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15th International Conference on

Environmental Chemistry and Engineering

August 15-16, 2019
Rome, Italy



SCIENTIFIC PROGRAM

DAY 1
Thursday,15th August

08:30-09:00 **Registrations**

09:00-09:30 **Introduction**

09:30-09:50 COFFEE BREAK

09:50-11:50 Meeting Hall 01 **KEYNOTE LECTURES**

11:50-13:10

MEETING HALL 01

Sessions:

- Environmental Design
- Chemical and Polymer Engineering
- Environmental Management and Policy
- Environmental Science

13:10-13:15 GROUP PHOTO

13:15-14:00 LUNCH BREAK

14:00-16:00

MEETING HALL 01

Sessions:

- Renewable Energy Sources and Storages
- Environmental Climatic factors
- Environmental Geology
- Environmental Biology
- Environmental Health

16:00-16:20 COFFEE BREAK

MEETING HALL 01 (16:20-17:00)	MEETING HALL 01 (17:00-18:00)
Young Researchers in Environmental Chemistry and Engineering	Workshop

DAY 2
Friday,16th August

09:00-10:30 Meeting Hall 01 — **KEYNOTE LECTURES**

10:30-10:50 COFFEE BREAK

MEETING HALL 01

10:50-12:50 **Sessions:**

- Environmental Disasters
- Environmental Biotechnology and Molecular biology
- Environmental Ecosystem
- Environmental Technologies and sustainability Metrics
- Earth and Geochemistry

12:50-13:35 LUNCH BREAK

MEETING HALL 01

13:35-15:55 **Sessions:**

- Biogeochemical Cycle and Hydrology
- Human Population Growth and Environment
- Environmental Education
- Environmental Chemistry and Engineering
- Environmental Biotechnology

15:55-16:15 COFFEE BREAK

MEETING HALL 01 (16:15-17:00)	MEETING HALL 01 (17:00-18:00)
Poster Presentations	Workshop

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15th International Conference on Environmental Chemistry and Engineering

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AGENDA

Title: Analysis and modelling of river runoff in Belarus

Sergey Parfomuk

The analysis of water runoff of the main rivers in Belarus for the period of instrumental observations till 2015 inclusive was carried out. It was shown that the number of runoff observation stations is sufficient for the territory of Belarus.

The average long-term values of river runoff in Belarus were calculated as well as the map of the average annual river runoff in Belarus for the 60-year period from 1956 to 2015 was created.

Title: Study on carbon dioxide atmospheric distribution over the Southwest Indian Ocean islands using satellite data: Part 2 –The influence of meteorology and air transportation

Xolile G Ncipha

Statement of the Problem: The forests of the Southwest Indian Ocean (SWIO) islands States are large carbon sinks. Rapid population growth in these islands is responsible for deforestation, which in turn is the main source of carbon dioxide (CO2) emissions.

The SWIO region plays an important role in the carbon cycle. However, there is inadequate operational long-term monitoring of atmospheric chemical constituents in this region.

Title: Resource- and energy-saving technologies developed by JSC "NIUIF"

Norov Andrey

JSC "The Research Institute for Fertilizers and Insectofungicides named after Professor Y. Samoilov"(JSC"NIUIF"), the oldest (founded in September 1919) industry-oriented institute in Russia, has developed a number of innovative technologies in recent years. These technologies allow to recycle production wastes, increase the efficiency of natural resources consumption and reduce the negative impact on the environment. The technologies include, in particular:

SPEAKER SLOTS AVAILABLE

Title: A sustainable strategy for integrating roxarsone degradation with As(V) recovery

Yaping Zhao

Roxarsone (ROX) is an organoarsenic compound that extensively served as feed additives in poultry industry. ROX tends to transform into more toxic inorganic arsenic in the natural environment. Post-treatments are necessary to completely eliminate arsenic contamination and relative environmental risks.

In this study, a novelα-FeOOH@GCA nanocomposite was used as a bifunctional reagent for ROX decontamination. Activation of persulfate (PS) by α-FeOOH@GCA under UV irradiation (α-FeOOH@GCA/PS/UV) was first time employed for in-situ degradation of ROX and simultaneous adsorption of released arsenate (As(V)).

