

Book of abstracts:

Chem2Change

Environmental Chemistry towards Global Change

2nd Online ACE Seminar on Chemistry and the Environment Led by Early-Career Scientists

15-16 March 2022

On-line meeting

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Association of Chemistry and the Environment

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ABOUT CHEM2CHANGE

The 2nd Online ACE Seminar on Chemistry and the Environment led by Early-Career Scientists (Chem2Change – Environmental Chemistry towards Global Change) complements the long tradition of international EMEC conferences. The early-career scientist-led seminar is full of interesting topics from areas, such as Global challenges (Corona virus, climate, & nature restoration), Instrumental analysis & method development in environmental chemistry, and Sustainability & the environment (Circular economy, treatment technologies, agriculture & industry). The content of the programme mainly consists of oral presentations by early-career scientists but also by invited speakers as well as a workshop on mapping participant research interests to form potential future collaborations. Furthermore, in each day of the seminar, the social component of the seminar is enhanced by discussions on sustainable living and participation of early-career researchers in the Association of Chemistry and the Environment, as well as with an online social event at the end.

COMMITTEES

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PROGRAMME

March 15, 2022

Schedule (CEST)	Item	Title	Name	Item	Title	Name	Lead Chair
12:00-12:10	Opening Day 1 (10 min)	Welcomes & Event Introduction	ACE President Albert Lebedev				Lyda Niemi
12:10-12:20	Sponsor Presentation (10 min)		University of Padova				Lyda Niemi
12:20-13:00	Keynote 1 (30 min + 10 min Q&A)	Current Challenges of Waste Valorization	Dr. Nuno Reis (Universidade de Porto, Portugal)				Lyda Niemi
13:05-14:40		Session 1 (2 parallel sessions, 12 presenters, each 12 min + 3 min Q&A)					
13:05-13:20		UNDERSTANDING TEMPORAL AND SPATIAL TRENDS IN ANTIPRESSANT DRUG USE IN SLOVENIA USING WASTEWATER BASED EPIDEMIOLOGY	Mirna Lamoun-Geranton		THE WATER TREATMENT PERFORMANCE OF CONSTRUCTED FLOATING WETLANDS	Bayram AKYOL	
13:20-13:35		ASSESSMENT OF DRUG CONTAMINATION OF MREŽNICA RIVER WATER IN CROATIA DURING COVID PANDEMIC (2020-2021)	Tomislav Krnjić		PHYTOREMEDIATION OF INDOOR AIR: DOES NATURAL MECHANISMS APPLICATION REPRESENT THE FUTURE OF SUSTAINABLE TECHNOLOGIES?	Kristina Antić	
13:35-13:50		PRELIMINARY INVESTIGATION OF GRAPHENE OXIDE AS AN ADSORBENT FOR CHROMIUM REMOVAL	Jovana Pešić		ESTUARINE SALT MARSHES AS ANATURE BASED SOLUTIONS TO REDUCE ANTIBIOTICS IN AQUATIC SYSTEMS	Aam Gonçalves	
13:50-14:05		SURFACE CHANGES IN TWO AGED COAL ASHLANDFILLS IN CROATIA	Marija Petrović	Session 1.2	SLOVENIA AIR POLLUTION CHANGES DURING THE COVID-19 RESTRICTINS IN YEAR 2020	Maja Ivanovski	Lyda Niemi & Franja Prosenic
