

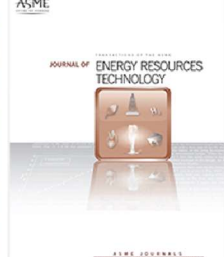


ICETSE 2023

INTERNATIONAL CONFERENCE ON
THE ENVIRONMENTAL TECHNOLOGIES
AND SUSTAINABLE ENERGY 2023

17-18 October 2023
EL MARSA HOTEL, ALGIERS

PROGRAMME BOOKLET



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**17-18 October, 2023
Hotel El-Marsa, Algiers
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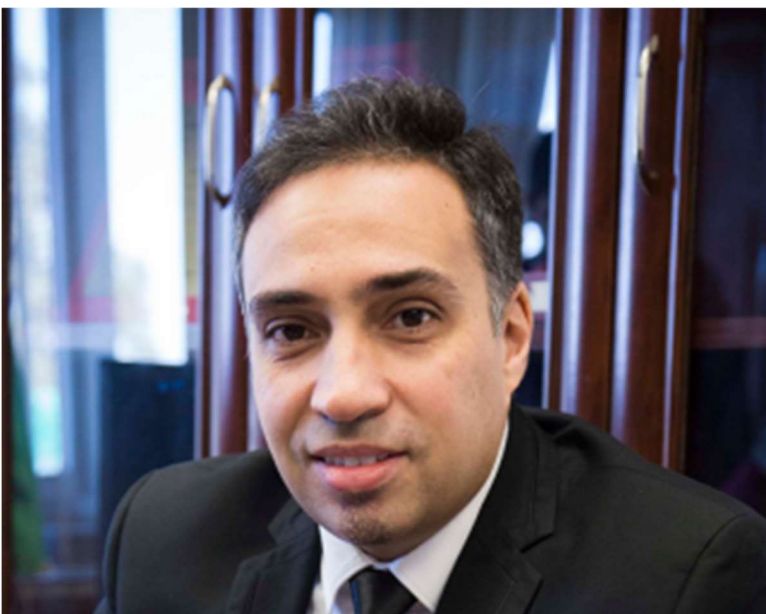
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Contents

Welcome message from the conference chair

Sponsors

General Information

Conference Programme

Invited Speaker Biographies

Invited Speaker Abstract

Poster Presentations

Welcome Message from Conference Chair

Dear participants

On behalf of the conference chair, and on myself, I extend a warm welcome to all our guests, speakers and participants. I honorably welcome speakers whom have travelled some distance to be here with us to take part in the International Conference on the Environmental Technologies and Sustainable Energy ICETSE'2023 at El-Marsa Hotel in Algiers. I believe we have chosen a venue that guarantees a successful conference with participants having the opportunity to learn more about our culture, tradition and enjoying the amazing views of our capital Algiers.

We are delighted to see that the themes around which the conference is structured have attracted a record number of participants. We are convinced that this conference will include impressive work with the presence of excellent experts discussing a wide variety of research findings and ideas that will help enrich the various sessions of the conference. This International conference will surely result in an exciting exchange of knowledge and information on current developments in the fields of Environmental Technologies and Sustainable Energies.

We look forward to having a successful conference with our technical program rich and varied with 4 invited speakers, 3 keynote speeches and around 70 technical papers split between 2 parallel oral and 2 poster sessions planned for each day. As the conference chair of ICETSE'2023, I know that the success of the conference depends ultimately on the many people who have worked with us in planning and organizing both the technical program and supporting social arrangements. In particular, we thank the Scientific Committee for their thorough and timely reviewing of the papers, and our sponsors who have helped us to keep down the costs of ICETSE'2023 for all participants. Recognition should go to the Organizing Committee members who have all worked extremely hard for the detailed aspects of the conference programs and social activities.

We hope that all our guests and participants will enjoy and benefit from this conference by renewing old friendships, making new friends and getting new ideas.

On my own behalf, I wish everyone a fruitful and enjoyable scientific conference.

Kind Regards

Conference Chair of ICETSE'2023

Amel Boudjemaa

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Information

ICETSE'2023

REGISTRATION DESK

The registration/information desk will be located in the foyer on the ground floor of the Hotel and will remain open throughout the conference staffed during the following time:

Monday 16 th October	17:00 – 19:00
Tuesday 17 th October	07:30 – 15:00
Wednesday 18 th October	08:30 – 12:00

BADGES

For security reason and catering purposes please make sure you wear your conference badge. Replacements for lost badges are available from the registration desk. Colour coding of badges is as follows :

Red :	Invited Speakers/ Session Chairs
Green :	Participants
Orange:	Presenters/Sponsors
Yellow :	Staffs

MEETING ROOM LOCATIONS

Auditorium : Main Conference Sessions

Room 2 : Concurrent Sessions

Foyer of the Hotel : Registration and Refreshments

Foyer of the Hotel: Poster and Exhibition

ORAL PRESENTATIONS

Oral presenters are asked to take the presentation to the technician in the conference room as soon as possible after arrival at the congress and at least 2 hours before your session starts. You are reminded to be in the room at least 20 minutes before the start of your session to meet with the session chair and check final details with the technician.

PROGRAMM CHANGES

Any late changes to the program will be displayed on the information board and on the holding slides in the relevant room.

CERTIFICATE OF ATTENDANCE

Certificates of Attendance are available in the registration desk after the oral/poster presentation of the participants.

POSTER SESSIONS

Poster presenters should refer to the information board in the registration area to check which board number has been allocated to them.

Poster Session 1- 10:15 - 10:45on Tuesday 17th October 2023.

Poster can be put up at 08:00on Tuesday morning and must be removed by 14:30 on the same day.

Poster Session 2- 15 :30 –16.00 on Tuesday 17th October 2023.

Poster can be put up at 14:00 on Tuesday morning and must be removed by 14:30 on the same day.

Poster Session 2- 16:00-17:30 on Wednesday 18th October 2023.

Poster can be put up at 08:00 on Wednesday morning and must be removed at the end of the conference.

Poster presenters should ensure that they stand-by their posters during their allocated poster Viewing session. The organisers do not take any responsibility for the posters not removed at the end of the conference.

CONFERENCE ABSTRACT

All abstracts presented at the conference are available online for downloading by using QR code.



CONFERENCE DINNER

Pre-purchased tickets are available in your badge holder for the dinner on Tuesday 18th October.

A limited number of spare tickets are still available from the registration desk for this conference dinner at El Casbah.

