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Part I　Conference Schedule

Time: April 19-21, 2025
Location: Guilin Grand Link Hotel 桂林桂山华星酒店

Date	Time	Location: Lobby, 1st floor
Apr. 19	**14:00-17:00**	**Registration**
Date	**Time**	**Conference Room: TBD, 2nd floor**
Apr. 20	**08:30-12:00**	**Environmental Science** **Keynote Speech Session 1** **Prof. Vera Terekhova,　Prof. Kamila Kydralieva,** **Dr. Waseem Hayat, Assoc. Prof. Dr Fauziah Shahul Hamid,** **Prof. Desheng Pei** **Chair: TBD** **Group Photo & Coffee Break: 09:50-10:00**
	12:00-13:30	**Lunch　[Western Restaurant, 1st floor]**
Date	**Time**	**Conference Room: TBD, 2nd floor**
Apr. 20	**14:00-18:00**	**Environmental Science** **Keynote Speech Session 2** **Assoc. Prof. Ir. Dr. Goh Wan Inn, Prof. Bang-fuh Chen,** **Prof.Chuanhui Gu, Prof. Jinxi Zhang,** **Dr. BATAVA NADZEYA,** **Prof. Shevchuc Anatoly Vasylyevich** **Chair: TBD** **Group Photo & Coffee Break: 16:00-16:10**
	18:00-19:30	**Dinner　[Western Restaurant, 1st floor]**
Date	**Time**	**Conference Room: TBD, 2nd floor**
Apr. 21	**08:30-12:00**	**Environmental Science** **Keynote Speech Session 3 & Technical Session** **Prof. Hossein Ganjidoust, Prof. Changwei Pang,** **Dr. Tadevosian Armen, Dr. Bita Ayati** **Chair: TBD** **Group Photo & Coffee Break: 09:50-10:00**
	12:00-13:30	**Lunch　[Western Restaurant, 1st floor]**

Part II Keynote Speeches

Keynote Speech Session 1

Speech 1: MELANIN-CONTAINING FUNGI: INDICATION OF CHEMICAL SOIL POLLUTION AND BIOTECHNOLOGICAL POTENTIA

Speaker: Prof. Dr. Vera Terekhova, Lomonosov Moscow State University, Russia
Time: 08:30-09:10, Sunday Morning, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
Micromycetes are one of the most extensive ecological groups of organisms that ensure the "health" of natural ecosystems. The involvement of mycobiota parameters in the biodiagnostics of the ecological quality of natural environments is an actual technological technique necessary for improving the system of ecological risk assessments. Soil micromycetes respond to changes in the physical and chemical parameters of the environment, primarily the content of organic matter. In this regard, in our studies, the task of establishing regularities in changes in mycobiotic parameters in soils of different humus status under similar conditions of technogenic load is considered as a priority task.

The issues of widespread use of mycological indices remain debatable due to the relatively high resistance to pollutants. For a practical assessment of ecological risk, such parameters of mycobiota as the frequency of occurrence of indicator species, the proportion of melanized forms, diversity indices, and some others are appropriate. Modern methodological approaches and methods open up possibilities for analyzing fungal communities at a new level with the involvement of biochemical markers of community reconstruction, which allow for mass screening of the structure of communities (metagenomics, lipidomics) and statistical models for analyzing the distribution of species sensitivity, in particular, according to the SSD (Species Sensitivity) type. distribution).

On the example of the results of mycoindication of radioactive contamination of soils in uranium mine dumps (Kadji-Sai village, Kyrgyzstan), critical values of six indicators of soil contamination are estimated to provide a given acceptable probability of environmental risk. Based on the SSD model, an original method for substantiating the environmental risk of technogenic soil pollution is proposed. An analysis of the distribution of melanin-containing fungi in contaminated soils emphasizes the significant role of the level of organic matter in determining the bioindicative reliability of this indicator of mycobiota.

Speech 2: TBD

Speaker: Prof. Kamila Kydralieva, Department of Contructional Materials, Moscow Aviation Institute, Russia
Time: 09:10-09:50, Sunday Morning, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
TBD

Speech 3: Insight into the degradation of pesticides in water by activated persulfate oxidation

Speaker: Dr. Waseem Hayat, School of Chemical Engineering, Huaqiao University, China
Time: 10:00-10:40, Sunday Morning, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
Persulfate oxidation has been one of main in-situ chemical techniques to remediate the water pollution due to its strong oxidation ability. However, persulfate oxidation is usually more effective after the activation of applied persulfate salts by using different catalysts. Transition metals, due to their natural abundance, lower cost and the environmentally friendly behavior have got wide spread attention for utilization as the catalysts in persulfate activation to generate reactive radicals for subsequent oxidation of various water pollutants. Meanwhile, water pollution caused by pesticides have been a global issue of concern because of their higher leachability, easy transportation and long-duration persistence in the environment. We have earlier shown through a couple of publications that transition metals activated persulfate has been an efficient technique to oxidize the pesticides in water through the reactive radicals like sulfate radical, hydroxyl radical or superoxide radical. During my keynote talk, the synthesis of metals-based catalyst, their characterization (XRD, BET, SEM, FT-IR) and the application in activated persulfate oxidation will be oversighted. Further, the efficiency of these catalysts and the influence of associated parameters on oxidation efficiency will also be discussed.

