



# **PROCEEDINGS OF THE 10TH WORLD CONGRESS ON NEW TECHNOLOGIES (NEWTECH 2024)**

**AUGUST 25-27, 2024 | Barcelona, Spain**

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**ISBN: 978-1-990800-45-0 | ISSN: 2369-8128**

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# WELCOME MESSAGE FROM THE CONFERENCE CHAIR

**On behalf of the International Academy of Science, Engineering and Technology (International ASET Inc.), the organizing committee would like to welcome you to the 10th World Congress on New Technologies (NewTech 2024).**

NewTech is aimed to become one of the leading international annual congresses in the fields of new technologies. This congress will provide excellent opportunities to the scientists, researchers, industrial engineers, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

While each conference consists of an individual and separate theme, the 4 conferences share considerable overlap, which prompted the organization of this congress. The goal of this undertaking is to bring together experts in each of the specialized fields, and at the same time allow for cross pollinations and sharing of ideas from the other closely related research areas.

In the tenth meeting of this conference, four Plenary Speakers and three keynote speakers will share their expertise with the aim of exposing participants to a wide spectrum of applications, and to foster crosspollination of ideas and develop new research interests. In addition, approximately 106 papers will be presented from professors, students, and researchers across the world.

We thank you for your participation and contribution to the 10th World Congress on New Technologies (NewTech 2024). We wish you a very successful and enjoyable experience.

**Dr. Devika Chithrani**

*University of Victoria, Canada  
Congress Chair and Proceedings Editor  
NewTech 2024*

**Dr. Domenico Lombardo**

*CNR - (Consiglio Nazionale delle Ricerche), Italy  
Local Chair and Proceedings Editor  
NewTech 2024*

# ABOUT NEWTECH 2024

**NewTech is aimed to become one of the leading international annual congresses in the fields of new technologies.**

This congress will provide excellent opportunities to the scientists, researchers, industrial engineers, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

There are 5 conferences included in the NewTech Congress:

**ICNFA 2024** - 15<sup>th</sup> International Conference on Nanotechnology: Fundamentals and Applications

**ICEPR 2024** - 14<sup>th</sup> International Conference on Environmental Pollution and Remediation

**ICBB 2024** - 10<sup>th</sup> International Conference on Bioengineering and Biotechnology

**ICERT 2024** - 8<sup>th</sup> International Conference on Energy Research and Technology

**ICCEIA 2024** - International Conference on Civil Engineering: Innovations & Advancements

While each conference consists of an individual and separate theme, the 5 conferences share considerable overlap, which prompted the organization of this congress. The goal of this undertaking is to bring together experts in each of the specialized fields, and at the same time allow for cross pollinations and sharing of ideas from the other closely related research areas.

- The proceedings is published in Ottawa, Canada.
- All papers were peer-reviewed
- The congress proceedings is published under an ISSN and ISBN number
- Each paper is assigned a unique DOI number by [Crossref](#)
- The conference proceedings is indexed by [Scopus](#) and [Google Scholar](#)
- The proceedings is permanently archived in [Portico](#) (one of the largest community-supported digital archives in the world)

 Google Scholar

 Scopus

 Crossref

 PORTICO

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# SCIENTIFIC COMMITTEE

We would like to thank the following for accepting to act as a member of the Scientific Committee for the NewTech 2024 Congress:



**Dr. Devika Chithrani**  
University of Victoria, Canada  
Congress Co-Chair



**Dr. Domenico Lombardo**  
CNR - (Consiglio Nazionale  
delle Ricerche), Italy  
Technical Program Chair

## Scientific Committee Members for ICNFA 2024

- **Dr. Bernadeta Dobosz**, Adam Mickiewicz University in Poznań, Poland
- **Dr. Redhouane Henda**, Laurentian University, Canada
- **Dr. Jeff Th. M. De Hosson**, University of Groningen, Netherlands
- **Dr. Rahul M. Mane**, Shivaji University, India
- **Dr. Daisuke Onoshima**, Nagoya University, Japan
- **Dr. Aimin Song**, Institute of Nanoscience and Applications Southern University of Science and Technology Shenzhen, China
- **Dr. Jules Thibault**, University of Ottawa, Canada
- **Dr. Ludwig Vinches**, École de Technologie Supérieure, Canada

