

**11th International
Conference on Energy and
Environment
2023**

Energy Security and Resilience

**FINAL
PROGRAM**

ABOUT THE ORGANIZERS

National University of Science and Technology POLITEHNICA Bucharest



National University of Science and Technology POLITEHNICA Bucharest (NUSTPB) is a comprehensive university with centuries of tradition. The university branches are positioned strategically in the most industrially developed areas of the country. The Bucharest Branch is the largest and oldest technical university in the country. Since its foundation in 1818, it has worked towards accelerating the industrial revolution of the country and becoming a scientific and cultural hub, not only for the academic community, but for the entire society. The Pitești Branch has been recognized since its foundation in 1962, as the main source of highly qualified specialists in various fields like science, arts, philology, law, economics, automotive engineering and sports. It continues to spark the

interest of many students from all over the world, being one of the largest and oldest centers for teaching Romanian to foreign students.

NUSTPB is now the largest university in the country, with 21 faculties and over 38.000 students, having access to 87 cutting-edge Research Centers and a total of 380 Bachelor and Master's programs of which 55 are taught in English, French, and German. NUSTPB has a constant collaboration with most major companies in the region and the students benefit from internship agreements with almost 1000 international companies.

Academy of Romanian Scientists



At the first congress organised to celebrate 40 years since the Association of Romanian Scientists was established, with the topic „Science at the End of the Millennium”, General Professor Dr. Vasile Căndea, PhD. proposed the return of the institution to the appellation it had between 1935-1948, namely that of „ACADEMY”, while preserving certain elements of the title of the association, and thus the designation became „Academy of Romanian Scientists”, hereinafter abbreviated AOSR.

The adoption of the name of „Academy of Romanian Scientists (AOSR)” was approved by the General Assembly of AOSR of 22-24 May 1996, held under the title „First Congress of AOSR” in the Parliament House, and in the presence of many members of the Romanian Academy (Eugen Simion, Vice President of the Romanian Academy, Marius Sabin Peculea, General Secretary of the Romanian Academy, N.N. Constantinescu, former General Secretary of the Romanian Academy between 1990-1994, Alexandru Balaci, Mihnea Gheorghiu, President of the Section “Arts, Architecture and Audiovisual” of the Romanian Academy, Nicolae Cajal, President of the Section “Medical Sciences” of the Romanian Academy, Cristofor Simionescu, Vasile Stănescu, Toma Dordea, Constantin Bălăceanu-Stolnici, Gabriel Țepelea, Răzvan Teodorescu, Dorel Zugrăvescu), of prominent members of AOSR (Dan Amedeo Lăzărescu, Corneliu Coposu) and 40 scientists from abroad. Mr. Eugen Simion, Vice President of the Romanian Academy at that time, participated as member of the presidium general assembly. None of the attendees objected the proposal of debating the change of the name, and the decision was unanimously adopted.

The Academy of Romanian Scientists is the successor and only heir of the Academy of Sciences of Romania (1936-1948) and of the Association of Romanian Scientists, founded by HCM no.1012 / 30 May 1956, and which in 1996 changed its name from Association of Romanian Scientists in Academy of Romanian Scientists (court order of 3 October 1996, adopted by the Bucharest District 1 Court, File 231 / P.J. / 1996).

WEC-Romanian National Committee



The World Energy Council is the principal impartial network of leaders and practitioners promoting an affordable, stable and environmentally sensitive energy system for the greatest benefit of all.

Formed in 1923, the Council is the UN-accredited global energy body, representing the entire energy spectrum, with more than 3000 member organisations located in over 90 countries and drawn from governments, private and state corporations, academia, NGOs and energy-related stakeholders.

The World Energy Council informs global, regional and national energy strategies by hosting high-level events, publishing authoritative studies, and working through its extensive member network to facilitate the world's energy policy dialogue.

The World Energy Council is the world's principal network of energy leaders and practitioners. The organisation has a co-ordinating Secretariat based in London, United Kingdom, under the direction of the Secretary General who reports to the WEC's board, the Officers Council, under the leadership of an elected Chair.

The key functions of the WEC are guided by the Standing Committees, made up of elected members from across the world. The WEC gathers annually for an Executive Assembly to agree the strategic direction of the organisation.

WEC's National Member Committee operates independently under a regionalised structure, with elected Regional Vice Chair's to oversee activities and ensure coordination.

Since it was created in 1923, when visionary Daniel Dunlop brought together 40 countries to discuss the problems facing the global energy industry, the WEC has been non-governmental and non-commercial. Founded in the aftermath of war, it has withstood many changes, from geopolitical and economic upheavals to a complete shift in the way people understand and use energy. It has had to adapt to a changing world without ever straying from the initial concept of an organisation that is impartial, objective and realistic in its analyses and in its agendas for action in order to promote sustainable energy for all.