Title: Effect of drilling wastes on urease activities and substrate induced respiration (sir) in wetland soil of delta and Bayelsa states of Nigeria

Mirinn Eminemi Pereyei

The effect of drilling waste on urease activities and substrate induced respiration in wetland soil of Niger Delta area of Nigeria was investigated using Fadama, Mangrove and meander soils respectively. Urease activity and substrate induced respiration (SIR) were measured after 1,7,14,28,42,56,70,105 and 140 days of incubation to evaluate the effects of drilling waste on some soil biochemical parameters.

Title: Removal of selected pharmaceuticals from aqueous solutions using heterogeneous photocatalysis

Samer Khalaf

Pharmaceutical compounds (PhCs) in general characterized by their low biodegradability and high chemical stability, making conventional treatment technologies incapable to eliminate such kinds of recalcitrant compounds. In the current study, removal of two non-steroidal anti-inflammatory drugs (NSAID) from aqueous phase has been investigated through employing photolysis and heterogeneous photocatalysis processes.

SPEAKER SLOTS AVAILABLE

Title: Application of magnetic graphene-based composites in the area of water treatmentadsorption

Yongjuan Wang

In the recent years, graphene-based composites (GBC) are good candidates of effective adsorbents in water treatment because of their unique physical and chemical properties. However, they usually suffer from serious agglomeration during utilization and difficulties in recycling after adsorption, which limits their application. Thus, the magnetic material is loaded on the GBC to obtain magnetic graphene-based composites (MGBC).

Title: Synthesis of novel modified magnetic chitosan particles and their adsorption performance toward Cr (VI)

Chaofan Zheng

With the significant increase in production and use of heavy metal (especially hexavalent chromium), it will be inevitably released into aquatic environments, which can result in accumulating throughout the food chain and having high toxicity to the living organisms. Therefore, developing a kind of low-cost adsorbent with high adsorption capacity of Cr(VI) from aqueous solution have attracted extensive attention.

In this study, novel adsorbents, poly([2-(methacryloxy)ethyl]trimethylammonium chloride) modified magnetic chitosan particles (DMCPs), were synthesized under N2 atmosphere via free radical polymerization using [2-(methacryloxy)ethyl]trimethylammonium chloride (DMC) as grafting monomer and potassium persulfate (KPS) as initiator, and applied to adsorb Cr(VI) from aqueous solution.

Title: Ecological risk indices assessment of heavy metals pollution in soils selected from three auto mechanic villages in Abuja, Central Nigeria

Ekeocha I. Christopher

The research work is targeted at the use of some ecological risk indices models in evaluating the risk associated with heavy metal contamination of soils from selected auto mechanic villages in Abuja, Central Nigeria. The models are Contamination Factor (Cf), Ecological Risk Factor (Er), Degree of Contamination (CD), Pollution Index (PI), Average of Pollution Index (PIAvg), Pollution Load Index (PLI), Nemerow Pollution Index (PINemerow) and Potential Ecological Risk Index (RI).

SPEAKER SLOTS AVAILABLE

Title: Multivariable process optimization of magnetic waste-based activated carbon for the removal of pharmaceuticals from water

Luciana S. Rocha

The growing use of pharmaceuticals and their inefficient removal by conventional wastewater treatments represents a major concern in terms of their potential environmental impact [1]. Therefore, several advanced treatment processes have been adopted, including the adsorptive removal of pharmaceuticals using powdered activated carbon (PAC) [2]. In order to widen the potentiality of PACs, the incorporation of magnetic iron oxide nanoparticles allows for the possibility of using an external magnetic field to separate the exhausted PAC from the treated water, since this strategy overcomes some of the limitations of non-magnetic PAC [3]

Title: Porous support for phase change materials with superior thermal performance using new personalized genetic HPRT1-deficient mouse as a pharmacological model

Ge Wang & Ang li

Phase change materials (PCMs) have been widely developed in thermophysical storage technologies. However, issues with leakage in the liquid phase and low thermal conductivity of pure PCMs block their real-world applications.