## Scientific Committee Members for ICEPR 2024

- **Dr. Zeki Ayag**, University Quality Commission-Advisor, Turkey
- **Dr. Priscilla Boccia**, INAIL/DIT, Italy
- **Dr. Monika Bojko**, Jagiellonian University, Poland
- **Dr. Elisabetta Franchi**, Eni S.p.A., Italy
- **Dr. Oliver Terna Iorhemen**, University of Northern British Columbia, Canada
- **Dr. Jianbing Li**, University of Northern British Columbia, Canada
- **Dr. Charles Lee**, The University of Newcastle, Singapore
- **Dr. Woo Hyoung Lee**, University of Central Florida, USA
- **Dr. Chih-Huang Weng**, I-Shou University, Taiwan

# SCIENTIFIC COMMITTEE

**We would like to thank the following for accepting to act as a member of the Scientific Committee for the NewTech 2024 Congress:**

## **Scientific Committee Members for ICBB 2024**

- **Dr. Wensheng Qin**, Lakehead University, Canada
- **Dr. Bindu S.**, Ramaiah Institute of Technology, India

## **Scientific Committee Members for ICERT 2024**

- **Dr. Umberto Berardi**, Toronto Metropolitan University, Canada
- **Dr. Ming-Chang Lu**, National Taiwan University, Taiwan
- **Dr. Grzegorz Sierpiński**, Silesian University of Technology, Poland
- **Dr. Md Shafiullah**, King Fahd University of Petroleum & Minerals, Saudi Arabia

## **Scientific Committee Members for ICCEIA 2024**

- **Dr. Iman Hajirasouliha**, University of Sheffield, UK
- **Dr. Firas AL Mahmoud**, University of Lorraine, France
- **Dr. Danuta Leszczynska**, Jackson State University, USA
- **Dr. Jiabin Li**, Katholieke Universiteit Leuven, Belgium
- **Dr. M. Shamim Miah**, Graz University of Technology (TU Graz), Austria
- **Dr. Vipulkumar Ishvarbhai Patel**, La Trobe University, Australia
- **Dr. Cao Hung Pham**, University of Sydney, Australia
- **Dr. Roger Tilley**, University of California Santa Cruz, United States, USA
- **Dr. Kamyab Zandi**, Director and CEO at Timezyx Inc., Canada

# KEYNOTE SPEAKERS

THE PLENARY/KEYNOTE INFORMATION FOR THE 9TH WORLD CONGRESS ON NEW TECHNOLOGIES (NEWTECH 2024) IS AS FOLLOWS:

## Plenary Speakers



**Dr. Umberto Berardi**  
Toronto Metropolitan  
University, Canada  
ICERT 2024 Plenary Speaker



**Dr. Marte Gutierrez**  
Colorado School of Mines, USA  
ICCEIA 2024 Plenary Speaker



**Dr. Leon Shaw**  
Illinois Institute of Technology,  
USA  
ICERT 2024 Plenary Speaker



**Dr. Sharath Sriram**  
RMIT University, Australia  
ICNFA 2024 Plenary Speaker

## Keynote Speakers



**Dr. Valérie Cappuyns**  
KU Leuven University, Belgium  
ICEPR 2024 Keynote Speaker



**Dr. Yunhong Jiang**  
University of Bristol, United  
Kingdom  
ICBB 2024 Keynote Speaker



**Dr. Konstantinos Lagoudakis**  
University of Strathclyde, UK  
ICNFA 2024 Keynote Speaker

# ICERT 2024 PLENARY SPEAKER



**Dr. Umberto Berardi**  
**Toronto Metropolitan University, Canada**

N/A

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**Titles:** Recent Advancements in Solid Electrolytes for Rechargeable Solid-State Batteries