Today, the WEC has almost 100 national member committees, and its member list includes governments, businesses and expert organisations. The World Energy Congress, held over 20 times since the WEC's founding, is recognised as the world's premier energy gathering. As we move forward through the 21st century, the WEC continues to grow and expand, building on its long and stable history as one of the key players on the global energy scene.

COMMITTEES

Conference Program Committees

- **Adrian Badea** – *Conference Chair, IEEE member*
- **George Darie** – *Conference Co-chair, IEEE member*
- **Mircea Eremia** – *IEEE Romania Section, Nominations and Appointments Chair*
- **Horia Necula**, *IEEE member*
- **Claudia Popescu**, *IEEE member*
- **Lăcrămioara - Diana Robescu**, *IEEE member*
- **Lucian Toma** - *IEEE Romania Section Chair*

Technical Program Committees

- **Constantin Bulac** - *IEEE member*
- **Roxana Pătrașcu**
- **Mihaela Diminescu**
- **Virgil Dumbravă** - *IEEE member*
- **Constantin Ionescu**
- **Cristian Lăzăroiu** - *Technical Editor, IEEE member*
- **Eduard Minciuc**
- **Radu Porumb** - *Technical Editor, IEEE member*
- **Ion Triștiu** - *IEEE member*

International Scientific Committees

- **Adrian Adam** – *National R&D Institute for Energy - ICEMENERG, Bucharest, Romania*
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- **Florin Bode** - *Technical University of Cluj-Napoca, Romania*
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- **Diana Broboană** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*
- **Diana Maria Bucur** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*
- **Andrei Răzvan Budu - Stănilă** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*

- **Constantin Călinoiu** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*
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- **Costin Ioan Coșoiu** - *Technical University of Civil Engineering Bucharest, Romania*
- **Michel Cervantes** – *Luleå University of Technology, Sweden*
- **Gabriel Dan Ciocan** – *Université Laval, Québec, Canada*
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- **Andrei Dragomirescu** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*
- **Gabriela Dumitran** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*
- **Victoria Dumitrescu** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*
- **Georgiana Dunca** – *National University of Science and Technology POLITEHNICA Bucharest, Romania*
- **Philippe Duquenne** - *Institut National Polytechnique, Toulouse, France*
- **Călin Cormos** – *Babes-Bolyai University of Cluj Napoca, Romania*
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- **Daniel Dupleac** - *National University of Science and Technology POLITEHNICA Bucharest, Romania*
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- **Rodica Frunzulică** - *Technical University of Civil Engineering Bucharest, Romania*
- **Mihai Gavrițaș** – *Gh. Asachi Technical University of Iași, Romania*
- **Andrei-Mugur Georgescu** - *Technical University of Civil Engineering Bucharest, Romania*
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- **Călin Munteanu** - Technical University of Cluj-Napoca, Romania
- **Sebastian Muntean** – Romanian Academy - Timișoara Branch, Romania
- **Ilinca Năstase** - Technical University of Civil Engineering Bucharest
- **Bogdan Constantin Neagu** - Gh. Asachi Technical University of Iași, Romania
- **Sergiu Nicolae** - National Institute for R&D in Electrical Engineering ICPE CA, Bucharest, Romania
- **Roxana Mihaela Nistor-Vlad** – National University of Science and Technology POLITEHNICA Bucharest, Romania
- **Mihaela Norișor** - National University of Science and Technology POLITEHNICA Bucharest, Romania
- **Gabriel Lazaro Pavel** – National University of Science and Technology POLITEHNICA Bucharest, Romania
- **Konstantinos Papatheodorou** - Technical Educational Institute of Kentriki Makedonia, Greece
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- **Monica Siroux** – INSA Strasbourg, France
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- **Gheorghe Stefan** - World Energy Council - Romanian National Committee
- **Romeo Susan-Resiga** – POLITEHNICA University Timișoara, Romania
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- **Vladimir Tanasiev** – National University of Science and Technology POLITEHNICA Bucharest, Romania
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- **Daniela Vasiliu** – National University of Science and Technology POLITEHNICA Bucharest, Romania
- **Doru Vătău** – POLITEHNICA University Timișoara, Romania
- **Liana Vuță** – National University of Science and Technology POLITEHNICA Bucharest, Romania
- **Dario Zaninelli** - Politecnico di Milano, Italy

Organizing Committees

- **Cornelia Alecu**
- **Georgeta Băbeanu**
- **Cornel Chira**
- **Adrian Nicolae Stan**
- **Elena Vasile**
- **Mircea Bițoiu**
- **Andreea Ilie**
- **Virgil Popescu**