Speech 4: PERVASIVE THREATS: THE ECOTOXICOLOGY OF PLASTICS AND MICROPLASTICS FROM LAND TO SEA

Speaker: Assoc. Prof. Dr Fauziah Shahul Hamid, Institute of Biological Sciences, Faculty of Science, Universiti Malaya, Malaysia
Time: 10:40-11:20, Sunday Morning, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract

Once regarded as a minor environmental concern, plastic pollution has escalated into one of the most pervasive and urgent environmental threats of the 21st century, with profound implications for both terrestrial and aquatic ecosystems. An estimated 8 million metric tons of plastic enter the world's oceans each year, contributing to a global crisis that impacts biodiversity, ecosystem health, and human well-being. As plastics degrade into smaller particles, they form microplastics (particles <5 mm), which have been detected in every major marine and freshwater system. Recent studies indicate that over 90% of surface water samples from remote oceanic regions contain microplastic debris, while terrestrial environments—from agricultural soils to urban landscapes—are also increasingly contaminated. The ecotoxicology of plastics and microplastics is a growing concern due to their potential to leach toxic additives such as phthalates, heavy metals, and persistent organic pollutants (POPs). These chemicals, when released into ecosystems, pose significant risks to organisms across the food chain. Laboratory studies have shown that microplastics can reduce reproductive success in marine organisms by up to 40%, while exposure to plastics has been linked to altered feeding behavior, reduced growth rates, and increased mortality in a variety of species. Moreover, microplastics are now recognized as vectors for the transport of invasive species and pathogens, further exacerbating the ecological consequences. This review paper will explore the emerging science of plastic and microplastic ecotoxicology, highlighting key findings from global studies and addressing the potential impacts on food security, human health, and environmental sustainability. Additionally, innovative strategies for mitigating the environmental impacts of plastic pollution—including the role of policy, technology, and public awareness—will be discussed. By examining scientific advancements, meaningful change in the battle against plastic contamination will be derived, with a particular focus on both preventative and remedial approaches.

Speech 5: Exploring the Health Risks Associated with Phthalate Acid Esters and Their Metabolites

Speaker: Prof. De-Sheng Pei, School of Public Health, Chongqing Medical University, China
Time: 11:20-12:00, Sunday Morning, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
Phthalate Acid Esters (PAEs) and their metabolites, particularly Mono-2-Ethylhexyl Phthalate (MEHP), are widespread environmental contaminants with significant health implications. This study explores the health risks associated with PAEs and MEHP, focusing on their toxicological profiles and mechanisms of action. DEHP, a common PAE, was found to exhibit prominent toxicity, affecting reproductive, metabolic, and neurological systems. DEHP exposure during critical developmental periods increases the risk of neurobehavioral disorders, with sex-specific effects persisting into adulthood. Molecular docking studies reveal DEHP's high binding affinity to estrogen receptors, suggesting its xenoestrogenic potential. Transcriptome analysis identifies the progesterone receptor (Pgr) as a key target in DEHP-induced male reproductive toxicity. Additionally, MEHP, the primary metabolite of DEHP, was shown to impede zebrafish embryo growth and neurodevelopment, inducing oxidative stress and brain cell apoptosis. RNA-Seq analysis revealed MEHP's impact on nervous system pathways and immune system responses. These findings underscore the need for regulatory actions to mitigate the health risks posed by DEHP and MEHP, highlighting their endocrine-disrupting and neurotoxic effects.

Keynote Speech Session 2

Speech 6: MECHANICAL PROPERTIES OF GREEN PAVER BLOCK WITH TEXTILE DYEING EFFLUENT SLUDGE ADMIXTURE

Speaker: Assoc. Prof. Ir. Dr. Goh Wan Inn, Faculty of Civil Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia
Time: 14:00-14:40, Sunday Afternoon, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract

Today, the construction industry is witnessing rapid growth, and the number of ongoing construction projects is increasing, which has led to an increase in the demand for construction necessities such as paving blocks. The surge in activity raises concerns regarding preserving natural resources even if it also represents an important development in the construction industry. This research investigates the incorporation of Textile Dyeing Effluent Sludge (TDES) into green paver blocks, aiming to determine the mechanical properties, including density, compressive strength, and water absorption, and to analyse the optimum percentage mix ratio of TDES admixture in Green Paver Block. The study examines paver blocks with varying TDES content compared to control blocks made from natural sand and Ordinary Portland Cement (OPC). The density test assessed the mass per unit volume, crucial for evaluating compactness, porosity, and structural integrity, using precise weighing and volume calculation methods. The compressive strength test, following BS EN 12390-3:2009 standards, measures the load-bearing capacity of the blocks, focusing on TDES proportions and structural strength, indicated by cracking under a gradually applied load. The water absorption test evaluates the blocks' resistance to moisture, essential for durability, by measuring absorption percentages after water immersion. Results prove that blocks with 5-10% TDES content exhibit mechanical properties comparable to control blocks, while higher TDES percentages may be suitable for less structurally demanding applications. This comprehensive evaluation will be help in identify optimal TDES mix ratios, advancing sustainable construction practices, and contributing to innovative waste management strategies in the textile industry.