CONFERENCE SECRETARIAT

ICETSE'2023 : mail : icetsecrapc2023@gmail.com

INVITED SPEAKERS BIOGRAPHIES



Prof. Tarik BOUROUINA, Université Gustave Eiffel Laboratoire ESYCOM – CNRS –ESIEE Paris

Tarik Bourouina has obtained his Ph.D. in 1991 and his Habilitation (HDR) in 2000 from Université Paris-Saclay. He has been Professor of Physics at ESIEE Paris, Université Gustave Eiffel since 2002. He is also affiliated to the French National Center for Scientific Research (CNRS), within the CINTRA laboratory IRL 3288 in Singapore jointly with Nanyang Technological University (NTU) and THALES, and within the ESYCOM laboratory UMR9007 in France. Before joining back ESIEE in 2002, Dr. Bourouina took several positions in France and in Japan; at Université Paris-Saclay (1995-1998) as Associate Professor in IEF Lab (CNRS UMR 8622), at the French National Center for Scientific Research (CNRS) and at The University of Tokyo (1998-2001) as Senior Researcher in LIMMS Lab (CNRS UMI 2820). In 2017, he was the recipient of the Chinese Academy of Sciences President's Fellowship. Dr. Bourouina has many contributions in the development of several companies launched by his former students and colleagues, which include Si-Ware Systems, Fluidion, Memscap and Izonics. Among his contributions to the international scientific community, Dr. Bourouina serves as an Editor in two journals of Nature Research: 'Light: Science and Applications' and 'Microsystems and Nanoengineering'. He also serves as Associate Editor in "Advanced Devices and Instrumentation" -a Science-Partner Journal. His current interest includes micro-scale photonic and fluidic devices and the related physics as well as their applications to sustainable development.



Prof. Faïçal LARACHI, Laval University Québec, Canada

Faïçal Larachi research aims at devising micro/multifunctional processes and materials in the areas of marine engineering, (bio-)energy, mineral resources and the environment with an emphasis on upgrading/conversion of unconventional fossil energy/residual biomass, implementing ghg mitigation through co2 capture/storage and solving aqueous and interfacial chemistry issues in mineral beneficiation. He has co-authored 420 journal papers, 3 books and 20+ plenary/keynote lectures in international conferences. He served as associate editor for the Canadian journal of chemical engineering, and as member of the editorial or advisory boards for the journals of industrial & engineering chemistry research, chemical engineering & processing: process intensification, and Indian chemical engineer. His research contributions have been recognized in various ways, including the tier 1 Canada research chair endowment, twice-awardee of the NSERC discovery acceleration supplement, and recipient of the 2012 research summa award. Prior to joining Laval University as a faculty, he obtained a chemical engineering doctoral degree from Institut National Polytechnique at Université de Lorraine (France), and held a post-doctoral position at École Polytechnique of Montréal. He was visiting scientist at Total (France), The Institut Française du Pétrole (ifpen) and

	the Consortium de Recherche Minérale (COREM) where he spent two sabbatical years.
	<p>Prof. Christophe VIAL, Clermont Auvergne, France</p> <p>Christophe VIAL is a Chemical engineer (ENSIC, Nancy, France) and was awarded a Ph.D. of Chemical Engineering from INP Lorraine (France) in 2000. He has been full Professor of Chemical Engineering in Polytech Clermont (Clermont Auvergne University, France) in charge of the Energy Track since 2010. He has been Deputy Director of Institut Pascal a joint interdisciplinary research and. training unit in engineering science of 400 people since 2017.</p> <p>Prof. Vial's research has been centred on multiphase flows and mass transfer phenomena, focussing on bioenergy and particularly on biohydrogen and biological methanation in the last 5 years. He is the principal investigator of many regional, national or international research programs projects and of past or ongoing international research programs with Morocco, Tunisia, Algeria, Lebanon, or Spain. He co-authored more than 100 papers in peer-reviewed journals with impact factor, 6 books or book chapters, and about 150 communications in congresses workshops and seminars. He co-supervised or supervised 17 defended Ph.D. projects with 5 on-going in the fields of chemical, environmental and food engineering. From 2021 to 2023, he was the deputy president of the evaluation panel of the French National Research Agency on Sustainable, clean, safe and efficient energy.</p>
	<p>Prof. Mourad AMARA, USTHB, Algeria</p> <p>Amara Mourad holds a PhD in Material Chemistry (2003, USTHB), and since 2010 he is Full Professor of Material Chemistry. he is an author of several scientific publications and educational books in chemistry. He is a reviewer in at least fifteen scientific journals, including (Scientific Journal of Analytical Chemistry, Water Desalination, Fresenius Environmental Bulletin, Journal of Hazardous Materials, Journal of Membrane Sciences, Journal of Hazardous Materials, Chemosphere, and others). Speaker and consultant in chemistry, metal valorization, electrolysis, and water treatment. His 2003 article in Talanta ranked in the top 10 most consulted articles in analytical chemistry within its first two years of publication. He also led several research projects and doctoral theses related to membranes, water treatment and mineral valorization. He is Vice President of the Algerian Chemical Society since 2016, former Dean of the Faculty of Chemistry and former Director of Hydrometallurgy Laboratory at USTHB in Algiers and Head of the Ion Exchange Membranes Materials Team.</p>



Dr. Elyes NEFZAOU, ISIEE, France

Elyes NEFZAOU is an assistant Professor at ESIEE Paris - University Paris Est in charge of the Energy Graduate Program of ESIEE Paris School of Engineering. He holds MSc. in Mechanical Engineering (French Grande Ecole ENSMA, France) in 2009 and Ph.D. in Mechanical Engineering in 2013 (Univ. of Poitiers, France) with a dissertation on Nanoscale Thermal Physics. In 2013-2014, He served as a postdoctoral research assistant at CNRS Laboratories Institut P' (Poitiers) and the Center of Energy and Thermal Science of Lyon (CNRS - INSA Lyon - Univ. Claude Bernard). Her research activities include energy conversion and management from the micro-scale (materials properties and micro-machined devices) to the macro-scale (buildings, districts and cities).