CIEM 2023 AT-A-GLANCE FULL PROGRAM

Thursday 26 th October 2023						
08:30 – 09:30						
Registration: NUSTPB Central Library, 3 rd floor						
09:30 – 10:00						
Opening Ceremony						
10:00 – 11:00	Section 1 Electrical Power Systems & Smart Grids (1)			Section 4 Renewable Energies (1)		
11:00 – 11:30						
Coffee Break						
11:30 – 13:00		Section 2 Energy Management & Security, Sustainability and Resilience in Energy (1)		Section 4 Renewable Energies (2)		
13:00 – 14:00						
Lunch						
14:00 - 15:00	Section 1 Electrical Power Systems & Smart Grids (2)		Section 3 Applied Energy (1)		Section 6 Smart Cities & Digital Transformati on in Energy	Technical Session 1
15:00 – 15:30						
Coffee Break						
15:30 – 16:30	Section 1 Electrical Power Systems & Smart Grids (3)	Section 2 Energy Management & Security, Sustainability and Resilience in Energy (2)	Section 3 Applied Energy (2)			Technical Session 2
19:00 – 22:00						
Gala Dinner						

CIEM 2023 AT-A-GLANCE FULL PROGRAM

Friday 27 th October 2023			
09:30 – 11:00		Section 4 Renewable Energies (3)	Section 5 Advanced Power Generation Systems & Technologies
11:00 – 11:30	Coffe Break		
11:30 – 13:00	Section 2 Energy Management & Security, Sustainability and Resilience in Energy (3)	Section 3 Applied Energy (3)	
13:00 – 14:00	Lunch		
14:00 – 15:00			Technical Session 3
15:00 – 15:30	Coffe Break		
15:30 – 16:30			Technical Session 4
16:30 – 17:00	Closing Ceremony		

AT-A-GLANCE FULL PROGRAM

Thursday 26 October 2023

08:30 – 9:30 Registration - **NUSTPB Central Library , 3rd floor**

09:30 – 10:00 Opening Ceremony

10:00 – 11:00

- ◆ **Section 1:** Electrical Power Systems & Smart Grids (1) - **NUSTPB Central Library, Room 3.1**
- ◆ **Section 4:** Renewable Energies (1) - **NUSTPB Central Library, Room 3.2**

11:00 – 11:30 Coffee break - **NUSTPB Central Library , 3rd floor**

11:30 – 13:00

- ◆ **Section 2:** Energy Management & Security, Sustainability and Resilience in Energy (1) - **NUSTPB Central Library, Room 3.1**
- ◆ **Section 4:** Renewable Energies (2) - **NUSTPB Central Library, Room 3.2**

13:00 – 14:00 Lunch - **NUSTPB Central Library , 3rd floor**

14:00 – 15:00

- ◆ **Section 1:** Electrical Power Systems & Smart Grids (3) - **NUSTPB Central Library, Room 3.1**
- ◆ **Section 3:** Applied Energy (1) - **NUSTPB Central Library, Room 3.2**
- ◆ **Section 6:** Smart Cities & Digital Transformation in Energy - **NUSTPB Central Library, Room 2.2**
- ◆ **Technical Session 1:** Renewable energy - risks and benefits for prosumers and national grid - **TTI***

15:00 – 15:30 Coffee break - **NUSTPB Central Library , 3rd floor & TTI**

15:30 – 16:30

- ◆ **Section 1:** Electrical Power Systems & Smart Grids (3) - **NUSTPB Central Library, Room 3.1**
- ◆ **Section 2:** Energy Management & Security, Sustainability and Resilience in Energy (2) - **NUSTPB Central Library, Room 2.2**
- ◆ **Section 3:** Applied Energy (2) - **NUSTPB Central Library, Room 3.2**
- ◆ **Technical Session 2:** Development of Romanian nuclear program – investment projects of Nuclearelectrica - **TTI***

19:00 – 22:00 Gala Dinner (*Restaurant Caru' cu bere*)

Friday 27 October 2023

09:30 – 11:00

- ◆ **Section 4:** Renewable Energies (3) - **NUSTPB Central Library, Room 3.2**
- ◆ **Section 5:** Advanced Power Generation Systems & Technologies - **NUSTPB Central Library, Room 3.1**

11:00 – 11:30 Coffee break - **NUSTPB Central Library , 3rd floor**

11:30 – 13:00

- ◆ **Section 2:** Energy Management & Security, Sustainability and Resilience in Energy (1) - **NUSTPB Central Library, Room 3.1**
- ◆ **Section 3:** Applied Energy (2) - **NUSTPB Central Library, Room 3.2**

13:00 – 14:00 Lunch - **NUSTPB Central Library , 3rd floor**

14:00 – 15:00

- ◆ **Technical Session 3:** Digitalization in energy sector - **NUSTPB Central Library, Room 3.2**