**Dr. Leon Shaw, Illinois Institute of Technology, USA**

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Dr. Leon L. Shaw is Rowe Family Endowed Chair Professor in Sustainable Energy and Professor of Materials Science and Engineering at Illinois Institute of Technology, Chicago, Illinois, United States. He is the founding director of NSF Center of All-Solid-State Batteries. Dr. Shaw has extensive experience in nanomaterials synthesis and processing for applications in hydrogen storage, Li-ion batteries, Na-ion batteries, solid-state batteries, and structural materials. He has authored and co-authored more than 300 archival refereed publications in these areas. Among these 300+ publications 234 are journal articles and invited chapters for books and encyclopedias. His publications have been cited more than 14,200 times with h-index of 62 and i10-index of 204 (according to Google Scholar). His publications are ranked top 1.4% citations for career-long impact among all scientific fields and top 0.2% citations for career-long impact in the subfield of “materials” (based on the composite score c compiled by Elsevier). His accomplishments are recognized worldwide with many honors and awards, including “Energy Award” in 2018 and “Scientist Medal” in 2024 presented by International Association of Advanced Materials. Dr. Shaw is a Member of EU Academy of Sciences, a Fellow of International Association of Advanced Materials, a Fellow of ASM International, a Fellow of the World Academy of Materials and Manufacturing Engineering, and a Member of the Connecticut Academy of Science and Engineering.



# ICCEIA 2024 PLENARY SPEAKER



**Titles:** Application of Machine Learning in Underground Construction and Tunneling

**Dr. Marte Gutierrez, Colorado School of Mines, USA**

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Dr. Marte Gutierrez is the James R. Paden Distinguished Professor at the Department of Civil and Environmental Engineering and the Director of the Center for Underground Transportation Infrastructure (CUT-I) of Colorado School of Mines (CSM). Previously, he worked for 11 years at the Norwegian Geotechnical Institute and six years as an Associate Professor/Professor at Virginia Tech. He has published over 370 papers in book chapters, journals, and conference proceedings, given keynote and invited lectures at several conferences. He has been responsible for more than US\$ 25 million in research funding. Dr. Gutierrez is an Associate Editor of three international journals and a member of the Editorial Board of four other international journals. He is the recipient of the 2011 Geotechnical Research Medal from the UK's Institute of Civil Engineers, the 2017 Applied Rock Mechanics Research Award and the 2020 Rock Mechanics Research Award both from the American Rock Mechanics Association, the 2016 Peter A. Cundall Honorable Mention Award, the Kwanghua Visiting Professorship from Tongji University, five Best Paper Awards and five Outstanding Reviewer and Editorial Board Member Awards. Dr. Gutierrez's main research interests are in Geomechanics for Energy, Environmental, and Transportation Sustainability.

## ICNFA 2024 KEYNOTE SPEAKER



**Titles:** Creating Products and Impact through Nanoscale Materials and Technologies

**Dr. Sharath Sriram, RMIT University, Australia**

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Professor Sharath Sriram jointly leads the Functional Materials and Microsystems Research Group at RMIT University, Melbourne, Australia. His research transforms discoveries in materials science and electronics into devices and products for high-speed electronics, sensors, and medical devices. He is Director of the Discovery to Devices Facility for scale-up manufacture of medical devices, and was Founding Deputy Director of the \$60 million Micro Nano Research Facility. He has published close to 250 peer-reviewed articles. He is active in research policy and advocacy, and is current President of Science & Technology Australia.