Speech 7: Renewable Wave Energy Integration with Seaweed Cultivation

Speaker: Prof. Bang-Fuh Chen, Center of Excellence for Ocean Engineering, National Taiwan Ocean University, Taiwan, China
Time: 14:40-15:20, Sunday Afternoon, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract

Climate change-induced natural disasters are increasingly prevalent worldwide, underscoring the urgent need to reduce fossil fuel usage for Earth's sustainable survival. Countries are progressively investing in renewable energy sources like wind, wave, tidal, and solar power to diminish reliance on non-renewable fuels and cut carbon emissions. Taiwan, in addition to this energy transition, has delved into marine carbon sinks, particularly oceanic and coastal blue carbon encompassing mangroves, seagrasses, and salt marshes. These ecosystems have the capacity to sequester substantial carbon amounts, converting them into stable forms stored in the soil, thereby mitigating atmospheric carbon dioxide levels.

To meet the rising demand for healthy food, algae such as Sarcodia suae (SS) are recommended for their beneficial compounds and their role in capturing CO2 and removing nutrients from coastal waters. Cultivating SS typically requires maintaining seawater temperatures below 28℃, which necessitates cooling systems, especially in tropical regions. Stirring is also essential to ensure even light exposure and prevent self-shielding during growth. However, cooling and stirring are energy-intensive, leading to a low energy return on investment (EROI) in traditional land-based macroalgae production.

Our study addresses these challenges by designing a Marine Sustainable Aquaculture System (MSAS). This system submerges the breeding tank to keep temperatures below 28℃. A point absorber wave energy harvester with a floating buoy converts up-and-down motion into rotational motion, which drives mixing blades in the tank. This eliminates the need for external cooling and stirring, significantly reducing energy consumption. Using Morison equations, we calculated the wave and current forces and determined the necessary anchoring weights for offshore deployment.

Both lab tests and coastal trials of the MSAS yielded promising results, indicating a low-cost, scalable solution for offshore seaweed cultivation. In summary, our study demonstrates that integrating renewable wave energy with seaweed cultivation effectively overcomes traditional energy inefficiencies and offers a scalable, environmentally friendly solution for marine aquaculture.

Keywords: Sustainable aquaculture, Climate change, Sarcodia suae, EROI

Speech 8: PROBING THE MITIGATION OF NITROGEN POLLUTION IN TIDAL RIVER RIPARIAN BUFFERS: THE PERSPECTIVES OF HYDRODYNAMICS, GEOCHEMISTRY, AND MICROBIAL COMMUNITIES

Speaker: Prof. Chuanhui Gu, Duke Kunshan University, China
Time: 15:20-16:00, Sunday Afternoon, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract

In the Yangtze River Delta, the nitrate released from intensive agricultural and industrial activities has overburdened the river system and posed risks to ecological health through eutrophication. Though the riparian zone offers a natural approach to mitigate nitrate pollution, how tidal fluctuations affect those functions remains unclear. Examining a tidal river riparian near the Yangtze River Estuary, this study seeks to understand the tides' influence on riparian buffer, regarding microbial community, geochemical patterns, and the overall nitrate removal. Our soil samples, collected at different distances from the river and depths, show a significant difference ($p < 0.05$) in microbial composition between the riverward and the landward areas. Adapting to the unique environmental conditions, the microbial community near the river exhibits a higher diversity with more anaerobic taxa. Also, the functional genes and their related pathways predicted by PICRUSt2 demonstrate high metabolic versatility, which is consistent with the various riverine nutrient inputs we observed. However, when it comes to denitrification, the key functional genes (narG, nirK, norB, nosZ, etc.) are generally less abundant in the riverward area. This contrast suggests that, despite the anaerobic conditions created by the tides, the active river water-groundwater interactions and the riverine nutrients interrupt and weaken nitrate removal. Furthermore, the limited amount of nitric oxide reductase-encoded norB leads to incomplete denitrification, as the riparian also shows nitrite accumulation. Our findings portray how tidal fluctuations affect microbial nitrate removal and can be instructive to conservation efforts along tidal rivers. In the face of climate change, the rising sea level rings an alarm because the changing hydrodynamics of tidal rivers can further disturb the riparian and increase nitrate pollution.

Speech 9: Innovative Recycling Method of Construction & Demolition Waste Materials

Speaker: Prof. Jinxi Zhang, College of Metropolitan Transportation, Beijing University of Technology, China
Time: 16:10-16:50, Sunday Afternoon, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract

After several decades of high-speed construction process, a huge number of infrastructures, such as buildings, roads and bridges, have been constructed, which has brought great convenience to people's life. In the same time, a big quantity of Construction & Demolition waste is generated every year in all of the world. About 30 to 50 million tons Construction & Demolition waste was generated in Beijing city every year. On the other hand, a large amount of natural resources is consumed, resulting in increased carbon emissions and depletion of natural resources. The effective way to achieve sustainable development of infrastructure construction is to reuse the recycled materials made of waste resources, such as the recycling of Construction & Demolition waste. In this study, the innovative full recycling technologies of Construction & Demolition waste is studied. Different from other countries, the Construction & Demolition waste generated in China contains a certain proportion (up to maximum 50%) of red bricks, which reduces the quality of Construction & Demolition waste and increases the difficulty of recycling. In order to achieve the full recycling of Construction & Demolition waste, the indoor experiment, outdoor experiment and application in construction project was executed. In cooperation with relevant companies, this study established the generation, collection and processing system of Construction & Demolition waste. The Construction & Demolition waste was divided to “full concrete waste” and “concrete waste containing red brick” materials based on their original sources. The Construction & Demolition waste was crushed, screened and then divided to aggregates with different size and gradation. The recycled concrete aggregate (RCA) was used to produce recycled concrete (RC)(1), (2), the aggregates containing red brick particles was used to produce cement or lime stabilized semi rigid base material of pavement(3), and the remained powder and low quality aggregate was used to produce backfilling material(4), (5). The design method of each kind of mixture was studied, and the strength formation mechanism and performance of each kind of recycled materials were well investigated. The result shows that, if the Construction & Demolition waste was properly collected, classified and processed, the Construction & Demolition waste will become the potential and possible source of civil engineering materials with good quality. The recycled concrete (RC) made of recycled concrete aggregate (RCA) can be used in the appropriate project, such as the pavement of road or square, the foundation of bridge or building, even in the important structure of buildings. The semi rigid base material made of recycled aggregates containing red brick particles has perfect performance with unconfined compressive strength 0.8 to 4.0 MPa and sufficient durability. High fluidity backfilling material made of Construction & Demolition waste is a new kind of backfilling material for using in different backfill project, such as foundation pits, underground works, pipe trenches, etc. High fluidity backfilling material has proper workability, proper and adjustable

compressive strength (0.5-8.0 MPa) and satisfied durability. The technology and materials developed by this research have been widely applied in the construction project of Beijing city and some area of China, which has generated significant social, economic, and environmental benefits.

Speech 10: SUSTAINABILITY BEYOND BORDERS: HOW BELARUS IS SHAPING GREEN AND CIRCULAR ECONOMY POLICIES

Speaker: Associate Professor Nadzeya Batava, Belarusian State University, Belarus
Time: 16:50-17:30, Sunday Afternoon, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
Belarus has long recognized the critical importance of ecological sustainability, enshrining the right to a favorable environment in its Constitution. Over the past two decades, the country's policy landscape has evolved from traditional resource management to an integrated framework that embraces green and circular economy principles. This article examines the scope and efficacy of Belarus's policy instruments, including constitutional provisions, national development strategies, and sector-specific initiatives aimed at waste reduction, resource efficiency, and climate change mitigation. By drawing on official government data, legislative texts, and comparative analysis of international best practices, the study elucidates the legal, institutional, and practical dimensions of Belarus's sustainability agenda. It identifies emerging achievements—such as progress in waste management and low-carbon transport solutions—alongside persistent challenges, including legislative gaps, implementation bottlenecks, and uneven regional capacities. Ultimately, the findings position Belarus as a case of policy-driven transformation with relevance to other emerging and transitioning economies. This research offers valuable insights for policymakers, international organizations, and scholars seeking to enhance collaborative efforts and adapt proven approaches to broader global sustainability dialogues.

Speech 11: Socio-economic contribution of specially protected areas to the development of regions

Speaker: Prof. Shevchuc Anatoly Vasylyevich, The Presidential Academy, Russia
Time: 17:30-18:10, Sunday Afternoon, April 20, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract

Annotation. The article considers the issues of increasing the contribution of specially protected natural areas (SPNA) to the socio-economic development of regions based on the development of ecological and other types of tourism. The relevance of the problem, the general state of tourism development in general, including in SPNAs, are presented. Information is provided on the development of ecological tourism in Belarus, Kazakhstan, and China. An analysis of the regulatory framework in the field of ecological tourism is given, including the implementation of the national project "Ecology" and federal projects. The study is described based on the National Park (NP) "Smolenskoye Poozerye" in order to develop a Methodology for assessing the contribution of SPNAs to the socio-economic development of the region. Calculations are given using the example of NP "Smolenskoye Poozerye", and recommendations are given for the further development of ecological tourism in SPNAs. Recommendations are offered for the development of cooperation between Russian and Chinese national parks.

Key words: SPNA, tourism, ecological tourism, national park, national project, federal project, assessment methods, region, calculations, cooperation.

In recent years, the role of both the tourism industry as a whole, and ecotourism, and tourism in other areas in specially protected natural areas (SPNA) in the economy of many countries has been growing.