15:00 – 15:30 Coffee break - **NUSTPB TPB Central Library , 3rd floor**

15:30 – 16:30

- ◆ **Technical Session 4:** Energy security and resilience - **NUSTPB Central Library, Room 3.2**

16:30 – 17:00 Closing Ceremony - **NUSTPB Central Library , Room 3.2**

SECTION 1: Electrical Power Systems & Smart Grids

Thursday 26 October 2023, 10:00 - 11:00

Location: NUSTPB Central Library – Room 3.1

Session Chairs:

Ion TRIȘTIU (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Călin MUNTEANU (Technical University of Cluj-Napoca, Romania)

- **S1-6** - FROM OUTDATED RTUS TO THE ADVANCED PMUS, THE ROMANIAN POWER SYSTEM - *Robert-Alexandru Andrei, Bogdan-Mihai Zamfir*
- **S1-15** - AN ANALYZE OF POWER LOSSES IN DISTRIBUTION TRANSFORMERS IN UNBALANCED AND DISTORTED LOADINGS CONDITIONS - *Marian Costea, Tudor Leonida*
- **S1-22** - RELIABILITY STUDY OF ELECTRIC POWER SYSTEMS CONSIDERING DIFFERENT TOPOLOGIES AND REDUNDANCY - *Lucian Ioan Dulău, Dorin Bică*
- **S1-24** - OPTIMAL PLACEMENT OF PHASOR MEASUREMENT UNITS USING DETERMINISTIC AND METAHEURISTIC ALGORITHMS - *Nicolae Anton, Constantin Bulac, Lucian Toma, Radu Porumb, Bogdan-Petru Dobrin, Dorian O. Sidea*

SECTION 1: Electrical Power Systems & Smart Grids

Thursday 26 October 2023, 14:00 - 15:00

Location: NUSTPB Central Library – Room 3.1

Session Chairs:

Lucian TOMA (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Gheorghe GRIGORAŞ (Gh. Asachi Technical University of Iaşi, Romania)

- **S1-7** - A SLIME MOULD ALGORITHM TO SOLVE MULTI-OBJECTIVE OPTIMAL POWER FLOW PROBLEMS - *Murtadha Al-Kaabi, Virgil Dumbrava, Mircea Eremia, Lucian Toma, Cristian Lazaroiu, Bahaa Hussein Al Igeb*
- **S1-9** - PHASE LOAD BALANCING IN ACTIVE ELECTRIC DISTRIBUTION NETWORKS USING THE PHASE SWAPPING SMART DEVICES ON LATERAL BRANCHES - *Gheorghe Grigoraş, Stefania Gălbău, Bogdan-Constantin Neagu*
- **S1-11** - MACHINE LEARNING ALGORITHMS FOR LOAD FORECASTING BASED ON BIG DATA - *Marius Eugen Tiboaca-Ciupageanu, Sorina Costinas, Georgiana Ion, Andrei Stan*
- **S1-27** - ENHANCING CYBER-PHYSICAL THREAT ASSESSMENT IN POWER DISTRIBUTION NETWORKS - *Feras Alasali, Mohammad Abudayyeh, Naser El-Naily, Anas AlMajali, Bashar Aldeiri, Eyad Zarour*

SECTION 1: Electrical Power Systems & Smart Grids

Thursday 26 October 2023, 15:30 - 16:30

Location: NUSTPB Central Library – Room 3.1

Session Chairs:

Radu PORUMB (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Dorin BICĂ ("George Emil Palade" University of Medicine, Pharmacy, Science, and Technology of Târgu Mureș, Romania)

- **S1-8** - MULTI OBJECTIVE OPTIMAL POWER FLOW PROBLEMS USING HUNGER GAMES SEARCH ALGORITHM - *Murtadha Al-Kaabi, Virgil Dumbrava, Mircea Eremia, Lucian Toma, Cristian Lazaroiu, Haitham Aljanabi*
- **S1-69** - PERFORMANCE COMPARISON OF METAHEURISTIC ALGORITHMS ON SOLVING THE OPTIMAL POWER FLOW IN A ACTIVE DISTRIBUTION NETWORK - *Dorian O. Sidea, Andrei M. Tudose, Irina I. Picioroagă, Nicolae Anton, Constantin Bulac*
- **S1-76** - ON THE LOCAL ENERGY COMMUNITIES - *Bogdan-Petru Dobrin, Lucian Toma, Roxana-Alexandra Istrate, Nicolae Anton, Mihai Sănduleac*
- **S1-77** - INTEGRATING BATTERIES INTO AUTOMATIC GENERATION CONTROL (AGC) FOR ENHANCED FREQUENCY CONTROL - *Jaleel Al Hasheme, Lucian Toma, Mircea Eremia, Mihai Sănduleac*