Dr. Alina-Violeta URSU, Clermont Auvergne, France

Alina-Violeta URSU has been Associate Professor of Chemical Engineering in Polytechnic Institute of Clermont-Auvergne (France) since 2019. She is engineer in Food Engineering of the University of Bacau (Romania) since 2003, was awarded a Ph.D. of Chemical Engineering from Polytechnica University of Bucarest (Romania) in 2010 and got a position of Lecturer at University of Bacau (Romania) in the same year in the field of chemical and food engineering. Dr. URSU is a permanent researcher in the "Chemical Engineering, Applied Thermodynamics and Biosystems" group of Institut Pascal and actually work on the theme "Bioprocessing: Properties, Interfaces, Flow Phenomena" with Prof. Christophe Vial. The research field of Dr. Alina-Violeta URSU concerns material and energy valorisation of different kind of marine biomass, such as seaweed and microalgae, and other wastes from food and pharmaceutical industry and she was the coordinator of several national and international research programs with Morocco, Algeria and Romania. Dr. URSU is author or co-author of more than 40 papers in peer-reviewed journals with high impact factor, 2 book chapter, 3 patents and about 60 communication in international congresses workshops and h-index 22 (Scopus). She co-supervised 6 Ph.D. and 15 M.Sc. projects in the field of chemical, food or environmental engineering. She is a reviewer for more than 15 journals in the fields of chemical, environmental and food engineering. She is also a member of French Society of Chemical Engineering and of Romanian Society of Chemical Engineering



Dr. Nabila CHERIFI, CRAPC, Algeria

Nabila Cherifi has obtained her PhD in 2013 from USTHB, Algeria in collaboration with UPPA University, France. Her Habilitation HDR was in 2017 from the same university in Algeria. She works at CRAPC as permanent researcher since 2003, and as Director of the "Analysis of Atmospheric Pollution" Division at CRAPC since 2014. She works as an associate researcher with various Algerian universities (USTHB-Algiers, Blida and Boumerdes universities) for the supervision of doctoral and master students. Her research activities include: controlled macromolecular syntheses, polymer miscibility, polymer/clay composites, biopolymers, atmospheric pollution. She is involved in different scientific projects on air pollution in Algeria and author and co-author of different articles published in indexed journals (Scopus) associated with her research fields particularly on controlled polymerization and targeted polymer architectures as gradients and bloc materials.

INVITED SPEAKERS ABSTRACTS

Ultra-Compact Microsystems for Environmental Monitoring of Water, Air and Soil

Tarik Bourouina

ESYCOM—Electronique, Systèmes de Communication et Microsystèmes (Université de Paris-Est-Marne-la-Vallée) Cité Descartes, 77454 Marne-la-Vallée Cedex 2, France

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Microelectromechanical Systems (MEMS) is among the microfabrication technologies that enabled the massive deployment of a wide variety of miniaturized sensors, especially in cars and in smartphones. However, a vast majority of those miniaturized sensors are limited to the measurement of physical parameters and do not cover extensively chemical and biological parameters.

In the first part of this presentation we will present Ultra-compact FTIR Optical spectrometers as a disruptive technology for ubiquitous sensing and analysis of chemical and biochemical parameters. We will demonstrate its successful use in a variety of applications for air monitoring and for food and agriculture.

On the other hand, microfluidics is another technology that enables Lab-On-Chip analysis. While this technology is mostly intended for biological and medical applications, we will review some of its applications for water quality analysis. In particular, we will review applications to microparticulate contaminants of water including bacteria, protozoa and microplastics.

Mitigation Strategies for Ship Emissions: A Perspective on Recent Trends

Ali Akbar Sarbanha, Faïçal Larachi*, Seyed Mohammad Taghavi

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The pressing need to address the problem of exhaust gas pollution from maritime transport requires a comprehensive approach that takes into account both sustainability and environmental impact. One prominent method of reducing ship exhaust emissions is the use of marinized exhaust gas scrubbers, which have the advantage of being retrofitted to existing vessels, thus providing a viable alternative to costly low-sulfur fuels. However, the increasing emphasis on reducing greenhouse gas (GHG) emissions in the coming decades introduces new complexities to emissions compliance. This contribution examines the use of exhaust gas cleaning systems as a means to mitigate SOX, NOX, and particulate matter (PM) emissions and anticipates their further integration into GHG reduction strategies in the short to medium term. The research critically evaluates different types of scrubbers suitable for seaborne operations and examines potential risks associated with their secondary emissions. In addition, the presentation surveys NOX reduction systems and examines recent advances in on-board carbon capture systems and alternative fuel combustion aimed to reduce GHG emissions. Keywords Exhaust gas, Greenhouse gas, Marine scrubbers, Emission

Biological methanation: Key advances and remaining challenges

Vial Christophe,^a Li Qinglan ^a, Keramati Misagh ^a, Guez Jean-Sébastien^a , Ursu Alina-Violeta^a
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Biological methanation is a green process able to convert CO₂ and hydrogen gas into methane owing to hydrogenotrophic archaea. It can be applied, e.g., to biogas upgrading when coupled to anaerobic digesters to enhance the production of renewable green energy. Even though recent literature has abundantly described the pros and cons and the technologies able to enhance biological methanation, little has been reported on experimental data assessing the H₂ gas-liquid mass transfer limitation and on the gas feed strategies which could intensify this process. The aim of this work is to discuss these topics based on recent data from bubble column reactors in order to intensify biomethanation, including pressure, gas flow rate, and the H₂:CO₂ ratio in the gas feed.

Keywords: hydrogen mass transfer, hydrogenotrophic archaea, methanogen carriers, pressurized bioreactor.

Treatment and reuse of waste water in mining industry

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In recent years, Algeria has experienced increasingly frequent droughts, reflecting a dry climate and a significant shortage of water resources. Faced with this situation, several solutions have been proposed to remedy this water shortage and rationalize its use. Among the measures recommended and implemented is the desalination of seawater, which should supply the north of the country and provide drinking water, but it generates large quantities of salt water. These brines can, however, be considered as an additional source of strategic minerals such as lithium and magnesium. The demineralization of groundwater in the southern region of the country also represents one of the most important options, especially for the agricultural sector. The mobilization of water resources requires strict, rational and improved management in order to save water, recycle it and valorize the minerals it contains. The mining sector is a large consumer of water, for most modern mines the flow of water into the environment after purification represents a small proportion compared to recycling and reuse in the mineral beneficiation process. Water is essential in mineral mining processes, especially polymetallic minerals, because it dissolves minerals to facilitate their separation. Complementary techniques suggest that flotation requires large quantities of water to dissolve the chemical reactions necessary for the mineral beneficiation process. Recently, minerals are required to support the energy transition, the water/energy duality being attached and interconnected.

Micro and Nano materials for thermal energy conversion and management

Elyes NEFZAOU*

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Meta-materials for thermal radiation control and conversion have been a very active field of research during the past decade in relation with several applications such as thermophotovoltaics, radiative cooling, thermal rectification, solar energy harvesting, etc. Such meta materials are often made of ordered structures such as 1D or 2D periodic structures, photonic crystals, multilayers, resonant cavities, and surface gratings among others. First, we will present the operation principle of the different above mentioned applications and the materials properties requirements for their proper realization. Then we will review some of the main categories of ordered meta-materials that have been designed and fabricated for this purpose. Finally, we will focus on a specific class of meta materials made of randomly micro-structured silicon surfaces alternatively known as black silicon. In recent years, we have studied the morphology [1] of such random structures fabricated using cryogenic deep reactive etching [4] and the influence of this morphology, the doping level, the doping profile [6, 7, 8, 9] and surface functionalization [5] on the material radiative properties. We will show how these different parameters enable to significantly enhance the material absorptivity and emissivity over a wide mid-infrared spectral range. These parameters also offer many degrees of freedom to tune the spectral range of the desired property and optimize it for a given application. We will finally illustrate the potential of such meta-materials in different applications of thermal radiation harvesting, conversion and management [2, 3].