According to some estimates, the cost of services related to tourism and travel in the world is estimated at almost 10 trillion US dollars. In some countries, tourism revenues approach 14% of their GDP. Thus, in France they are estimated at 8.5%, in China - at 11.3%, in Spain - at 14.3%. At the same time, due to changes in consumer behavior associated with trends in eco-consciousness and restoration of the ecosystem of Man and Nature, the contribution of ecotourism is very large. Ecotourism, including visiting SPNA, brings very tangible benefits. According to some estimates, back in 2015, the cost of ecotourism was estimated at 600 billion US dollars [1]. Now this figure has increased significantly. This is due to the formation of a new culture of travel to natural areas: the desire of people to spend more free time in nature, to visit unusual and simply attractive and beautiful natural areas, to get acquainted with rare natural objects and the animal world of territories unaffected by economic activity, as well as the development of a comfortable infrastructure for travel, transport accessibility of these territories. In addition to providing opportunities for recreation and studying nature, tourism in protected areas can contribute to the physical, mental and cultural

well-being of a person and improve the health of the population. The cost of medical services provided in protected areas through nature tourism is estimated at 8% of the total world GNP in 2017 [1]. A direct consequence of the increase in tourist activity in protected areas was the consideration of ecotourism as an important tool for implementing the principles of sustainable development and preserving biological diversity. The International Union for Conservation of Nature (IUCN) links ecotourism in protected areas with increased efficiency of protected area management based on principles of sustainable development, since it creates financial conditions and sources for the protection of nature and biodiversity in such areas, and also provides an opportunity to implement entrepreneurial initiatives and create new jobs for local populations in economically underdeveloped and depressed regions.

The contribution of tourism to the Russian economy has also been consistently increasing in recent years and currently accounts for about 4% of the country's GDP [2]. A significant part of this contribution comes from ecotourism and people visiting various categories of specially protected areas. All Russian protected areas of various levels, including reserves in terms of specially designated areas, tourist and ecological trails, are important tourist destinations, which is confirmed by statistical data on the growth in the number of visitors to such areas.

However, the real significance of ecotourism in Russia has not yet been assessed or measured in economic indicators. There is also an opinion that protected areas remove significant territories from economic circulation and create big problems for local population and business due to direct prohibition of economic activity, and thus slow down economic growth and development of regions.
At the same time, there are no assessments of the contribution of protected areas to the socio-economic development of regions. This situation leads to a lack of understanding of the need for investment in this area of development of protected areas and justification of their volumes both for individual territories and for the country as a whole. In particular, this is a factor that slows down such an area as international cooperation of national parks in promoting transboundary ecological, active, health, scientific and educational tourism in natural areas.

In this regard, it is very important for the development of tourism in protected areas to have methodological documents that provide the necessary calculations for the economic assessment of the activities of protected areas and the effectiveness of possible investments.

In total, there are 295 federal specially protected natural areas in Russia (108 state nature reserves, 63 national parks, 60 federal sanctuaries, 17 natural monuments, 47 dendrological parks and botanical gardens) and almost 12,000 natural areas of regional significance of various categories. [3] The share of the area of specially protected natural areas of federal, regional and local significance in the total area of the country is 14.3 percent.

Russian scientists and specialists have completed a study and prepared a draft methodology for assessing the contribution of protected areas to the socio-economic development of regions. The methodology is planned to be tested in the coming years in pilot regions.

Ecological and other types of tourism can play a significant role in increasing the contribution of

protected areas to regional development. Government decisions have been made in this direction and relevant projects and programs are being implemented. Similar development of ecological tourism is observed in Belarus and Kazakhstan. Of interest is China's activity in developing national parks. [4] International tourism can play a major role in the development of tourism in national parks based on cooperation between Russian and foreign protected areas, including with the BRICS countries.

Keynote Speech Session 3

Speech 12: REMOVAL OF ACID BLUE 25 USING SILICA-DOPED GRAPHENE OXIDE (GO-SIO2)

Speaker: Prof. Hossein Ganjidoust, Environmental Engineering Division, Civil and Environmental Engineering Faculty, Tarbiat Modares University, Tehran, Iran
Time: 08:30-09:10, Monday Morning, April 21, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
Acid Blue 25 (AB25) is an anthraquinone dye widely used in the cosmetics, fabric, and aluminium finishing industries. Due to its high toxicity, mutagenicity and the presence of complex carcinogenic aromatic structures, the removal of AB25 is an environmental imperative. Graphene oxide (GO) is a promising catalyst due to its unique structural properties; however, it is reportedly incapable of effectively activating persulfate.

This study investigates the impact of silica doping on enhancing GO's catalytic performance for persulfate activation in the decolorization of Acid Blue 25 (AB25). The results indicate that an equal weight proportion of GO to silica was selected as the most efficient ratio. Additionally, pH had no significant effect on removal efficiency, while temperature had the greatest impact. Within 150 minutes with 0.075 gr/L of GO-SiO2 as the catalyst and 1 gr/L of Na2S2O8 as the oxidant, the investigated process removed Acid Blue 25 up to 82%, which was 9% higher than when GO alone was used as the catalyst. For COD removal, silica doping significantly improved performance, achieving 37% removal, which is 17% higher than using GO alone.