SECTION 2: Energy Management & Security, Sustainability and Resilience in Energy

Thursday 26 October 2023, 11:30 - 13:00

Location: NUSTPB Central Library – Room 3.1

Session Chairs:

Eduard MINCIUC (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Michel FEIDT (Universite de Lorraine, France)

- ***Invited speaker: Michel FEIDT (Universite de Lorraine, France)***

200 YEARS OF THERMODYNAMICS FROM CARNOT AND AROUND 40 YEARS OF COLLABORATION BETWEEN ROMANIA AND FRANCE – *Michel Feidt, Monica Costea*

- **S2-12** - INFRARED THERMOGRAPHY - EXTENDING OPERATING LIFE OF NATURAL GAS COMPRESSION EQUIPMENT WITH SCREW COMPRESSOR - *Robert Isac, Teodor Stănescu, Valentin Petrescu*
- **S2-36** - PHASE-CHANGE MATERIALS (PCMs) FOR BUILDINGS WITH HIGH THERMAL EFFICIENCY IN ROMANIA - *Virginia Petre, Horia Necula*
- **S2-60** - EXPERIMENTAL STUDY OF THE MATRIX HEAT EXCHANGER RELATED TO CRYOGENIC DISTILLATION PROCESSES OF HYDROGEN ISOTOPES - *Claudia Bogdan, Horia Necula, Sebastian Brad*
- **S2-61** - DEVELOPMENT AND USE OF A NEW ARCHITECTURE OF THERMAL MANIKIN FOR ASSESSING LOCAL THERMAL COMFORT - *Matei-Razvan Georgescu, Alexandru Cernei, Ilinca Nastase, Paul Danca, Dragos Guta, Ioan Ursu*

SECTION 2: Energy Management & Security, Sustainability and Resilience in Energy

Thursday 26 October 2023, 15:30 - 16:30

Location: NUSTPB Central Library – Room 2.2

Session Chairs:

Victor CENUȘĂ (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Codruta BENDEA (University of Oradea, Romania)

- **S2-26** - ENERGY USE ASSESSMENT, AFTER THE IMPLEMENTATION OF ENERGY-SAVING MEASURES IN SCHOOL BUILDINGS - *Martin Ivanov, Angel Terziev, Penka Zlateva*
- **S2-35** - INTRODUCING PRINCIPLES OF CIRCULAR ECONOMY INTO TRADITIONAL ENERGY SECTOR: BARRIERS AND PROSPECTIVES - *Anzhelika Karaeva, Sabrina Copelli, Larisa Ivascu, Simina Elena Lakatos, Francesco Romagnoli, Ednildo Andradde Torres*
- **S2-39** - INTEGRATION OF RENEWABLE ENERGY SOURCES IN ENERGY SYSTEMS: MANAGEMENT, SECURITY AND SUSTAINABILITY - *Cristian Gorea, Dragos-Lucian Chiorean, Ilie Vlasiu, Ion Tristiu, Dorin Bica*
- **S2-54** - EXPLORING THE ENVIRONMENTAL, SOCIAL AND GOVERNANCE MEASURES IN REAL ESTATE - THE IMPACT IN ENERGY MANAGEMENT - *Mihai Dosanu, Ana Ciobanu, Stefan Gheorghe*

SECTION 2: Energy Management & Security, Sustainability and Resilience in Energy

Friday 27 October 2023, 11:30 - 13:00

Location: NUSTPB Central Library – Room 3.1

Session Chairs:

Michel TOUSSAINT (Conservatoire National des Arts et Métiers Paris, France)

Mihaela NORIȘOR (National University of Science and Technology POLITEHNICA Bucharest, Romania)

- **S2-3** - AN IMPROVED RHINO HERD-PSO OPTIMIZER FOR RENEWABLE ENERGY OPTIMIZATION IN TECHNICALLY EFFICIENT POWER SYSTEMS THE OPTIMAL POWER FLOW OPF - *N. Taleb, B. Bentouati, S. Chettih, Abdelkader Harrouz, Virgil Dumbrava*
- **S2-41** - WATER EXTEND MONITORING IN DAMS USING SENTINEL_2 REMOTE SENSING: THE CASE OF BURKINA FASO - *Rodrigue Fotie Lele, Issoufou Ouedraogo, Martin Lompo, Mihaela Amalia Diminescu, Annette Madelene Dăncila, Alphonse Emadak*
- **S2-43** - ELEPHANT HERDING OPTIMIZATION ALGORITHM FOR THE OPERATION OF A HYDROPOWER PLANT - *Angela Neagoe, Eliza-Isabela Tică, Gabriela-Elena Dumitran, Liana-Ioana Vuță, Bogdan Popa*
- **S2-47** - ASPECTS OF ENERGY RESILIENCE OF THE PROSUMERS BASED ON ELECTRICITY AND HEAT STORAGE - *Paul Lăcătuș, Mihai Sanduleac, Constantin Ionescu, Gabriela Iordache, Cristina Efremov, Victor Gropa*