**Titles:** Fundamentals and Applications of Unconventional Spin Control in Nanostructures

**Dr. Konstantinos Lagoudakis, University of Strathclyde,**

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Dr. Konstantinos G. Lagoudakis is currently a Reader (Associate Professor) at the department of Physics of the University of Strathclyde. He received his PhD at the Ecole Polytechnique Fédérale de Lausanne in 2010 and has worked as a postdoctoral scholar and a research associate at Stanford University until 2017. In 2018, he joined Strathclyde where he established the Experimental Quantum Nanoscience Lab. His areas of expertise span from polariton condensates in microcavities, to the development of scalable solid-state quantum hardware. Currently he is investigating fundamental physics and applications of hybrid quantum nanotechnologies.

# ICEPR 2024 KEYNOTE SPEAKER



**Titles:** Sustainable Remediation: Challenges for an Interdisciplinary Approach to Contaminated Site Management

**Dr. Valérie Cappuyns, KU Leuven University, Belgium**

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Valérie Cappuyns obtained a Master degree in Bio-science Engineering in 2000, and a PhD degree in Geology in 2004 at KU Leuven (Belgium). After her PhD she was a researcher at the Scientific Institute for Public Health. In 2007, she returned to KU Leuven, where she is currently a professor at the Faculty of Economics and Business. She teaches courses in the field of environmental sciences. Research interests include the sustainable management of contaminated sites (soils, sediments, and waste materials), environmental geochemistry and valorisation of secondary resources. She is (co)author of more than 90 publications in international peer-reviewed journals.

# ICBB 2024 KEYNOTE SPEAKER



**Titles:** Biofabricated Advanced Materials for Diverse Applications

**Dr. Yunhong Jiang, University of Bristol, United Kingdom**

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Dr Yunhong Jiang is an assistant professor at the Department of Applied Science, Northumbria University, Newcastle, United Kingdom. He obtained a PhD in Biochemical Engineering at the University of Leeds. His postdoctoral experience included positions at the University of Leeds, the University of Bath, and the University of Bristol. His research experience focused on Microbial Cell and Materials Interactions, Biological MOFs, and Functional and Sustainable Biopolymer Materials. Through groundbreaking research, Dr. Jiang explores novel techniques and methodologies to fabricate functional materials using biological systems as inspiration. His pioneering contributions have led to advancements in areas such as tissue engineering, drug delivery systems, biosensors, and more. His work spans across the realms of biotechnology, materials science, and engineering.

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The following papers were presented at the 9th World Congress on Mechanical, Chemical, and Material Engineering (NewTech 2023)

## Bioengineering and Biotechnology

Utilizing Deep Eutectic Solvents for Hydroxide-Catalysed Synthesis of Ellagic Acid from Bio-Based Ethyl Gallate

Authors: Miša Mojca Cajnko, Anže Prašnikar, Blaž Likozar

Effect of Demographic Factors on Openness to Medical Technology

Authors: Ryan Oh, Sujata Bhatia

Reported Adverse Events for Hip Prostheses and Knee Prostheses Before, During, and After the COVID-19 Pandemic

Authors: Zehui Yi, Sujata K. Bhatia

Trends in Reported Adverse Events for Automated External Defibrillators (AEDs)

Authors: Joshua Kalarical

Investigation of Reported Adverse Events for Bioresorbable Coronary Artery Stents

Authors: Katherine Shen

Temperature Harmonic Analysis Of Austenitic Niti Under Dynamic Cyclic Loading

Authors: Valentina Pinto, Sofia Di Leonardo, Maria Galeazzo, Gaetano Burriesci, Giuseppe Pitarresi

Analysis of Imidacloprid on Tissue Section Using SALDI-MS Imaging

Authors: Yusuke Suzuki, Koichi Kitada, Shoko Matsushita, Aki Hayashi

Glycoproteins Isolated from Tongkat Ali Plants Capable to Elevate Testosterone in Both in vitro and in vivo Experiments

Authors: Jaya Vejayan, Fatinah Ahmad, Sharifah A.T. Said, Srikumar Chakravarthi, Barani Karikalan

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## Bioengineering and Biotechnology

Repetitive Paired Pulse Magnetic Stimulation Over Spinal Cord Modulates Corticospinal Pathway And Supports Balance Performance: A Randomised Placebo-Controlled Trial