Typically, porous support can stabilize the PCMs through surface tension action and capillary forces. However, support with high porosity usually leads to amorphous structures and low thermal conductivity, which is inadequate for meeting most power conversion targets.

Title: The Removal of Pb(II) by using amidoxime-modified polyacrylonitrile-grafted-cassava starch

Ja'afar Yusuf

The presence of heavy metal ions in the environment is one of the serious threatens for human health. Heavy metal pollutants have accumulating characteristics in nature, non-biodegradable with high toxicity even at trace concentrations. Pb(II) is associated with kidney and liver damage, anaemia, central nervous system problem and effects enzymes in living organism due to its high affinity towards ligands containing nitrogen and sulphur donors.

Adsorption is regarded as a practical treatment method due to its low cost, high adsorption capacity, easy metal recovery and reusability

SPEAKER SLOTS AVAILABLE

Title: Synthesis, antimicrobial evaluation and theoretical studies of Novel heterocycles from Poly (ethylene terephthalate) plastic waste

Asmaa M Fahim

Eco-friendly energy source was used for the degradation of Poly(ethylene terephthalate), which used as a versatile intermediate for the synthesis of a form of heterocyclic compounds. The structures of the newly synthesized compounds such as IR, mass, 1H and 13C NMR spectral data.

Some of the new heterocyclic compounds exhibited promising antimicrobial activities. Computational study calculations at the B3LYP/6-31G level of theory have been carried out to investigate the equilibrium geometry of the pyrazolo[1,5-a]pyrimidine 16.

Title: Synthesis, structural characterization, thermal behaviour and antimicrobial activity of copper, cadmium and zinc chelates of traizole-thiole ligand in comparison with theoretical molecular modelling

Hayam A. Abd El Salam

This research involved structural and molecular behaviour of the ligand HL, 4-amino-5-(2,2-dichloro-1-methylcyclopropyl)-4H-1,2,4-triazole-3-thiol toward the transition metal ions namely Cu (II), Zn (II) and Cd(II) had been studied using magnetic, electronic, elemental analyses, 1H-NMR, FT- IR and Thermal analyses (TGA and DTA). The interpretation of practical data obtained had been evaluated and confirmed bytheoretical molecular modelling. The computations had been done by software of Gaussian 09W package.

Title: Thermodynamic and physical study of [hmim]Cl + (1-pentanol or ethylene glycol) mixtures at various temperatures

Fakhri Kermanpour

Densities, viscosities, and refractive indices for pure compounds of 1-hexyl-3-methyl imidazolium chloride ([hmim]Cl) (IL), 1-pentanol, and ethylene glycol (EG), along with their binary mixtures of {x1[hmim]Cl + x21-pentanol} and {x1[hmim]Cl + x2EG} were measured over the entire composition range at temperatures (293.15 to 333.15) K and ambient pressure. The excess molar volumes and viscosity deviations for the binary mixtures were calculated from the experimental data

SPEAKER SLOTS AVAILABLE

Title: Respiratory disorders in cement workers in Togo

HINSON Antoine Vikkey

Cement Manufacturing Creates a dusty environment that constantly exposes workers. The aim of this study was to determine the extent of respiratory disturbances among cement workers in the city of Lomé in Togo.

It was a cross-sectional study that recruited 74 cement workers. They were submitted to the British medical research council (BMRC) questionnaire and then to a spirometry with the Spirobank spirometer. Particulate matter measurements were made in the factory.

Title: The complex approach to estimate the flooding situation with resulting social and economic damages

Nikolai Sheshko

The complex o algorithms and software solutions for calculating the floodplain inundation zone during river floods is presented, which includes obtaining and analyzing hydro meteorological information with modern measurement technologies, probabilistic statistical prediction of the hydrograph shape, as well as using the results to predict the water level at control points of the river during the spring flood and calculate the expected flooding according to the forecast with estimating the relevant risk's based on the territory urbanization and the economy use.