SECTION 3: Applied Energy

Thursday 26 October 2023, 14:00 - 15:00

Location: NUSTPB Central Library – Room 3.2

Session Chairs:

Corneliu BĂLAN (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Sanda Carmen GEORGESCU (National University of Science and Technology POLITEHNICA Bucharest, Romania)

- **S3-21** - FLUID INTERFACE IMAGE PROCESSING USING ARTIFICIAL INTELLIGENCE - *Alexandra Bran, István Magos, Corneliu Bălan*
- **S3-20** - MODELING THE FLUID INTERFACE BETWEEN IMMISCIBLE LIQUIDS - *István Magos, Diana Broboana, Corneliu Balan*
- **S3-33** - PASSIVE CONTROL OF FLOW AROUND A CIRCULAR CYLINDER WITH DIFFERENT BLUFF-BODIES - *Robert Mitrut, Diana Maria Bucur, Georgiana Dunca, Ionut Stelian Grecu, Michel J. Cervantes*
- **S3-42** - A MESHLESS APPROACH FOR MODELING WATER INFILTRATION IN HETEROGENEOUS SOILS - *Fouzia Shile, Mohamed Sadik, Sanda-Carmen Georgescu*
- **S3-58** - AIR – NON-NEWTONIAN FLUID INTERACTION IN BIFURCATIONS - *Nicoleta-Octavia Tanase, Ciprian Mateescu, Doru–Daniel Cristea*

SECTION 3: Applied Energy

Thursday 26 October 2023, 15:30 - 16:30

Location: NUSTPB Central Library – Room 3.2

Session Chairs:

Georgiana DUNCA (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Andrei DAMIAN (Technical University of Civil Engineering Bucharest, Romania)

- **S3-19** - THE INFLUENCE OF CLEARANCES ON ENERGY EFFICIENCY IN SCREW COMPRESSORS - *Valentin Petrescu, Sorin Tomescu, Eduard Vasile, Teodor Stănescu, Cristian Slujitoru*
- **S3-46** - DECENTRALIZED VENTILATION SYSTEM IN CLASSROOMS – ANALYSIS ON THE INDOOR AIR QUALITY AND ENERGY CONSUMPTION - *Tiberiu Catalina, Andrei Damian, Andreea Vartires, Alina Dima, Vasilica Vasile*
- **S3-50** -
- **S3-57** - DESIGN PROPOSAL FOR ARTIFICIAL BREATHING SIMULATORS FOR HUMAN THERMAL MANIKINS - *Matei-Razvan Georgescu, Ilinca Nastase*
- **S3-62** - NATURAL VENTILATION OF BUILDINGS BY USING VENTURI DEVICES PLACED ON THE ROOFTOPS - *Sanda Budea, Adrian Ciocănea, Florin Opreș*

SECTION 3: Applied Energy

Friday 27 October 2023, 11:30 - 13:00

Location: NUSTPB Central Library – Room 3.2

Session Chairs:

Mihaela DIMINESCU (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Corina BONCESCU (National University of Science and Technology POLITEHNICA Bucharest, Romania)

- **S3-23** - STUDY ON THE IMPACT OF NATURAL GAS PRESSURE ON THE COMPONENTS OF A BALL VALVE - *Laurențiu-Ioan Ivancu, Daniela Popescu*
- **S3-40** - CONTROLLING THE AIR FLOW RATE IN A WASTEWATER TREATMENT PLANT BIOREACTOR BY USING PNEUMATIC PROPORTIONAL VALVES - *Nicolae Ion, Valentin Nicolae Cococi, Constantin Călinoiu, Carmen-Anca Safta*
- **S3-68** - LOW ENERGY PROCEDURE FOR CLEANING HOLLOW FIBER MEMBRANE BUNDLES USED FOR WATER ULTRAFILTRATION - *Florin Opreș, Adrian Ciocănea, Ștefan-Mugur Simionescu*
- **S3-74** - DISPERSION AND CONSUMPTION OF OXYGEN IN THE MAIN SEWER - *Tudor-Adrian Florea*
- **S3-75** - ANALYSIS OF THE HYDRAULIC PARAMETERS AND ENERGY IN A TREATED WATER SUPPLY NETWORK OF A THERMAL POWER PLANT - *Adrian Cătălin Tudora, Corina Boncescu, Lăcrămioara Diana Robescu*

SECTION 4: Renewable Energy

Thursday 26 October 2023, 10:00 - 11:00

Location: NUSTPB Central Library – Room 3.2

Session Chairs:

Mihai SĂNDULEAC (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Sanda BUDEA (National University of Science and Technology POLITEHNICA Bucharest, Romania)

- **S4-2** - MAXIMUM POWER POINT TRACKING FOR PV SYSTEMS: A COMPARISON OF PERTURBATION & OBSERVATION APPROACH, AND FUZZY LOGIC CONTROL - *Fadila Tahiri, Abdelkader Harrouz, Virgil Dumbrava, Patrice Wira*
- **S4-28** - STAND-ALONE PV-POWERED SOLUTION FOR THE REHABILITATION OF SLUDGE IN THERAPEUTIC LAKES - *Radulescu Victorita*
- **S4-48** - EFFICIENT USE OF PHOTOELECTRIC POTENTIAL FOR A NEXT-GENERATION STUDENT BUILDING. A CASE STUDY - *Radu Opreanu, Radu Plamanescu*
- **S4-51** - A HYBRID SOLAR POWERED DOMESTIC HOT WATER SYSTEM FOR A KINDERGARTEN IN BUCHAREST - *Madalina Barbu, Monica Siroux, George Darie*
- **S4-65** - THE EVOLUTION OF THE RENEWABLE ELECTRICITY SECTOR IN ROMANIA - *Georgiana Moiceanu, Valeriu -Adrian Vintila*

SECTION 4: Renewable Energy

Thursday 26 October 2023, 11:30 - 13:00

Location: NUSTPB Central Library – Room 3.2

Session Chairs:

Cosmin MARCULESCU (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Aneta MAGDZIARZ (AGH University of Krakow, Poland)

- **S4-17** - IMPLEMENTATION OF MICRO-COGENERATION TECHNOLOGIES USING BIOMASS FOR NON-RESIDENTIAL CONSUMERS - *Petruța Daniela Ologu, Ioan Bitir-Istrate, Roxana Pătrașcu, Mihaela Norișor*
- **S4-25** - HYDROGEN AS AN ENERGY VECTOR: USE CASES AND MODELLING - *Teodor-Ioan Diaconu, Mihai Sănduleac*
- **S4-29** - WIND POWER GENERATION FORECASTING - *Florin Ciprian Dan, Cristina Hora, Gabriel Valentin Bendea, Codruta Calina Bendea*
- **S4-45** - PERFORMANCES OF A SAVONIUS-DARRIEUS HYBRID WIND TURBINE - *Sanda Budea, Ștefan-Mugur Simionescu*
- **S4-52** - EXPERIMENTAL STUDY OF A SMALL-SCALE AXIAL HYDROKINETIC TURBINE WITH ADJUSTABLE BLADE PITCH - *Ionut-Adrian Sisman, Andrei Dragomirescu, Adrian Ciocanea, Paul Alexandru Danca, Florentina Bunea, Corina Alice Babutanu*
- **S4-63** - OPTIMIZING COMPOSTING EFFICIENCY AND ODOR CONTROL IN INTENSIVE TUNNEL COMPOSTING SYSTEMS: A CASE STUDY OF THE ARAD COUNTY COMPOSTING FACILITY - *Lile Raul, Tiberiu Apostol, Constantin Stan*

SECTION 4: Renewable Energy

Friday 27 October 2023, 9:30 - 11:00

Location: NUSTPB Central Library – Room 3.2

Session Chairs:

Constantin IONESCU (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Javier RODRIGUEZ (Universidad Politécnica de Madrid, Spain)

- **S4-10** - REPLACING FOSSIL FUELS BY RENEWABLE ENERGIES IN THE DISTRICT HEATING SYSTEMS: A CASE OF STUDY OF MRAĞOWO (POLAND) - *Alberto Abanades Velasco, Javier Rodríguez-Martín, Juan José Roncal Casano, Javier Muñoz Antón*
- **S4-34** - INTEGRATION OF GEOTHERMAL ENERGY IN A DISTRICT HEATING SYSTEM - *Gabriela-Elena Iordache, Constantin Ionescu*
- **S4-38** - DISTRICT HEATING SYSTEM OF ORADEA CITY – SUSTAINABLE DEVELOPMENT AND PERSPECTIVES - *Codruța BENDEA, Gabriel Bendea, Cristina Hora, Florin Dan, Lucian Pop*
- **S4-44** - A CASE STUDY ON THE INTEGRATION OF SOLAR ENERGY SYSTEMS IN DISTRICT HEATING IN BUCHAREST, ROMANIA - *Dorian Corneliu Frusescu, Eduard Minciuc*
- **S4-49** - ECONOMIC ANALYSIS OF THE OPTIMAL CONFIGURATION OF THERMAL AND HYBRID PHOTOVOLTAIC-THERMAL PANELS FOR A DISTRICT HEATING SYSTEM - *Madalina Barbu, Diana Tutica, Mihaela Norisor, Roxana Patrascu, Eduard Minciuc*
- **S4-56** - HEAT PUMPS OPERATIONAL ANALYSIS. PRELIMINARY ASPECTS IN THE WEDISTRICT PROJECT - *Constantin Ionescu, Gabriela Iordache, Mihai Sanduleac, Cristina Efremov, Valeriu Podborschi*