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Transition from polymers to biopolymers : choice or necessity ?

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Over the past two decades, polymer technology has known significant advances leading to the development of new materials with broad applications in fields as varied as biomedical, pharmacology, food packaging, construction, cosmetics, textile, automotive, aeronautics... Unfortunately, this wide use of synthetic polymers constitutes a considerable source of environmental problems, inducing serious repercussions on air quality, marine ecosystems and human health, the reason for which many environmentalists are calling for the replacement of these plastic materials by less dangerous ones. Among proposed solutions, it is quoted the use of biopolymers, derived from natural and renewable resources with interesting characteristics. Indeed, it is often reported that natural polymers have several advantages comparing to synthetic polymers, including biocompatibility, biodegradability and low toxicity.

This contribution is a synthesis of the dangers often caused by plastic materials, both for the environment and for human health. Some examples of biopolymer materials often used as alternative to plastic materials will be reported, particularly systems based on poly lactic acid PLA polymer which is widely used in industry [1-3]. In Addition, some experimental results obtained by developing and characterizing polymer blend and composite mixtures using PLA will be presented.

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Biorefinery approach for the production of bioenergy, food and high value products from microalgae and cyanobacteria

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The attention of the scientific community, the media and the general public is focused on the current problem of global warming, with all its serious consequences. However, this is not the only challenge facing humanity in the short term. In parallel with the production of carbon-free energy carriers or at least with lowest possible carbon footprint, we will have to face unprecedented demographic growth in the world's population (which could reach 12.6 billion by 2075), with the corollary that global demand for food will increase by more than 70% and for energy by more than 100%. The current agricultural model will therefore have to be completely overhauled to ensure the supply of quality food in sufficient quantity, while respecting ecosystems and adopting a sustainable development approach to reconcile environmental, societal and economic issues.

One way to overcome the challenges of producing free-carbon energy carriers and quality food would be to use of microalgae, which are veritable cell factories for the production of high-value added biorenewables biomolecules, with numerous advantages over terrestrial plants. Their cultivation does not mobilize agricultural land and requires only solar energy, minerals, water (wastewater) and CO₂. Moreover, these microorganisms have a simple structure and a much greater capacity for growth and productivity of biomass than terrestrial plants or macroalgae (they can double or triple their biomass every day). Microalgae crops enable the capture and conversion of atmospheric CO₂ - one of the main greenhouse gases responsible for global warming - into biofuel precursors along with industrially relevant biomolecules. They thus represent a decarbonization strategy to achieve carbon neutrality and meet today's global warming challenges. Microalgal biomass is therefore considered an interesting resource among renewable raw materials, and through its economic and ecological potential, it represents an undeniable lever for sustainable development. To date, the taxonomic diversity of these microorganisms for biomolecule production has been little explored, as only 30,000 species out of an estimated 500,000 have been described (Richmond, 2004). Microalgae contain high percentage of lipids (20-75%, d.w.), proteins (30-60%, d.w.), carbohydrates(10-20%) and other nutrients (minerals, vitamins ...).

Nowadays the production and treatment of microalgae biomass to obtain bioenergy products of high value requires high investments and the capital costs compared to the fossil fuel energy products are considerably higher [1]. Since the production cost of algae biofuel is still far more expensive than petroleum diesel fuels (after [2] at least 3.5 to 5 times higher) or than conventional biofuels, algae biofuel are not produced yet commercially. Moreover, improved economics of production are inadequate for environmentally sustainable production let aside the oblivion of social sustainability [3]. However, microalgae contains other biomolecules than lipids at high concentration, e.g. proteins and carbohydrates, and in order to exploiting their whole potential, this biomass can be classified as a sustainable raw materials for biorefinery and recover simultaneously multiple products (fuel for transportation, energy and chemicals) that ensure a market value higher than the

production cost [3,4]. The main stages of microalgae biorefinery are plotted in Figure 1; the choice of the cell disruption methods is depend on the microalgae cell wall structure.

Nowaday, commercial microalgae biomass represents less than 0.2% of global aquatic biomass production (microalgae and algae). The main species exploited are represented by *Arthrospira* (cyanobacteria), which accounts for 96% of global production. The remainder comes from four species of green eukaryotic microalgae: *Haematococcus* sp., *Chlorella* sp., *Tetraselmis* sp., *Dunaliella* sp. [5]. According to Cai et al. (2021), the global microalgae market has been valued at 955.1 million USD in 2021, with forecasts for forecasts for 2030 show an increase to 1565 million USD. The most promising for the production of proteins and energy carriers (biogas, bioethanol, biodiesel) are *Arthrospira* and *Chlorella* and only a few studies are dedicated to the valorization of these microalgae at pilot scale using the biorefinery concept. Even though the potential of microalgae as feed for biorefineries has been demonstrated for several years now, the construction of the first microalgae biorefinery with industrial capacity started only in 2021 in France (SCALE Program).

This study presents the most important features of *Chlorella* sp. and *Arthrospira* sp. that determine the choice of the pretreatment, extraction and purification step for an optimum valorization of the biomass into a biorefinery.

Keywords: microalgae biorefinery, bioenergy, high value biomolecules, *Chlorella*, *Arthrospira*.

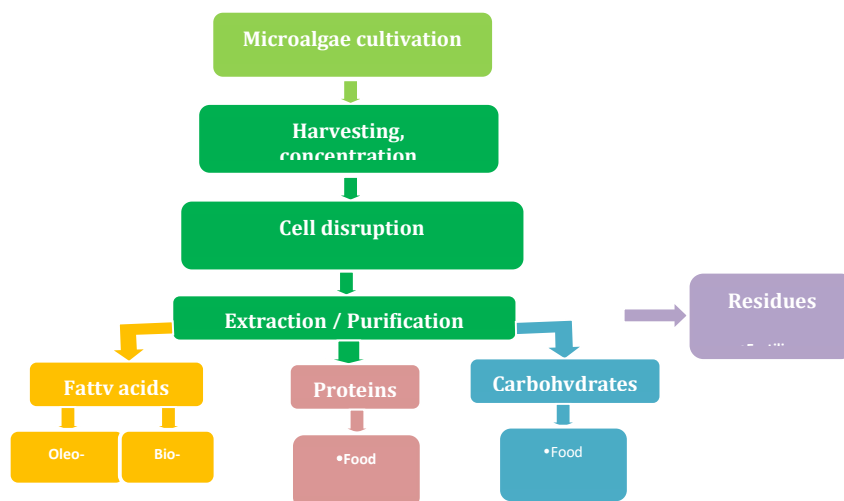


Figure 1: General outline of microalgae biorefinery process

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PROGRAMME

International Conference on the Environmental Technologies and Sustainable Energy

