with the financial status of the Association, it was decided to support the participation of 5 young scientists in EMEC19. The selection procedure was identical to that

applied in in the preceeding years: potential applicants were informed about the possibility of scholarship on the EMEC19 and ACE web pages and also by e-mail dissemination from EMEC19 organizers.

In order to apply, the candidates sent their CV together with a description of their scientific results, a letter of recommendation from their supervisor and certificates of current enrolment and examination results to prof. Josef Čáslavský. After administrative check, he focused on the eligibility of all applicants as well as on the completeness and validity of all elements provided in each submission. All applications were then distributed to the members of the evaluation committee, comprised by the ACE Board members who had no conflict of interests (i.e. supervisors or co-workers of any of the candidates). Each member of the evaluation committee sent his or her order of candidates to prof. Josef Čáslavský, who summarized and ranked all proposals. Finally, after approval by the evaluation committee members, the final order was published.

In total, 6 applications were received, all considered considered eligible. Based on the ranking established by the evaluation committee, the following 5 candidates were awarded: Sara Ramos (University of Porto, Portugal), Luca Carena (University of Turin, Italy), Anastasiia Karnaeva (Russian Academy of Sciences, Moscow, Russia), Nicole Vieira (Universidade Nova de Lisboa, Portugal) and Jovana Orlić (University of Belgrade, Serbia).