Authors: Veldema Jitka, Steingraber Teni, Klemm Michel, Straub Jan, Kurtzhals Saskia, Sasse Lea

The Spinal Cord Is A Promising Alternative To The Brain For The Application Of Direct Current Stimulation In Supporting Balance Abilities: A Randomised Placebo-Controlled Trial

Authors: Veldema Jitka, Steingraber Teni, von Grönheim Leon, Wienecke Jana, Regel Rieke, Schack Thomas, Schütz Christoph

High Definition Direct/Alternating Current Stimulation of Spinal Cord in Supporting Balance and Sensitivity: A Randomised Placebo-Controlled Trial

Authors: Veldema Jitka, Steingraber Teni, von Grönheim Leon, Klemm Michel, Straub Jan, Sasse Lea

Functionalisation of Polymeric Patches for Skin Tissue Engineering Applications with Plant Oil Additives

Authors: Didem Demir

Mitral Regurgitation And Atrial Fibrillation: An Explorative Fluid-Structure Interaction Study

Authors: Giulio Musotto, Alessandra Monteleone, Danila Vella, Leon Menezes, Andrew Cook, Giorgia Maria Bosi<sup>5</sup> and Gaetano Burriesci

Investigating Sex-Dependent Differences in Tensional Homeostasis

Authors: Nourhan El Sherif, Diya Desai, Josephine Dunphy, Marin Perez, Sabrina Wilderotter, Michael Smith, Brianne Connizzo

# LIST OF PAPERS

## Bioengineering and Biotechnology

### A Fully Automatic Multi-Vendor AI-System To Segment And Predict Resistance To Treatment Of Rectal Cancer On MRI

Authors: Jovana Panic, Arianna Defeudis, Lorenzo Vassallo, Stefano Cirillo, Marco Gatti, Antonio Esposito, Serena dell'Aversana, Salvatore Siena, Angelo Vanzulli, Daniele Regge, Samanta Rosati, Gabriella Balestra, Valentina Giannini

### Solution to Global Warming By Increasing the Algae Based Products in Biotechnology

Authors: Meltem DALAY

### Development And Validation Of An AI-Based Pathomics Biomarker To Predict Response To First-Line Treatment In Metastatic Colorectal Cancers

Authors: Giulia Nicoletti, Debora Cafaro, Valentina Giannini, Gianluca Mauri, Caterina Marchiò, Luca Lazzari, Andrea Sartore-Bianchi, Federica Marmorino, Maria Nieva Munoz, Nadia Saoudi González<sup>1</sup>, Alberto Puccini, Martina Di Como, Maria Costanza Aquilano, Emanuela Bonoldi<sup>1</sup>, Salvatore Siena, Silvia Marsoni, Daniele Regge

### Environmental Factors Affecting the Growth and Phenology of Horseweed

Authors: Ishwari Bhatt

### Linear and nonlinear approaches in processing of neurophysiological data: biomedical and mathematical principles

Authors: Juliana Alexandra Knocikova

### An Investigation into EGFR Tyrosine Kinase Inhibitors: Adverse Events, Cost and Prescribing Trends

Authors: Shravani Gote

### Comparison of Reported Adverse Events for Two Plant-Derived AntiCancer Therapeutics: Paclitaxel and Docetaxel

Authors: Kaitlyn Abraham

### Adverse Effects of Selective Serotonin Reuptake Inhibitors (SSRIs)

Authors: Ria Mani

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## Environmental and Remediation

Smartphone-enabled chemical analysis for environmental monitoring in resource-poor and remote areas

Authors: Izabela Rzeznicka, Phoomwish Promthong, Harison Rozak

Photoelectro- and Photothermal-catalytic Removal of Environmental Pollutants by using 2D and 3D Graphene Oxide Materials