ICETSE"2023

First Day : October 17th 2023

8.00 - 9.15 09.15 – 09.30	Registration & Reception Welcome and Opening Ceremony Prof Mohamed BOUHICHA, General Director DGRSDT Dr. Khaldoun BACHARI, Center Director CRAPC	
Room 9.30 -11.00	Auditorium Oral session 1- Planery Chair : Dr. N. Taibi & Dr. R. Chebout	
9.30 -10.15	Plenary lecture 01 : Prof. Tarik BOUROUINA, ISIEE, France Ultra-Compact Microsystems for Environmental Monitoring of Water, Air and Soil	
10:15 -10:45	Coffee Break (Poster Session 1)	
Room 10.45 –13.00	Auditorium Orale session 2- Keynote Chair : Dr. N. Bait & Prof. A. Saadi	
10.45-11.30	Plenary lecture 03 : Prof. Mourad Amara, Algeria Treatment and reuse of waste water in mining industry	
11.30 -12.00	Keynote 01 Dr. URSU Alima, Clermont Auvergne, France Bioreffinery approach for the production of bioenergy, food and high value products from microalgae and cyanobacteria	
12.00 –12.30	Keynote 02 Dr. Elyes NEFZAOU, ISIEE, France Micro and Nano materials for thermal energy conversion and management	
12.30 –14.00	Lunch Break	
Room 14.00 –15.30	Auditorium Oral session 3- Environmental Technologies Chair : Dr. N. Cherifi & Dr. E. Nefzaoui	Room 02 Oral session 4- Energies Chair : Dr. H. Hadjar &Dr. M. Khodja
14.00 –14.15	OET.1: Performance and economic aspect of three electrode systems in the abatement of pollution in dairy effluents: Comparative study L. Boudriche, B. Chezeau, Ch. Vial, A. Boudjemaa Centre de Recherche Scientifique et Technique en Analyses Physico-Chimiques, Tipaza, Algeria	OENE.01 : Exploring the Influence of Strained Graphene on Hydrogen Storage A. Boudiar, H. Bendifallah T'ebessa University, Algeria
14.15 –14.30	OET.02 : Degradation of malachit green by electrochemical oxidation catalysts with Ni-Fe-Mo/Cu electrode using Response Surface Methodology C. Bouasla, I. Belhani , M. Mahdi Center for Development of Advanced Technologies, Algiers, Algeria	OENE.02: Electrochemical properties of Cu ₂ S-SiNWs based photocathodes used for the CO ₂ conversion K. Benfadel, S. Kaci , S. Anas Boussaa , L. Talbi , A. Boukezzata, Y. Ouadah Research Center on Semiconductor Technology for Energetic, Algiers, Algeria.
14.30 –14.45	OET.03 : Removal of metal from aqueous solutions using chitosan modified F. Zaoui, F.Z. Choumane	OENE.03: Fabrication of hight capacitor structures based on polypyrrole polymer

	University of Saida- Dr Moulay Tahar, Algeria	S.M. Loucif, N. Boudieb, L. Meziane, K. Kahlouche, A. Naitbouda, L. Loucif Seiad, S. Oussalah Center for Development of Advanced Technologies, Algiers, Algeria.
14.45 –15.00	OET.04: Treatment of water from toluene using membrane extraction S. Hamouni, O. Arous, G. Nezzal Université des Sciences et de la Technologie Houari Boumediene, Algiers, Algeria	OENE.04: Parametric study of the recovery of precious metals from used lithium batteries W. Adaika, N. Sabba , S. Bertouche, N. Chekir Université des sciences et de la technologie Houari Boumerdiene, Algiers, Algeria
15.00 –15.15	OET.05 : Application to the removal malachite green dye from aqueous solution by a bioadsorbent date pits powdered F.Z Choumane, F. Zaoui, R. Atig, B. Benguella University of Saida- Dr Moulay Tahar, Algeria	OENE.05 : Analysis of the Performance of the Andasol-1 Parabolic Trough Solar Power Plant in Various Locations in the Algerian Desert K. Ikhlef, S. Larbi Ecole Nationale Polytechnique, Algiers, Algeria.
15.15 -15.30	OET.06 : Photodegradation of textile dyes onto synthesized calcium aluminate S. Mazrou, H. Gallouze, N. Nasrallah, E. Akretche Université des sciences et de la technologie Houari Boumerdiene, Algiers, Algeria	OENE.06 : Effect of a porous medium on the stability of a Hadley flow in a shallow horizontal layer A. Telkhoukh, A. Medelfef, N. Allalou Université des sciences et de la technologie Houari Boumerdiene, Algiers, Algeria
15.30 –16.00	Coffee Break (Poster Session 2)	
Room 16.00 –16.45	Auditorium Orale session 5- Environmental Technologies Chair : Dr. D. Lerari Dr. M. Mokhtari	Room 02 Oral session 6- Energies Chair : Dr. H. Hamitouche Dr. H. Zazoua
16.00 –16.15	OET.07: Separation of metals mixture (Fe, Cu, Zn and Co) using precipitation, cementation and IEX C. Amrane, S.Tamersit, Lalmi Afaf, KE. Bouhidel University Hadj Lakhdar, Batna 1, Algeria	OEN.07 : 1-allyl-3-methylimidazolium dicyanamide ionic liquid /acetonitrile -iodide binary electrolytes for better stability of Dye sensitized solar cells M. Ismail, M. Jaouadi, O. Ghodbane, T.Toupance Centre National des Recherches en Sciences des Matériaux, Soliman, Tunisia
16.15 –16.30	OET.08 : Solar hydrocarbon degradation processes as wastewater treatment solution for environmental security M. Bouanaka, D. Djedouani, M. Chabani. Université des sciences et de la technologie Houari Boumerdiene, Algiers, Algeria	OENE.08: Comparative study between popular MPPTs for PV systems T. Boudjerda, S. Belaid Lalouni, S.Tamalouzt Université de Bejaia, Algeria
16.30 –16.45	OET.09 : Study and characterization of bacterial bioaerosols in a polyclinic in north of Algiers A. Djadi, S. Lachebi, A. Bessaoud, R. Hannachi, N. Cherifi, R. Ladji Research Unit in Physico-Chemical Analysis of Fluid and Soil Environments Algiers, Algeria	OENE. 09 : Enhanced photoproduction of hydrogen on LaCoO ₃ prepared by sol-gel: structural and electrochemical properties A. Boulahouache, M. Benlembarek, H. Madjadji, S.E. Berrabah, M. Trari, N. Salhi Université des sciences et de la technologie Houari Boumerdiene, Algiers, Algeria