Speech 13: Cross-cultural Ecological Governance and Global Climate Regeneration Path Analysis

Speaker: Prof. Changwei Pang, China University of Petroleum (Beijing)
Time: 09:10-09:50, Monday Morning, April 21, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
Legal system for China's response to climate change, guided by the concept of ecological civilization, is constantly improving, and ecological technology innovation is widely used in energy transition and restoration. The integration of ancient Confucian and Taoist thoughts of "the unity of heaven and man" and "the superiority of heaven and man" with modern civilization has formed a sustainable development theory system with Chinese characteristics. Culture is the core of national spirit and the source of creativity, and it is the original driving force for progress and the leading force for economic and social development. In the contemporary world, culture is facing a transformation from the pursuit of a single economic value to green creation. natural ecological environment is the "natural productive force of labor". Human virtues can not be separated from the nourishment of nature, and the natural world can cultivate a good nature. Cross-cultural ecological governance requires all countries to establish the concept of harmonious coexistence between man and nature in the process of modernization of traditional culture, and promote the integration of ecological culture and economy. It will be more efficient for all countries to form an ecological-climate community of destiny to restore the earth's natural regulation capacity than to carry out ecological projects on their own, which is the best choice for human beings. The core concept of climate regeneration is to restore the earth's self-healing ability, and to play its role in absorbing carbon dioxide and regulating temperature by protecting and restoring various ecosystems such as forests, oceans, and wetlands, as to achieve the goals of climate stability and ecological security.

1. Cross-cultural Ecological Governance: The Integration of Ecological Culture and Economy; The Low-carbon of Civilization: Low-carbon City, Low-carbon Life, Low-carbon Economy, Low-carbon Society
2. Measures to Promote Climate Regeneration: Development, Ecological Technology, Green Financial Mechanism; Low-carbon Technology, Carbon-free Technology, Carbon Reduction Technology, Carbon Removal Technology
3. Low-carbon: Low-carbon Agriculture, Industry, Construction, Transportation, Development of Carbon Trading Market
4. Energy Transition: Establishing and Perfecting the Legal System for Green Low-carbon Energy Transition, Establishing a Unified Open and Competitive Modern Energy Market System, Perfecting the Economic Incentive Policy for Energy Transition
5. Ec-Climate Community of Destiny, Climate Diplomacy

Speech 14: RUSSIAN CARBON MARKET DEVELOPMENT

Speaker: Dr. Tadevosian Armen (Sokratovich), Russian Presidential Academy RANEPA, Russia
Time: 10:00-10:40, Monday Morning, April 21, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
Following the ratification of the Paris Climate Agreement in September 2019, Russia is now entering an active phase of development with regard to carbon regulation. Russia together with many other countries has joined the global effort to limit global warming to 1.5-2 degrees Celsius by 2100, compared to the level of the pre-industrial era (i.e. the 19th century). In collaboration with domestic businesses and experts, the Russian government is developing a comprehensive legislative framework to support the country's transition to a low-carbon economy. The Russian government is also developing a carbon market and the necessary infrastructure to allow local companies to participate in carbon market projects.
In November 2020, the President signed Decree No. 666 'On the Reduction of Greenhouse Gas Emissions'. One year later, in November 2021, Prime Minister approved this Strategy until 2050. As of 24 August 2024, the Ministry of Economic Development has proposed revising the Strategy's goals in a more ambitious direction. In particular, the baseline scenario would set a target to reduce net CO2 emissions to 1.483 billion tonnes CO2 equivalent by 2030, which is 11% lower than the target set in 2021.
Furthermore, in July 2021, following extensive collaboration between government and business, the Federal Law No. 296 'On Limiting Greenhouse Gas Emissions' was adopted. This law represents a significant step forward in the development of the carbon market. The legislation introduced mandatory reporting on greenhouse gas emissions for the largest emitters (from 50,000 and 150,000 tonnes of CO2 equivalent) in two stages. Furthermore, a legal framework has been established to facilitate the trading of carbon units (offsets) and the implementation of climate projects.
In accordance with Federal Law No. 296, large emitters of greenhouse gases (defined as those exceeding 150 thousand tonnes of CO2 equivalent per year) will be required to calculate their emissions, prepare a report, and submit it to the registry from 2023. Smaller emitters (defined as those exceeding 50 thousand tonnes of CO2 equivalent per year) will be required to do so from 2025. The registry will facilitate the automatic collection of reports from Russian companies. This mechanism will form the factual basis for achieving carbon neutrality by 2060 and may also pave the way for the introduction of a carbon price in the near future.
The core component of the Russian Federation's carbon regulatory framework is the registry of climate projects and carbon units. As of February 2025, Russia has registered 50 climate projects, with a total of 88.9 million carbon units issued or planned for issuance. The outcome is highly satisfactory, but the country is aiming for even greater results.
In addition to carbon units, Russia will begin issuing the first emission performance credits in 2025, according to Federal Law No. 295. This is the verified result of implementing the established carbon allowances, expressed as the difference between the emission performance credits (so-called quota) and the actual volume of greenhouse gas emissions, equivalent to one tonne of carbon dioxide. To

date, the emission performance credits have been established as part of the pilot programme to introduce carbon regulation on Sakhalin. This experiment is carried out in accordance with Federal Law No. 34 on conducting an experiment to limit greenhouse gas emissions in certain constituent entities of the Russian Federation.

The objective of this experiment, which will run until 2028, is to achieve carbon neutrality in Sakhalin by the end of 2025. Regional regulated entities that have received quotas – carbon allowances (from 20,000 tonnes of CO2 equivalent) for GHG emissions from their operations on Sakhalin and can become emission performance credits holders, provided that the specific level of GHG emissions per year falls below the quota. In this case, the volume of the emission performance credits will be calculated as the difference between the quota (carbon allowances) and the organization's actual GHG emission level. This will be registered in the Kontur registry and will serve as the basis for issuing carbon units equal to the volume of the emission performance credits into circulation.