14:05-14:20		ENVIRONMENTAL HAZARD ASSESSMENT OF THE NEWLY SYNTHESIZED SUBSTANCES AS CORROSION INHIBITORS WITH POTENTIAL ENVIRONMENT FRIENDLY INDUSTRIAL APPLICATION AS ANTICORROSSIVE AGENT IN PAINTS AND COATINGS FOR THE RIVER AND SEA VESSELS BY USING QSAR MODELS FOR PREDICTION OF THEIR PHYSICO-CHEMICAL AND ECO-TOXICOLOGICAL PROPERTIES	Ivan Djurickovic		IMPACT OF SHORT-TERM ELEVATED TEMPERATURE AND DROUGHT ON THE ISOTOPIC COMPOSITION OF WINTER WHEAT GRAINS	Natalia Permova	
14:20-14:35					POST-SODA LIME - FORMATION, PROPERTIES, APPLICATION POSSIBILITIES	Maijgorzan Olejarczyk	
14:40-14:55				Coffee break (15 min)			
14:55-16:55		Session 2 (2 parallel sessions, 16 presenters, each 12 min + 3 min Q&A)					
14:55-15:10		UNTARGETED SCREENING AND SEMI-QUANTITATIVE DETERMINATION OF MACROLIDE ANTIBIOTICS IN WASTEWATER BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY - TANDEM MASS SPECTROMETRY IN PRECURSOR ION SCAN MODE	Ilyia Voronov		CONTACT LENSES AS A DRUG CARRIER TO INCREASE THE BIOAVAILABILITY OF CYCLOSPORIN A IN THE TOPICAL TREATMENT OF OCULAR DISEASES	Olga Michalkevich	
15:10-15:25		LIBS AS GREEN ANALYTICAL TOOL IN ENVIRONMENTAL CHEMISTRY	Sanja Željko		PCB CONTENT IN BREAST MILK OF MOTHERS IN FEDERATION OF BOSNIA AND HERZEGOVINA	Nesim Begić	
15:25-15:40		COMPARISON OF ANALYTICAL METHODS FOR DETERMINATION OF MICROPLASTICS IN SEA FISH	Patricia Lapajne		COMPARISON OF THE CONTENT OF SECONDARY METABOLITES IN LIVERWORT DEPENDING ON THE ELEMENTAL PROFILE ASSESSMENT OF THE PHEOCHROMOCYTOMA - AN EXAMINATION OF THE ADRENAL'S STRENGTHENED BY WHOLE BLOOD ANALYSIS	Maijgorzan Gruzavica	
15:40-15:55		SUPERCRITICAL CO ₂ EXTRACTION OF PHENOLIC COMPOUNDS FROM MEDICINAL PLANTS	Lara Čihnek		SLOVENIAN RANA ARVALIS PEPTIDOME ANALYSIS	Jovana Jagodić	Gordana Galica & Sabotica Paj
15:55-16:10		OPTIMIZATION OF SOLID PHASE EXTRACTION FOR DETERMINATION OF ISOAMYL 4-METHOXYCINNAMATE IN WATER	Jelena Lubić	Session 2.2			
16:10-16:25		TOWARD COBALT SILVER ELECTROCHEMICAL NANOSENSOR FOR m-DINITROBENZENE	Alaksandar Dondović		ECOTOXICOLOGICAL ASSESSMENT OF THE IMPACT OF CARDIOVASCULAR PHARMACEUTICALS PRESENT IN AQUATIC ECOSYSTEMS ON ZEBRAFISH EMBRYOS DANNO (BROU HAMILTON, 1827)	Glunjepla Manjčević	
16:25-16:40		APPLICATIONS OF THE SBSE TECHNIQUE TO ENRICH SELECTED YERBA MATE IMPURITIES	Josana Kacmazek		DEGRADATION OF PHENOLS FROM THEIR CHEMICAL TRANSFORMATIONS TO REMOVAL AND DETOXIFICATION	Aleksander Kravos	
16:40-16:55		PERSISTENCE OF FLUOROQUINOLONES IN SOIL AFTER APPLICATION OF POULTRY LITTER	Jam Fučik		DEGRADATION OF VANILIN IN ARTIFICIAL SNOW BY DIRECT PHOTOLYSIS AND NITRITE- PHOTONSENSITIZED REACTIONS	Luna Čucina	
16:55-17:30	Break-out Theme & Quiz (30 min - open ending)	"How to live greener everyday"	Chem2Change organizers				Frederika Mišková & Marek Tyba