Second Day : October 18th 2023

Room 08.30 –11.00	Auditorium Oral session 1- Planery Chair : Dr. A. Terbouche & Prof. H. Lounici
08.30 –09.30	Plenary lecture 04 : Prof. Christophe VIAL, Clermont Auvergne, France Biological methanation: Key advances and remaining challenges

09.30 –10.30	Plenary lecture 05 : Prof. Fayçal LARACHI, Laval University, Canada Mitigation Strategies for Ship Emissions: A Perspective on Recent Trends
10.30 –11.00	Orale session 4- Keynote Dr. Nabila CHERIFI, CRAPC, Algeria Transition from polymers to biopolymers : choice or necessity ?
11.00 –11.30	Coffee Break (Poster Session 3)
Room 11.30 –13.00	Auditorium Orale session 2- Environmental Technologies Chair : Dr. L. Boudriche & Dr. S. Benammer
11.30 –11.45	OET. 10: Investigation of the influence of transmittance on the effectiveness of UVC disinfection of treated wastewater H. Lebig, B. Boutra, D. Zioui, S. Mahiedine, M. Bourouis, MA. Benhamma Unité de Développement des Equipements Solaires Tipaza, Algeria
11.45 –12.00	OET.11 : Experimental study of Residence Time Distribution (RTD) and flow modeling in a fluidized bed microreactor N. Kechroud, H.Tighzert, N. Maouche, H. Guenounou, S. Bacha Université MIRA Bejaia, Algeria
12.00 –12.15	OET 12: Filler effect on properties of polymethyl methacrylate based membranes for hemodialysis application A. Ouradi, N. Cherifi, A. Benaboura Université Saad Dahleb de Blida 1, route Soumaa, Blida, Algeria
12.15 –12.30	OET.13: Catalytic and photocatalytic degradation of diclofenac by ZnO/Co ₃ O ₄ . Identification of major intermediates and degradation pathway S. Fergani, H. Zazoua, A. Saadi, A. Boudjemaa, K. Bachari Université des sciences et de la technologie Houari Boumerdiene, Algiers, Algeria
12.30 –14.00	Lunch Break
14.00 –14.15	OET.14: Degradation of Methyl Orange by LaAl _{0.9} Fe _{0.1} O ₃ nano-perovskite H. Medjadji, A. Boulahouache, N. Salhi Université Blida1, Algeria.
14.15 –14.30	OET.15 : Evolution of hourly concentrations of O ₃ and its precursors at the CDER's "Nesma" air quality monitoring station in Algiers N. Oucher, T. Lakki, H. Belhadi Centre de Développement des Energies Renouvelables, Algiers, Algeria
14.30 –14.45	OET.16: Bioaerosols in the internal environment of schools S. Lachebi, A. Djadi, N. Sadou, N. Cherifi, R. Ladji Research Unit in Physico-Chemical Analysis of Fluid and Soil Environments Algiers, Algeria
14.45-15.00	OIE.01 : Contribution of surfactant to impact generated by of two kinds of liquid detergent manufacturing using life cycle assessment methodology S. Bougherar, M. Belhkir, D. Cherik, F. Lecheb, N. Babakhouya, H. Akass, K. Louhab University of Boumerdes, Boumerdes, Algeria
15.30-15.45	OIE.02 : The circular economy: an asset for plastic waste management in Algeria S. Bougherar, M. Belhkir, D. Cherik, F. Lecheb, N. Babakhouya, H.Akass, K. Louhab University of Boumerdes, Algeria
15:45 –16:15	Coffee Break
16.15-16:30	Closing Ceromony

POSTER PRESENTATIONS

POSTER SESSIONS

Poster presenters should refer to the information board in the registration area to check which board number has been allocated to them.

Poster Session 1- 16:00-17:30 on Tuesday 17th October 2023.

Poster can be put up at 08 am on Tuesday morning and must be removed by 18 :00 on the same day.

Poster Session 2- 16:00-17:30 on Wednesday 18th October 2023.

Poster can be put up at 08 am on Tuesday morning and must be removed at the end of the conference.

Poster presenters should ensure that they stand-by their posters during their allocated poster Viewing session. The organisers do not take any responsibility for the posters not removed at the end of the conference.

POSTER: SESSION 1

Tuesday, October 17th 2023

Foyer of the HOTEL

P1-001	Synthesis and application of SBA-15 adsorbent for the removal of organic and inorganic substances Yadoun Bouchra 1,a, Hennous Mohammed, Benhamou Abdellah 3,a, Benyoub Nassima DEBAB Abdelkader Process and Environmental Engineering Research Laboratory, Department of Chemical Engineering, Faculty of Chemistry, University of Science and Technology of Oran Mohamed Boudiaf -USTO (MB)-, Oran, Algeria.
P1-002	Kinetic study of the adsorption of three pollutants: methylene blue, methyl orange and amoxicillin on activated carbon extruded in a batch reactor Maouche Nassima, Guenounou Hassiba, Kechroud Nassima Tighzert Hamid, Bacha Saliha University A.MIRA Bejaia, Algeria
P1-003	The COD and BOD removal from urban waste water using pillaredbentonite Mecabih Zohra University of Djillali Liabes, Algeria
P1-004	Synthesis, physical and electrochemical characterisation of CoCr2O4 and its application as photocatalyst under solar irradiation Chaibeddra Dina, Benamira Messaoud University MSB1, Jijel, Algeria
P1-005	Development of new membrane materials for collecting airborne particulate at an industrial site Said Selma, Khedidji Sidali , Arous Omar , Yassaa Nouredine UAMOB University, Algeria.
P1-006	Removal of cationic dye from aqueous solution using cross-linked chitosan beads Merakchi Akila, Dahmani Khalida, Lounici Hakim UAMOB University, Bouira, Algeria
P1-007	Experimental and Computational Studies of Solar Photodegradation of Rhodamine B Dye by ZnMn2O4/TiO2 Heterojunction Ahmia Nada , Benamira Messaoud , MessaadiaLyamine University MSB1, Jijel, Algeria
P1-008	Recovery of argan fruit wastetobiochar for the elimination of the yellow-orange dye using the adsorption process Taleb Souhila ,Oughilas Ahmed , Mimanne Goussem Djillali Liabés University of Sidi Bel Abbes, Algeria
P1-009	Elaboration of the new heterostructure of CuFe2O4/Kaolin and its Photocatalytic activity towards Rose Bengale under solar light irradiation Akika F.Z, Rouibah K, Doufar S., Benamira M. University MSB1, Jijel, Algeria
P1-010	Almond shell-based activated carbon: an Adsorbant for the removal of cationic dye Mokdad Hayat, Mekhalef Benhafsa Fouad, Chiali Charif Khadidja, Mimanne Goussem, Abdallah Touati Manel, Boussaid Rihab, Brassi Aïcha. University of Djillali Liabes, Algeria
P1-011	Process for improving electrocoagulation for the degradation of an azoic dye in a low conductivity medium Badni Nadia, Latroch Maamar, Aissabokhtache Aïcha Center of scientific and technical research in physico-chemical analyzes (CRAPC), Tipaza, Algeria.
P1-012	Harnessing Schiff bases for heavy metal removal in industrial wastewater treatment Ben aïssa Abir , Belghit Yazid Mohamed , Barani Djamel Benkhira Latra Echahid Hama Lakhdar University, El-Oued, Algeria
P1-013	Kinetic study of light naphtha catalytic isomerization and it's mathematic modelling Boudjema Amir Lehtihet, Tayeb Fakhreddine Boukezoula, Lahcène Bencheikh