Russia has made significant strides over the past three-four years in developing the legislative framework and the necessary infrastructure to establish a carbon market. The country currently has both a voluntary and a regulated carbon market. By the end of 2023, more than 1,000 Russian companies had become participants in the greenhouse gas emissions reporting system. With the introduction of mandatory reporting for smaller emitters from 2025, we anticipate this figure to increase tenfold and even more.

Another key area of focus for carbon regulation is aligning standards and approaches in this market with Russia's major international partners. Primarily, this encompasses the EAEU and BRICS+ countries. Recently, the BRICS Contact Group on Climate and Sustainable Development was successfully launched, which will serve as the primary platform for developing joint initiatives and discussing ways to harmonize the climate legislation of member countries.

Keywords: carbon regulation, greenhouse gases, Paris agreement, carbon credits, carbon offsets, carbon dioxide, climate projects, BRICS.

Speech 15: APPLICATION OF A MODIFIED PHOTO-ELECTRO-FENTON PROCESS IN A NOVEL ELECTRODE BAFFLED REACTOR FOR THE REMOVAL OF AB25

Speaker: Associate Professor Bita Ayati, Environmental Engineering Division, Civil and Environmental Engineering Faculty, Tarbiat Modares University (TMU), Tehran, Iran
Time: 10:40-11:20, Monday Morning, April 21, 2025
Location: Conference Room TBD, 2nd floor, Guilin Grand Link Hotel

Abstract
In this study, a new baffle-electrode reactor was applied. Graphite plates were used as the anodic baffle-electrode, and aluminum foams were used as the cathodic baffle-electrode. Fe3O4/CNT and TiO2/CNT nanocomposites were synthesized. The TiO2/CNT nanocomposite, acting as a catalyst, was coated onto the aluminum foam to evaluate the performance of the prepared nanocomposites in a nanocomposite-modified photo-electro-Fenton process for removing Acid Blue 25 dye (AB25). After 150 minutes, a dye removal efficiency of 95.51% was achieved under optimal conditions: initial dye concentration of 100 ppm, catalyst concentration of 0.35 g/L, electrolyte concentration of 0.05 M, pH of 5, applied voltage of 7 V, and flow rate of 18 L/h. From LC-MS analysis, no mass peak reportedly associated with AB25 was seen indicating that all the parent materials had been transformed into products of lower m/z ratios heralding their complete decomposition.

Part III Technical Sessions

Technical Session

Session Chair: TBD

Location: Conference Room TBD, 2nd floor Time: TBD

Type	Title	Presenter	Affiliation
Oral	Molecular Mechanisms of Antibiotics Regulation on Microbial Dissimilatory Iron Reduction	Bowei Ouyang	China University of Geosciences (Wuhan)
Oral	Insights into the prediction and driving factors of perfluorinated and polyfluoroalkyl substances in lake sediments using machine learning models	Huiming Li	Nanjing Normal University, China
Oral	Spatial prioritization and source-oriented risk identification of antibiotics in the Yellow River	Lu Liu	Beijing Normal University, China
Oral	Spatiotemporal distribution and risk assessment of Psychoactive Pharmaceuticals in the Fenhe River Basin	Long Qingfeng	Beijing Normal University, China
Oral	Study on ultraviolet aging characteristics of microplastics in water environment and release rule of their derivatives	Jinnan Xiao	Guizhou University, China
Oral	Occurrence patterns and ecological effect of microplastic contamination in soil environmental systems	Linfeng He	Guizhou University, China
Oral	Prevalence of antibiotics and antibiotic resistance genes in the surface water of Fenhe River	Shuangrao Ma	Shanxi Agricultural University, China
Oral	The effects of exogenous amino acids on the production of microcystin variants in Microcystis aeruginosa	Yaxin Guo	Nanjing University, China
Oral	H2O activation behaviors governed by oxygen vacancy symmetry: Opposite	Xin Wang	Nanjing University, China

	toluene combustion performance under humid conditions		
Oral	High-temperature shock-resistant zeolite-confined Ru subnanometric species boosts highly catalytic oxidation of dichloromethane	Yanfei Zheng	Tianjin University, China
Oral	Adjusting the thickness of 2D zeolite platelet for efficient selective catalytic reduction of NOx with ammonia	Yanhua Wang	Tianjin University, China
Oral	Role of Artificial Intelligence in Improving Water Resource Management: From Demand Forecasting to Waste Reduction and Water Crisis Mitigation	Iman Hajirad	University of Tehran, Iran
Oral	Microstructural analysis of self-compacting concrete with solid waste powders	Muhammad Murtaza	Beijing University of Technology, China
Poster	Reliable Water Quality Prediction Using Bayesian Multi-Scale Convolutional Attention Network	Xiaolin Guo	Chongqing university, China

Part IV Technical Sessions Abstracts

Part V Instructions for Presentations

Oral Presentation

Devices Provided by the Conference Organizing Committee:

- Laptops (with MS-office & Adobe Reader)
- Projectors & Screen
- Laser pointer

Materials Provided by the Presenters:

- PowerPoint or PDF files

Duration of each Presentation:

- Regular Oral Session: 10-15 Minutes
- Keynote Speech: 40-45 Minutes

Poster Presentation

Materials Provided by the Conference Organizing Committee:

- X Racks & Base Fabric Canvases (60cm×160cm, see the figure below)
- Adhesive Tapes or Clamps

Materials Provided by the Presenters:

- Home-made Posters

Requirement for the Posters:

- Material: not limited, can be posted on the Canvases
- Size: 60cm×160cm
- Content: for demonstration of the presenter's paper

Part VI　Hotel Information

About Hotel

Grand Link Hotel 桂林桂山华星酒店

Guilin Grand Link Hotel locates on the bank of Li River in the beautiful city of Guilin which enjoys the fame as “having the best scenery in China”. Facing the city badge the Elephant Trunk Hill across the river and adjacent to the Seven Star Park and ZiZhou Island Park. It is only 10 minutes’ ride to the downtown city, the railway station, the Hi-tech Industrial Zone and International Exhibition & Conference Center, 45 minutes to Guilin Liangjiang International Airport. It is the only luxury garden resort hotel on the Li River bank and near the gardens.

Address: No. 42 Chuanshan Road, Guilin City, Guangxi Zhuang Autonomous Region, China (广西壮族自治区桂林市穿山路 42 号)

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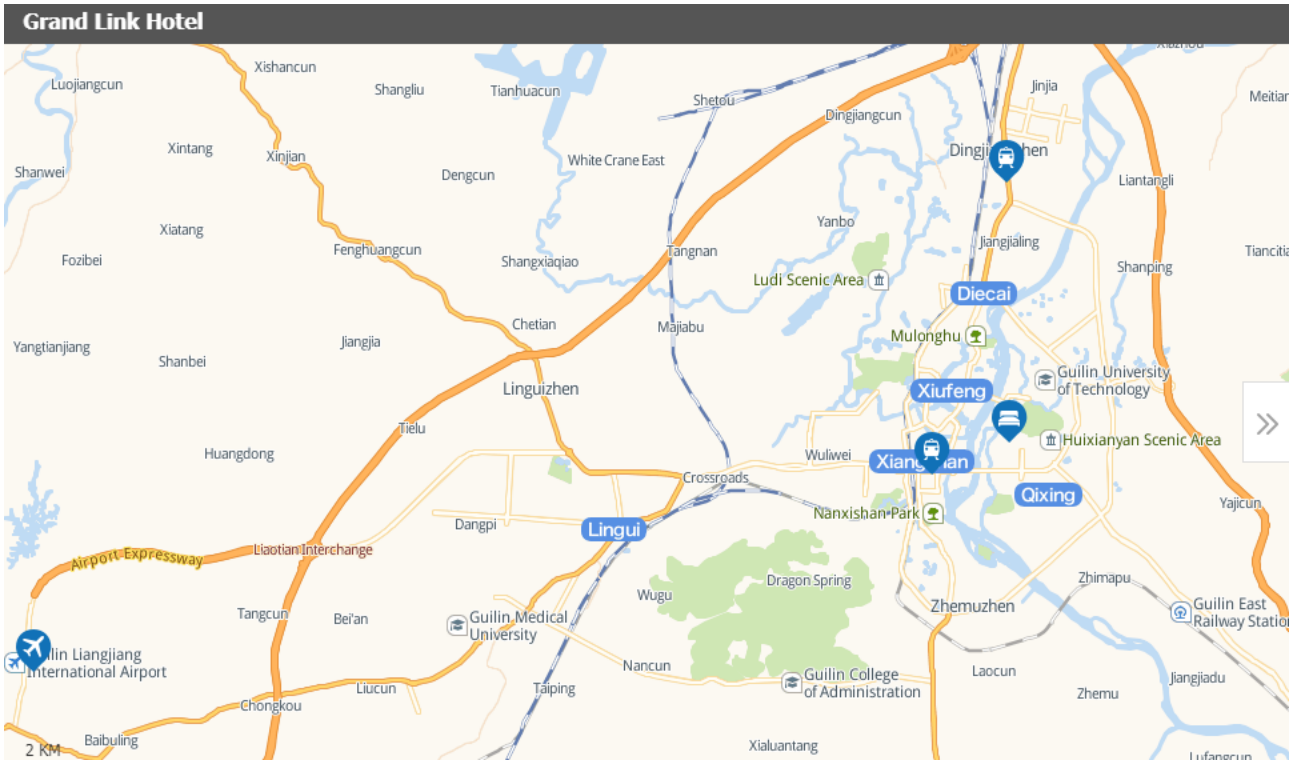
Fax：+86-773-319 9998

Website: www.guishanhotel.com

E-mail：reservations@guishanhotel.com

For non-Chinese author, please show the following info to the driver if you take a taxi:

请送我到：广西壮族自治区桂林市穿山路42号桂林桂山华星酒店



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***If you have any feedback, complaint, or suggestion, we highly encourage you to share your valuable comments with us. You can easily reach out to our President by sending an email to feedback@academicx.org. We greatly appreciate your input and believe that it plays a crucial role in improving our services and ensuring your utmost satisfaction.