Title: Assessment of oil pollution of surface waters in Belarus

Maksim Bogdasarau

Petroleum products in the form of oil, fuel oil, kerosene, oils and impurities are among the most dangerous environmental pollutants and they negatively affect surface waters in Belarus. The article presents the results of a comprehensive study of oil pollution of surface waters in Belarus according to the National system of environmental monitoring for the period from 1994 to 2014 at 107 sites. A detailed description of the current state of waterways and water bodies for oil pollution is given

SPEAKER SLOTS AVAILABLE

Title: Extreme values of soil moisture in the territory of Belarus

Natallia Shpendik

Zoning according to the extreme values of reserves for the territory of the Republic of Belarus was performed. The obtained values allow us to determine dry and wet lands in the country.

As a result of research the quantitative characteristics of areas with unstable wetting of the territory were obtained. The layer of mean annual humidity for the territory of Belarus is equal to 76 mm for a half-meter layer, and 139 mm for a meter layer. To identify the spatial-temporal criterion of variability of productive moisture reserves the soil moisture values of 5% and 95% probabilities were used in relation to the average soil moisture value for Belarus. Extreme years of rare repeatability of values of soil humidity below 5% and under 95% are accepted.

Title: Experimental micro emulsion flooding study to increase low viscosity oil recovery using Glass Micro-model

Hamed Hematpur

Chemical flooding is one of the Enhanced Oil Recovery methods. However, there is not much reported experience in the literatures that compared the macroscopic and microscopic efficiency of different EOR methods.

In this work, several micro emulsion flooding tests were performed on glass micromodel as porous medium. Two different One-quarter 5-spot network patterns were utilized for these tests. Image analysis technique were applied and saturation of phased with different color within the micromodel were measured

Title: Creating a sustainable rail network: Sustainability, new energy sources and renewable by implementing technologies to optimize energy usage

Lakshmi Narayanan

Customer-driven Embed a culture where dialogue with customers puts them at the very heart of the railway, and where they are able to make optimal travel and logistics choices.

Putting rail in reach of people Position rail as an inclusive, affordable and accessible transport system through the provision of information and accessible facilities.

Providing an end to end journey Work together with all transport modes to provide an integrated, accessible transport system

SPEAKER SLOTS AVAILABLE

Title: Melamine-Ceramic membrane for oily wastewater treatment

M.E. Ossman

Oily wastewater presents noteworthy dangers to the soil, water, air and individuals as a result of the perilous idea of its oil substance. Without a doubt, powerful treatment of oil tainted water is basic before its release into nature, keeping in mind the end goal to counteract contamination issue for biological communities and in addition for human wellbeing. For that reason, two distinctive ceramic membranes have been synthesized using bentonite and with expansion of melamine. The manufactured membranes have been characterized and the outcomes demonstrated that the addition of melamine to the bentonite enhanced the porosity and water permeability of membranes.

Title: Atomic Absorption Spectrophotometer (AAS) estimation of heavy metal and trace element from herbal cosmetics prepared in Bauchi, Nigeria

N.S. Gin

In the present study six (6) elements, arsenic As, cadmium Cd, lead Pb, copper Cu, magnesium Mg and zinc Zn were estimated quantitatively in three (3) herbal cosmetic formulations by atomic absorption spectrophotometer (AAS) between August and December 2013. The quantitative analysis was done in triplicate.

Three (3) samples of marketed herbal cosmetics preparation (soap) were collected from local market of Bauchi, Bauchi state. The brand name of the collected herbal cosmetics were blinded and given the code A, B and C. A wet digestion method was used to digest the samples and analyzed quantitatively. 1000 ppm AAS standard solutions of the elements to be analyzed were prepared and diluted in five (5) different serial dilution concentrations to obtain calibration curve for the quantitative analysis.

Title: The accumulation and uptake of potentially toxic metals by vegetable plants grown in fertilizer amended soil

Sesugh Ande

In this study, an urban soil was amended with some commonly used fertilisers and effects on the concentrations and bioavailabilities of potentially toxic metals (PTM) studied through plant uptake experiment. A suite of PTM (As, Cd, Cr, Cu, Fe, Mn, Ni, Pb, U, and Zn) was quantified in sample digests and extracts using inductively coupled plasma mass spectrometry. Uptake of PTM by bean plants grown in 2% chicken manure amended soil, and by radish grown in 2% chicken manure, 0.2% growmore fertiliser or 2% chicken manure + 0.2% growmore fertiliser amended soil were studied.