	University of Ferhat Abbas Sétif 1, Algeria
P1-014	Removal of malachite green using mixed layers clay (kerolite/stevensite) Bounouri Yassine, Berkani Madjid, Haddak Nabila, Idirene Meriem. University A.MIRA Bejaia, Algeria
P1-015	Heterogeneous catalytic oxidation (CuO/Al₂O₃/H₂O₂) of mixture of dyes in aqueous solution Bousalah Djedjiga, Yeddou Ahmed réda, Hachemi Messaoud, Chergui Abdelmalekc, Nadjemi Boubekour URMPE/University M'hamed Bougara University, Boumerdès, Algeria
P1-016	Kinetic Modeling of a Cationic Dye Adsorption from Aqueous Solution Chebba Samira, Boudaoud Asma, Djedid Mebrouk, Benalia Mokhtar, Soltani Amal Amar Telidji University of Laghouat, Algeria
P1-017	Water-soluble organic compounds (WSOC) from atmospheric aerosols in Bou-Ismaïl. Cherfaoui Brahim, Lemou Abdelkader, Rabhi Lyes, Cherifi Nabila, Ladjji Riad. Unité de Recherche en Analyses Physico-Chimiques des Matrices Fluides et Sols URAPC-MF /CRAPC , Algerie
P1-018	Adsorption kinetics of two pollutants: methylene blue and methyl orange on extruded activated carbon in a fixed bed column Guenounou Hassiba, Bacha Saliha, Kechroud Nassima , Maouche Nassima ,Tighzert Hamid , Khaled Ghouzlene , Bourouina Mustapha , Hayoun Bahdja Maachi Massinissa a,Hamitouche Fares University A. MIRA Bejaia , Algeria

POSTER: SESSION 2

Tuesday October 17th 2023

Foyer of the HOTEL

P2-001	Preparation, Characterization, and Study of the Thermal Decomposition Process of Energetic Composites Based on Nitrocellulose/Nitrostarch Dual-Biopolymers Matmat Nawel, Amir Abdelaziz, Djalal Trache, Ahmed Fouzi Tarchoun Ecole Militaire Polytechnique (EMP), Algiers, Algeria
P2-002	Sizing of Stand-Alone PV Pumping System, Application on an isolated agricultural area _ ADRAR site Djerifili Hadjer, Chaib Messaouda, Dahmani Roqiya, Chikhi Abdelwahab, Slimani Zahia University of Adrar, Algeria
P2-003	Magnetic electronic and elastic properties of oxide-based perovskite LaFeO₃:DFT study Demmouche Soumia, Saidi Fatiha, Brahmi Nabil Badr Eddine A Belkaid University, Tlemcen, Algeria.
P2-004	Numerical investigation of the effect of magnetic field on thermo hydrodynamic behavior of nanofluid inside a channel Belhout Cherif, Amrani karim, Bouzit Mohammed, Aris Abdelkader USTOMB University, Oran, Algeria
P2-005	Power generation prediction of horizontal axis wind turbine Ahmed Bekhti, Ali Boudis, Mohamed Debbache, Madjid Tata, Fares Meziane, Dawoud Hamane Centre de Développement des Energies Renouvelables, Algiers, Algeria
P2-006	Enhancement of Thermal Properties and Flame Retardant of Biocomposites Based Recycled Cellulose and Organomodified Clay Belalem Khadidja, Lerari Djahida, Benaboura Ahmed, KheloutThiziri, Bennarabe Wissame. USTHB University, Algiers, Algeria
P2-007	CO₂ Conversion to formic acid on Copper Benammar Souad, Boudjemaa Amel, Meziane Dalila, Nezzal Ghania Centre de Recherche Scientifique et Technique en Analyses Physico-Chimiques, Tipaza, Algeria
P2-008	Simulation study of high photovoltaic performance of new Cs₂PtI₆-based solar cells

	Benmansour Amina, Mamoun Souheyla, Merad Abdelkrim Elhasnaine A Belkaid University, Tlemcen, Algeria.
P2-009	MHD forced convection using nanofluid on a backward facing step containing fourcylindrical obstacles Amrani karim, Belhout Cherif, Bouzit Mohammed, Aris Abdelkader Ecole Nationale Polytechnique d'Oran, Algeria
P2-010	Prediction study of the band gap values for a large set of chalcopyrite materials using a machine learning approach Bensaber Fatima Zahra, Boufatah Mohammed Réda, Merad Abdelkrim Elhasnaine A Belkaid University, Tlemcen, Algeria.
P2-011	Manganese oxide effect on hydrogen production performance Chabni Khadidja, Boudjemaa Amel,. Zoukel Abdelhalim Centre de Recherche Scientifique et Technique en Analyses Physico-Chimiques, Tipaza, Algeria
P2-012	The influence of bath parameters on the electrodeposition of Ni-Mn alloys as an effective electrocatalyst for both hydrogen and oxygen evolution reactions Belhani Imadeddine, Bouasla, Chafia, Hadj Meliani Mohamed UHBC University, Chlef, Algeria
P2-013	Green hydrogen generation from water using Cu₂O/TiO₂ nanomaterial prepared via green chemistry Gouasmi Meriem, Boudjemaa Amel, Fabrizio Sordelloc, Francesco Pellergrinoc, Bachari Khaldoun University 20 Aout 1955, Skikda, Algeria.
P2-014	Development of an eco-green and sustainable build material from stabilized oil drilling cuttings Lounes Oualid, Malek Ammar URMPE/M'Hamed BOUGARA University Boumerdes , Algeria
P2-015	Evaluation of environmental impact generated by production of syrup drug using life cycle assessment methodology S. Bougherara, M. Belhkir, D. Cherik, F. Lecheb, N. Babakhouya, H. Akass, K. Deleci, K. Louhab M'Hamed BOUGARA University Boumerdes , Algeria
P2-016	Assessing the Environmental Impact of the Djebel Onk Phosphate Complex: A Comprehensive Impact Evaluation Study Recycling trial Makhdoumi Hayet, Aichouri Imen National Higher School of Mines & Metallurgy
P2-017	Burning cardboard in the open air... What kind of environment are we preserving !?? Mekhalef Benhafsa Fouad, Mokdad Hayat, Chadli Aicha, Lemou Abdelkader, Cherifi Nabila, Ladj Riad, Setti-Ahmed Kheira Centre de Recherche Scientifique et Technique en Analyses Physico-chimiques CRAPC, Tipaza, Algeria.