SECTION 5: Advanced Power Generation Systems & Technologies

Friday 27 October 2023, 9:30 - 11:00

Location: NUSTPB Central Library – Room 3.1

Session Chairs:

Diana Maria BUCUR (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Costin Ioan COȘOIU (Technical University of Civil Engineering Bucharest, Romania)

- **S5-5** - PERFORMANCE ANALYSIS OF CENTRIFUGAL BLOWERS WITH INLET GUIDE VANE CONTROL UNDER DIFFERENT INLET CONDITIONS - *Teodor Stănescu, Valentin Petrescu, Robert Isac, Elena Presură-Chirilescu, Daniel Ușeriu, Gabriel Badea*
- **S5-13** - EFFECTS OF PERFORATED PLATES ON THE PERFORMANCE OF VANED DIFFUSERS FOR MICROGAS TURBINES - *Mihnea Gall, Oana Dumitrescu, Valeriu Drăgan, Bogdan Gherman, Daniel Eugeniu Crunțeanu*
- **S5-37** - IMPROVING THE PERFORMANCE OF AN AXIAL HYDROKINETIC TURBINE USING AUXILIARY EQUIPMENT - *Adrian Ion Stroilescu, Georgiana Dunca, Diana Maria Bucur*
- **S5-72** - ADVANCING SIMULATION CAPABILITIES FOR GENERATION IV REACTORS BY INCORPORATING PURE LEAD PROPERTIES INTO RELAP/SCDAPSIM/MOD4.1 - *Ana-Victoria Dumitrescu, Roxana-Mihaela Nistor-Vlad, Daniel Dupleac, Andrei-Razvan Budu-Stanila, Gabriel-Lazaro Pavel*
- **S5-73** - STATE-OF-THE-ART IN CANDU REACTORS SEVERE ACCIDENTS MODELING - *Roxana-Mihaela Nistor-Vlad, Daniel Dupleac, Ana-Victoria Dumitrescu, Andrei-Răzvan Budu-Stănilă*

SECTION 6: Smart Cities & Digital Transformation in Energy

Thursday 26 October 2023, 14:00 - 15:00

Location: NUSTPB Central Library – Room 2.2

Session Chairs:

Virgilius DUMBRAVĂ (National University of Science and Technology POLITEHNICA Bucharest, Romania)

Lucian Ioan DULĂU (“George Emil Palade” University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, Romania)

- **S6-14** - TOWARDS DIGITAL ENERGY METERING SYSTEMS BY MEANS OF ARTIFICIAL INTELLIGENCE - *Carutasiu Mihail-Bogdan, Lupoiu Teodor, Necula Horia*
- **S6-30** - ACCIDENTS IN THE SECTOR OF COLLECTION AND TRANSPORT OF WASTE - *Elena Cristina Rada, Fabio Conti, Luca Adami, Marco Schiavon*
- **S6-31** - CO₂ BALANCE FROM TRANSPORT AND TREATMENT OF ORGAN FRACTION OF MUNICIPAL SOLID WASTE - *Lucrezia Maggi, Vincenzo Torretta, Elena Cristina Rada*
- **S6-53** - ESTIMATING THE CARBON DIOXIDE SEQUESTRATION USING REMOTE SENSING AND GIS TECHNIQUES. A CASE STUDY. - *Marius Daniel Bontos, Mihaela Amalia Diminescu, Georgiana Claudia Vasiliu, Vlad Florin Piraianu*
- **S6-71** - DIFFERENT HEAT PUMPS INTEGRATION INTO AN INTELLIGENT BUILDING - *Nicolae Daniel Furtună, Diana Maria Bucur*

Technical Session 1: Renewable energy – risks and benefits for prosumers and national grid

Thursday 26 October 2023, 14:00 - 15:00

Location: Faculty of Energy Engineering – High Voltage Laboratory

Technical Session 2: Development of Romanian nuclear program – investment projects of Nuclearelectrica

Thursday 26 October 2023, 15:30 - 16:00

Location: Faculty of Energy Engineering – High Voltage Laboratory

Technical Session 3: Digitalization în energy sector

Friday 27 October 2023, 14:00 - 15:00

Location: NUSTPB Central Library – Room 3.2

Technical Session 4: Energy security and resilience

Friday 27 October 2023, 15:30 - 16:00

Location: NUSTPB Central Library – Room 3.2