Authors: Jing Shang, Yuhan Liu, Kuang Yu, Mei Yu

Structure-Related Health Effects Of Atmospheric Soot Particles

Authors: Rui Tang, Jing Shang

Construction of a Novel Metal-free Heterostructure Photocatalyst for Enhanced Photocatalytic CO<sub>2</sub> Reduction

Authors: Yuhan Liu, Jing Shang, Yue Wang, Jing Peng

Post-Consumer Textile Recycling: Challenges and Opportunities, Northern Periphery and Arctic Communities' Perspective

Authors: Charmaine Medina, Tatiana Samarina, Anna Tervonen, Outi Laatikainen

Exploring Plasmonic Nanoparticles Inside Cells: A Comprehensive Methodology Integrating Spontaneous and Stimulated SERS, FACS, SEM and ICP-AES

Authors: Aleksei Smirnov, Tamasri Senapati, Ahmed Hasan, Carola Kapfer, Dominik Wigger, Burkhard Kleuser, Eckart Ruehl, Elena Solovyeva, Vladimir Sharoyko



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## Energy Research and Technology

The Application of Visibility Graph and Graph Attention Network for Urban Smart Grid Short-Term Load Forecasting

Authors: Bo Peng

A Peak-Shaving-Oriented Incentive Mechanism for Smart Grids

Authors: Fabio Lilliu, Diego Reforgiato Recupero

Predictive Modelling of PEMFC Degradation Against Hydrogen Crossover Using Machine Learning Models in Matlab

Authors: Ricky Jay Gomez, Dahlia Apodaca, Michelle Almendrala

## New Technology in Civil Engineering

Corrosion Assessment of Reinforced Concrete Structures using Ground-Penetrating Radar

Authors: Mercedes Solla, Vega Pérez-Gracia, Simona Fontul

Crack Density and Length Detection using Machine Learning

Authors: Malvika Koushik, Poorna Hegde, Bhawana Rudra

A Framework for an Optimization Process to Locate Electric Vehicle Charging Stations

Authors: Abdullah Al-Juboori, Akmal Abdelfatah, Tarig Ali

Revolutionizing Building Construction with Drone Technology – An Application Review in UAE

Authors: Yousef Alqaryouti, Mariam Al Suwaidi, Raed Mohmood AlKhuwaildi, Hind Kolthoum, Issa Youssef, Mohammed Al Imam

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## Road, Bridge and Railway Engineering

### New Insights Into Road Cavity Detection From GPR Data

Authors: Ahmed Elseicy, Mercedes Solla, Pedro Arias

### Quantifying Seismic Resilience of Highway Bridges: A Case Study using Bayesian Neural Network

Authors: Jacob Atkins, Farahnaz Soleimani, Donya Hajjalizadeh

### Kernel-based Column Drift Ratios Prediction in Highway Bridges

Authors: Sonia Zehsaz, Sabarethinam Kameshwar, Farahnaz Soleimani

### Use of LandInfra Standard for GPR Data Digitization: Towards Sustainable Road Transport Infrastructure

Authors: Gemma Guillamón-Andreu, Mercedes Solla

### Searching for Precision in Pavement Evaluation: A Comparative Analysis of Smartphones for Measuring the International Roughness Index (IRI)

Authors: Javier Vasquez-Monteros, Juan Palacios-Ortega, Paulo Samaniego-Rojas, Carola María Gordillo Vera

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## Miscellaneous Topics in Civil Engineering

### Effect of Distance on Hydraulic Efficiencies of Successively Located Grate Inlets

Authors: Cumhur Ozbey

### Development of RISHA Precast Concrete System for School Buildings Function in Indonesia's Severe Earthquake Regions

Authors: Angga Arief Gumilang Sabaruliman, Yoga Megantara, Yosafat Aji Pranata

### Hydraulic design of irrigation networks with optimization methods

Authors: Mireya Lapo-Pauta, Javier Martinez-Solano, Holger Benavides-Muñoz, José Fuerte Díaz

### Impact of Horizontal Curves and Gradient on the Speed of Heavy Vehicles on Two-Lane Rural Mountain Roads: Case of the Loja-Catamayo Road