POSTER SESSION 3

Wednesday, October 18th 2023

Foyer of the HOTEL

P3-01	Propyl paraben removal using Cu₂O/ZnO photocatalyst elaborated via green method Chikhi Bilal , Gouasmi Meriem , Alaimia Mounia , Lazhar Gacem, Samir Amara, Adel Saadi, Amel Boudjemaa Centre de Recherche Scientifique et Technique en Analyses Physico-Chimiques, Tipaza, Algeria
P3-02	Syntheses and Characterization a magnetic composite for the removal of Sm(III) from aqueous solutions Hanagria C., Haddou B., Debbab A, Ameri I. USTOMB University, Oran, Algeria.
P3-03	Treatment of water polluted by heavy metals Lachebi Samia, Trachi Mahmoud Hachemi Messaoud Unité de Recherche en Analyses Physico-Chimiques des Matrices Fluides et Sols, URAPC-MFS/CRAPC
P3-04	Solid-phase microextraction based sampling techniques for the analysis of BTEX from car exhaust emissions Lemou Abdelkader, Rabhi Lye, Tahar Adlanea, Cherifi Nabila, Ladjji Riad, Yassaa Noureddine. Unité de Recherche en Analyses Physico-Chimiques des Matrices Fluides et Sols, URAPC-MFS/CRAPC
P 3-05	All-Solid-State Potentiometric Silver/ Silver Chloride (Ag/AgCl) Reference Electrode Malek Zineb, Chekir Nadia, Tassalit Djilali , Sabba Nassila, Yaddadene Chafiaa USTHB University, Algiers, Algeria.
P3-06	Identification of sources pollution affecting Bouismail, Algiers Adlane Tahar, Abdelkader Lemou, Lyes Rabhi, Nabila Cherifi, Riad Ladjji. Unité de Recherche en Analyses Physico-Chimiques des Matrices Fluides et Sols, URAPC-MFS/CRAPC
P1-07	Evaluation of physicochemical parameters of wastewater and their impacts on environmental Hamouni Samia, Tifrane Roumaissa, Khelassi Samia USTHB University, Algiers, Algeria
P3-08	Recycling plastic waste using the pyrolysis process Abchiche Hacina, Marir Aymen, Bouchelkia Imene, Mellal Mounir, Deghmane Souheil, Chekirine Mohamed Amine USTHB University, Algiers, Algeria
P3-09	Preparation and characterisation of a novel membrane based on biodegradable PCL/Algerian clay for lead removal Aoues Amina, Merdoud Ouarda, Boulekradech Mohamed Oualid, Abdessemed Djamal, Arous Omar USTHB University, Algiers, Algeria
P3-010	Electrokinetic Removal of Selected Heavy Metals from Soil by enhancing agent Merdoud Ouarda, Boulakradeche Mohamed Oualid, Akretche Djamal Eddine Center of scientific and technical research in physico-chemical analyzes (CRAPC), Tipaza, Algeria.
P3-011	Study of Airborne Bacterial Populations at various urban sites Sadou Nadia, Lachebi Samiaa, Djadi Amina, Cherifi Nabila, Ladjji Riad USTHB University, Algiers, Algeria

P3-012	Elaboration of a biochar from sorghum stems for the elimination of methylene blue in aqueous solution Sifoun N., Yeddou A-R., Nouri L-H. , Khalfi I., Nadjemi B. M'Hamed Bougara University UMBB, Boumerdes, Algeria
P3-013	Treatment of synthetic wastewater by phytoremediation process using a microalgae isolated locally Aiouaz Fatma, Bensdok Kenza, Chader Samira USTHB University Algiers, Algeria
P3-014	Removal of chromium (VI) from aqueous solution using Algerian Pinus tannin foam Hamadi Zeyneb, Chaid Rabah, Kebir Mohammed, Amirou Sihem, Antonnio Pizzi Unité de Recherche en Analyses Physico-Chimiques des Matrices Fluides et Sols, URAPC-MFS/CRAPC
P3-015	Development of polysulfone/zeolite ultrafiltration membrane for dyes removal Afir Yasmina, Boukraa Fatima, Cherifi Nabila, Ouradi Adel USTHB University Algiers, Algeria
P3-016	Photocatalyst degradation of sodium Diclofenac from the water by a synthesized catalyst magnetic nickel ferrite nanoparticle Bouchenak Meriem, Boutemak Khalida, Haddad Ahmed, Boutera Belgassim University of Blida 1, Algeria
P3-017	A facile synthesis of ZnO-CuO-Al₂O₃ heterojunction: photocatalytic degradation of ciproheptadine Guettaia Djalila, Zazoua Hanane, Bachari Khaldoun, Boudjemaa Amel Centre de Recherche Scientifique et Technique en Analyses Physico-Chimique, Tipaza, Algeria
P3-018	Bioremediation of wastewater containing emerging pollutants from a pharmaceutical industry in algeria through the use of green microalgae coelastrella thermophile Soumati Bouchra, Hamitouche Adhya-eddine, Vial Christophe, Alina-Violeta URSU, Dubessay Pascal, Gardarin Christine, Duchez David, Belhadj abd-elmouneim University of Médéa, Médéa, Algeria
P3-019	Green composites based on lawsonia inermis and sodium alginate modified with copper nanoparticles for the removal of ibuprofen Boutaïba Zohra Mouna, Boudjemaa Amel, Boutemak Khalida CRAPC/ University de Blida 1, Algeria
P3-020	Preparation of the biochar from a green algae for enhanced adsorption of sunset yellow: Characterizations, adsorption study and regeneration. Abdallah Touati Manel, Mokdad Hayet, Goussem Mimanne, Boussaid Rihab, Brassi Aicha Rihab, BRASSI Aïcha Djillali Liabes University, Sidi Bel Abbes, Algeria,
P3-021	Comparison of extraction procedures for organochlorine pesticides analysis: Application of the UAE-d-SPE method to a soil sample <u>Moussiden Anissa</u> M, okhtari Moussa, Nacim Doufen , Zeffani Assia, Bait Nadia, Ladjji Riad Research Unit in Physico-Chemical Analysis of Fluid and Soil Environments (URAPC-MFS) /CRAPC, Tipaza, Algeria, 42000