SPEAKER SLOTS AVAILABLE

Title: Synthesis, characterization and green environment heavy metal-ions removal application of new Functional MOFs

Ali Morsali

Among continuing investigations in solid state chemistry, MOFs are the class of promising materials which attracted tremendous amount of attention in the past two decades. MOFs are regarded as a subclass of coordination polymers (CP) which are constructed by self-assembly of metal ions or metal clusters linked together by organic ligands containing multiple binding sites oriented with specific angularity generating structures with permanent porosity, high specific surface area and tunable topology that can be used in different fields such as gas adsorption [1], separation [2], catalysis [3], sensing [4] and drug delivery [5]. Modifying pillar moieties as a third building blocks of pillar-layered MOFs, together with metal nodes and oxygen donor linkers can enhance controlling structure assembly and led to specific properties into obtained structures.

Title: Adsorption studies of Cr (VI), and Cu (II) metal ions from aqueous solutions by synthesized Ag and Mg co-doped TiO2 nanoparticlesin Golden Syrian Hamsters

Ravi Chandra Babu

The present communication provides the eliminating of heavy metals from water resources using Ag-Mg/TiO2 nano particles. The Nanoparticles with a size of 15nm were synthesised using sol-gel technique .The doped oxide is subsequently used for the removal of Cr (VI) and Cu (II) from waste waters. Batch sorption studies were carried out to investigate the adsorption of the above trace metal ions for a concentration range of 0.1 mg/L to 10 mg/L. The maximum sorption capacity values were found to be 2.42 mg/g for Cr (VI) and 2.03mg/g for Cu (II) at a concentration of 0.1 ppm..

Title: The present communication provides the eliminating of heavy metals from water resources using Ag-Mg/TiO2 Nano particles. The nanoparticles with a size of 15nm were synthesised using sol-gel technique. The doped oxide is subsequently used for the removal of Cr (VI) and Cu (II) from waste waters. Batch sorption studies were carried out to

Lydia O. Amponsah

Informal e-waste recycling in Ghana has long been of concern, but there seems to be inconclusive findings on the extent of pollution and the risks posed to human health and to the environment. This study assessed the concentrations of selected heavy metals (Hg, Pb, Zn, Cd, Cr, As, Ni and Cu) in soil and water samples from Agbogbloshie using inductively coupled plasma-optical emission spectroscopy. The risk of exposure through water and food were also determined (a pilot study was done on food since the contribution of the site to food contamination is unknown).

SPEAKER SLOTS AVAILABLE

Title: Effect of Acoustic Environmental Pollution (AEP) on students' health implication and learning outcomes in science, university of Calabar, Nigeria

Neji, Hope Amba

The study investigated the effect of acoustic pollution (AEP) on students' health and learning outcomes in the Department of Science Education, University of Calabar, Nigeria. Acoustic pollution is the propagation of noise or sound with harmful effect on the activities on students or human being living in an environment. The sources of acoustic environmental pollution worldwide are vehicles, machines and animals.

Title: Studies of oxidation rates of some industrially important cyclic alcohols using KIO4 in acidic medium

D V Prabhu

Oxidation of alcohols by organic oxidants has been widely reported in literature but very few reports are available on the use of inorganic oxidants to oxidize alcohols to the corresponding carbonyl compounds. This paper deals with the first order kinetics of the controlled oxidation of the industrially important cyclic alcohols, Cyclopentanol,Cyclohexanol and Cylcooctanol by KIO4 in acidic medium.

Cyclopentanol is used in the preparation of dyes and pharmaceuticals and as a solvent for drugs.Cyclohexanol is used as a feedstock in the polymer industry as a precursor to nylon and plasticizers.

Title: Assessment of environmental risk associated with water and sediments sourced from freshwater systems in highly contaminated areas

Mathapelo P Seopela

Statement of the Problem: As a developing economy, South Africa has historically been, and is presently, marred by environmental issues. These emanate from various anthropological pressures related to industrial, agricultural and domestic-related activities. The most notable of these issues being contamination of freshwater systems in heavily industrialized areas, particularly those in the northern-most regions of South Africa.

SPEAKER SLOTS AVAILABLE

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