Authors: Maria Soledad Segarra-Morales, Diego Fernando Ortega Lapo, Javier Vasquez-Monteros

### Dynamic Analysis of a Slender Building Using Two Parallel Spectral Analysis Methods

Authors: Natalia Ibarra, Alicia Arévalos, Raúl Silva, Iván Quintana, Belén Martínez-Pavetti

### Comparing Aerial Photogrammetry with UAV-LIDAR in High Vegetation Rural Areas

Authors: Freskida Abazaj, Arli Llabani, Genti Qirjazi

### Analyzing the Impact of Basalt Fiber Concrete on Continuous Beams Reinforced with BFRP Bars Through Numerical Simulation

Authors: Samar Alsaleh, Osama Mohamed

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## Building Materials

### Effect of Specimen Size and Shape on the Mechanical Properties of Recycled Aggregate Concrete

Authors: Yahya Salah, Karol Sikora, Kamal Jaafar, Sana Amir

### An Investigation on OGFC Mix Made with VG-40 and CRMB-55 Binders

Authors: Pavan Kumar Sharma, Shivani Shukla, Mahabir Panda

### Alkali-Activated Mine Tailings and Solid Wastes as Precursors for Geopolymers

Authors: Tatiana Samarina, Arturo Reyes, María Victoria Letelier, Daniza Castillo Godoy, Yimmy Silva Urrego, Jacqueline Cuevas, Esther Takaluoma

### Study Of Ceramic Masses Obtained Using Raw Materials Of Technogenic Origin

Authors: Storchai Nadiya, Nazarenko Oleksiy, Berezovska Alona, Storchai Katerina, Zalievskiy Volodymyr

### Mask Residues In Asphalt Mixtures For Roads

Authors: Ana Ortiz, Juan García, Juan Guanín

## Posters Session

### Nanotechnology Approaches for the Development of Next-Generation Dental and Personal Care Products

Authors: Radu Claudiu Fierascu, Irina Fierascu, Anda Maria Baroi, Roxana Ioana Matei (Brazdis), Toma Fistos, Irina Elena Chican, Ioana Silvia Hosu, Lia Mara Ditu

### Development of New Nanomaterials and Nanocomposites for Environmental Protection

Authors: Irina Fierascu, Radu Claudiu Fierascu, Anda Maria Baroi, Roxana Ioana Matei (Brazdis), Toma Fistos, Irina Elena Chican, Ioana Silvia Hosu

### Development Of Glaucoma Fibrous Implant Made From PVDF And PEO

Authors: Radek Jirkovec, Anna Tauchmanova, Andrea Klapstova, Jiri Chvojka

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## Posters Session

Sn(IV) porphyrin-Incorporated Metal Oxide Nanomaterials for Visible Light-Active Photocatalytic Water Remediation

Authors: Nirmal Kumar Shee, Hee-Joon Kim

Promotional Effects And Risks Of Multi-Walled Carbon Nanotubes On Phytoremediation Of Plastic Films

Authors: Haoran Liu, Lena Ciric, Manni Bhatti

Automated Weighing of PM Filters: Impact of Equilibration Duration

Authors: Kamila Widziewicz-Rzońca; Patrycja Rogula-Kopiec; Sławomir Janas; Piotr Oskar Czechowski;

Mechanochemistry Applications in the Remediation of Potentially Toxic Elements

Authors: Chenhao Wu, Caroline Kirk

Evaluating The Efficiency Of Various Reactive Media Removing Uranium From Groundwater

Authors: Beatriz Carbonell, Elena Torres, Antonio Garralón, Belén Buil, María Jesús Turrero

Evaluating Microplastic Pollution in the St. John's River: A Multi-County Analysis and Exploring Novel Ferrofluid Remediation Approaches