March 16, 2022

Schedule	Item	Title	Name	Item	Title	Name	Lead Chair
12:00-12:10	Opening Day 2	Welcome back & Re-cap Day 1	Franija Prosenic				Franija Prosenic
12:30-12:50	Keynote 2 (30 min + 10 min Q&A)	"Resilient labs, and how you can make your lab a better place"	Prof Matthias Rullig (Freie Universität Berlin, Germany)				Franija Prosenic
12:55-15:10		Session 3 (3 parallel sessions, 17 presenters, each 12 min + 3 min Q&A)					
12:55-13:10		ADSORPTION OF SELECTED ESTROGEN HORMONES ON LPEE, PET AND PAMICROPLASTICS	Angelina Mitrović		THE REMOVAL OF CONTAMINANTS OF EMERGING CONCERN IN ALGAL PHOTOBIOREACTORS	David Skučina	
13:30-13:25		DETERMINING THE EFFICIENCY OF REMOVING POLYETHYLENE ISOLATED FROM COSMETICS BY COAGULATION AND FLOCCULATION	Sanja Vaušjević		ENCAPSULATION OF LACCASE ON GLUTARALDEHYDE ACTIVATED ALGINATE BEADS	Kajsa Vasić	
13:25-13:40		LIGHT-ACTIVATED TREATMENT SOLUTIONS TO ELIMINATE PHARMACEUTICALS FROM HOSPITAL WASTE WATER	Mamael-Thomas Vaidya		NATURAL ANTIOXIDANTS FROM BROWN SEAWEEDS FOR A SUSTAINABLE COSMETIC	Ann Maric	
13:40-13:55		REMOVAL OF RESIDUES OF DRUGS OF ABUSE DURING WASTEWATER TREATMENT AND THEIR OCCURRENCE IN AQUATIC ENVIRONMENT	Tajp Verovšek		INHIBITORY ACTIVITY OF FUNICA GRANATUM AND MANGIFERA INDICA PEELS ON THE GROWTH OF SELECTED BACTERIAL SPECIES	Nika Kukulak	
13:55-14:10		INSIGHT INTO THE MECHANISM OF NICKEL REMOVAL USING CHELATING RESINS	Marija Čučić		ANTIMICROBIAL ACTIVITY OF BIOACTIVE COMPOUNDS PRESENT IN SELECTED TROPICAL FRUIT WASTE	Kajsa Kumprik	Szabolcs Pap & Uttila Sautra
14:10-14:25		OXIDATIVE CLEAVAGE OF THE C-C DOUBLE BOND IN DERIVATIVES OF FERULIC ACID BY H ₂ O ₂ FOR SELECTIVE SYNTHESIS OF VARIOUS AROMATIC COMPOUNDS	Monaša Horvat	Session 3.2	EFFECT OF BRACKISH GROUNDWATER AND RO CONCENTRATE ON DIFFERENT GROWTH AND PHYSIOLOGICAL TRAITS OF TWO CHILE PEPPER CULTIVARS	Vedat Bešlihanoglu	
14:25-14:40		LYOPHILISATION AN EFFECTIVE DRYING TECHNOLOGY FOR THE PRODUCTION OF BIOCOAGULANT WITH PROLONGED COAGULATION ACTIVITY	Sanja Badovic		HUMIC SUBSTANCES FROM LIGNITE CHARACTERISTICS AND POTENTIAL APPLICATION	Kamila Malenkova	
14:40-14:55		CHARACTERISATION OF MODIFIED POLYUREA-POLYURETHANE HYBRIDS AND STABILITY OF THEIR ANTISTATIC PROPERTIES	Szymon Kosiński		COMPARISON OF GEOCHEMICAL DATA OF RIVER SEDIMENTS INFLUENCED BY INDUSTRIAL AND AGRICULTURAL RUNOFF	Sara Šarić	
14:55-15:10		POLYUREA – APPLICATIONS, MANUFACTURING AND FLAMMABILITY PROPERTIES	Wojciech Dukarski		THE IMPACT OF INDUSTRIAL EFFLUENTS ON ELEMENT CONCENTRATIONS IN WATER AND SEDIMENTS OF THE KARST ECOSYSTEM, KRKA NATIONAL PARK	Tajana Mjeselek	
15:30-15:25	Sponsor pre-recorded presentation (10 min)				Coffee break (15 min)		Sadana Šavić
15:25-16:25	Break-out Theme (1 hr) ACE Board invited into Break-out rooms for visiting or awards Non-presenters & non-ACE Board have a break.	"ACE & You" - Establishing the ACE ECR network & mapping our research interests	Chem2/Change organisers				Lydia Njemi
16:25-16:40	Awards presentation & thank you (15 min)		Chem2/Change organisers & ACE scientific committee				Lydia Njemi
16:40-16:50			Short break before the Social (10 min)				
16:30-17:30	Social (90 min - open ending)	"Which drink has the smallest environmental impact"	Chem2/Change organisers				Franija Prosenic

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LIBS AS GREEN ANALYTICAL TOOL IN ENVIRONMENTAL CHEMISTRY

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In the past two decades, with recent advances in laser technology, Laser-Induced Breakdown Spectroscopy (LIBS) has become a more and more popular analytical method for the analysis of any type of samples. Some exclusive properties such as rapid, multi-element analysis of any kind of material, non-contact and almost non-destructive, independent of sample conductivity, geometry and size make this method superior to the other standard optical emission techniques. In this work, we will demonstrate the possibility of using a cost-effective alternative to commercial LIBS systems, the TEA CO₂ laser-based LIBS setup for analysis of environmental-related samples: for direct analysis of solid samples and indirect analysis of liquid samples. Finally, our developed method doesn't use any hazardous reagents and solvents and maximizes safety for operators and the environment, which creates it in full accordance with the principles of green analytical chemistry.

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[1] S. Zivkovic, *et al.*, J. Alloys Compd. 700 (2017) 175-184.

[2] S. Zivkovic, *et al.*, Microchem. J. 137 (2018) 410-417.

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