Authors: Rhea Bagchee

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## Poster Session

### Conceptual Cloud-Based Sliding Mode Speed Control for Synchronous Motors

Authors: David Marcos-Andrade, Francisco Beltran-Carbajal, Ivan Rivas-Camero, José Humberto Arroyo-Núñez, Gilberto Alvarez-Miranda, Jose Luis Hernandez-Avila

### Effects Of Feeding Cycles On The Microbial Community In The Biofilter Of A Recirculating Aquaculture System

Authors: Martyna Godzieba, Piotr Hliwa, Slawomir Ciesielski

### Decisions Supporting System for Safety Management of Agricultural Dam in Korea Peninsula

Authors: Byoung-Han Choi, Baeg Lee, Seok-Man Kang

### Experimental Modelling of Washboard Phenomenon in Unpaved Roads

Authors: María José Torres, Bernardo Caicedo, Pablo Alvarado, Laura Ibagón Fabricio Yépez

### Enhancing Nonlinear Solitary Wave Propagation Device using PLA Plate

Authors: Pablo Alvarado, Bernardo Caicedo, María José Torres, Juan P. Villacreses, Fabricio Yépez

### Plasma Treatment for Mould Inactivation on Building Materials: Surface Coverage Evaluation with Automated Image Analysis

Authors: Mária Domonkos, Petra Tichá, Jana Jirešová, Eliška Lokajová, Kamila Zdeňková, Vladimír Scholtz, Pavel Demo

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## Poster Session

Model-Based Analysis of Effective Inactivation of *Aspergillus Brasiliensis* by Non-thermal Atmospheric Plasma

Authors: Petra Tichá, Mária Domonkos, Filip Přeučil, Eliška Lokajová, Jana Jirešová, Kamila Zdeňková, Vladimír Scholtz, Pavel Demo

Integrating Sea Level Considerations into Civil Engineering Practice

Authors: Bledar Sina, Eduart Blloshmi, Arli Llabani

A Comparison of Photogrammetric Methods for the 3D Surveying of Civil Buildings

Authors: Arli Llabani, Eduart Blloshmi, Bledar Sina

GNSS “Global Navigation Satellite Systems” Applications in Modern Civil Engineering Projects

Authors: Eduart Blloshmi, Bledar Sina, Arli Llabani

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## Innovations and Advancements

Digital Twin Applications In Construction: Creation And Interaction Of Virtual And Data Layers

Authors: Yingpei Sun, Qing Wang, David Toll, Stefan Szyniszewski<sup>1</sup>

High-Static-Low-Dynamic Vibration Isolator Component Designed By Topology Optimization with Hyperplastic Material

Authors: Yu-Hsin Kuo, Wen-Nan Cheng, Chih-Chun Cheng, Chung-Yu Tsai, Tzu-Fan Chiang, Cheng-Kuo Sung, Chien-Sheng Liu

Enhancing Construction Efficiency through Last Planner System: A Study of Cultural Integration and Team Feedback Dynamics

Authors: Rozi Karimi, Milad Baghalzadeh Shishehgarkhaneh, Robert C. Moehler, Yihai Fang

Calculating Rainfall Flow in a Substation Hydraulic System

Authors: Varvara Roubtsova, Mathieu Emond-Castonguay, Nathalie Thibeault

Bond Performance of GFRP Bars Embedded into Low Carbon Concrete and Portland Cement Blocks

Authors: Manjola Caro, Victor Wiles, Matthias Nahum

Development of a New Laboratory Earthquake Setup Featuring a Paraffin oil-based Gel as Analogue Material

Authors: Abdallah Aoude, Ioannis Stefanou, Jean-François Semblat, and Vito Rubino

Integration of Finite Element Simulations and Experimental Validation in the Analysis of Demountable Clamp Joints for Steel Structures

Authors: Fernando Nunes Cavalheiro, Manuel Cabaleiro, Borje Conde<sup>1</sup> Brais Barro

Agile Frameworks in Construction Project Management: A Systematic Review

Authors: Yvan Huaricallo Vilca, Jeremy Becerra León



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## Innovations and Advancements

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