

**10th International Conference on
Energy and Environment
2021**

Power up to Future

FINAL PROGRAM

ABOUT THE ORGANIZERS

University POLITEHNICA of Bucharest



University POLITEHNICA of Bucharest is the oldest and most prestigious engineer school in Romania. Its traditions are related to the establishment, in 1818, by Gheorghe Lazăr, of the first higher technical school with teaching in Romanian, at the Saint Sava Abbey in Bucharest. In 1832, it was reorganized into the St. Sava College.

On 1 October 1864, The School of Bridges and Roads, Mines and Architecture was established, which becomes, on 30 October 1867, The School of Bridges, Roads and Mines, with a duration of 5 years. Under the leadership of Gheorghe Duca, on 1 April 1881, the institution acquires a new structure, under the name of The National School of Bridges and Roads; on 10 June 1920, the Politehnica School of Bucharest

was founded, with four departments: Electromechanics, Civil Engineering, Mines and Metallurgy, Industrial Section.

From November 1920 the name changes to POLITEHNICA of Bucharest.

On 3 August 1948, the Polytechnic Institute of Bucharest was founded, which initially included 4 faculties and in which, since 1950, have appeared most of the current faculties. Based on the resolution of the Senate of November 1992, the Polytechnic Institute of Bucharest became University POLITEHNICA of Bucharest.

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

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- **Constantin Drăgoi**
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- **Adrian Nicolae Stan**
- **Elena Vasile**

CIEM 2021 AT-A-GLANCE FULL PROGRAM

Thursday 14 th October 2021					
08:30 – 09:30					
Registration UPB Central Library, 2 nd floor					
09:30 – 10:00					
<i>Opening Ceremony</i>					
10:00 – 11:15	Section 1 Electrical Power Systems & Smart Grids (1)	Section 2 Energy Efficiency (1)		Section 6 Power Engineering (1)	
11:15 – 11:30					
<i>Coffe Break</i>					
11:30 – 13:00	Section 1 Electrical Power Systems & Smart Grids (2)	Section 2 Energy Efficiency (2)		Section 6 Power Engineering (2)	
13:00 – 14:00					
<i>Lunch</i>					
14:00 – 15:15	Round table 1 (1)		Section 3 Environmental Impact and Clean Energy (1)	Section 4 Fluid Mechanics and Technical Applications (1)	Section 5 Renewable Energies (1)
15:15 – 15:30					
<i>Coffe Break</i>					
15:30 – 17:00	Round table 1 (2)		Section 3 Environmental Impact and Clean Energy (2)	Section 4 Fluid Mechanics and Technical Applications (2)	Section 5 Renewable Energies (2)
19:00 – 22:00					
<i>Gala Dinner</i>					
Friday 15 th October 2021					
10:00 – 11:15		Section 3 Environmental Impact and Clean Energy (3)	Section 4 Fluid Mechanics and Technical Applications (3)	Section 5 Renewable Energies (3)	Section 7 Smart cities & digital transformation in energy (1)
11:15 – 11:30					
<i>Coffe Break</i>					
11:30 – 14:00		Round table 2	Section 4 Fluid Mechanics and Technical Applications (4)	Section 5 Renewable Energies (4)	Section 7 Smart cities & digital transformation in energy (2)
13:00 – 14:00					
<i>Lunch</i>					
14:00 – 15:00					
<i>Closing Ceremony</i>					

AT-A-GLANCE FULL PROGRAM

Thursday 14 October 2021

08:30 – 09:30 Registration (*UPB Central Library , 2nd floor*)

09:30 – 10:00 Opening Ceremony

10:00 – 11:15

➤ Technical session T1:

- ◆ Section 1 Electrical Power Systems & Smart Grids (Part 1)
- ◆ Section 2 Energy Efficiency (Part 1)
- ◆ Section 6 Power Engineering (Part 1)

11:15 – 11:30 Coffe Break

11:30 – 13:00

➤ Technical session T2:

- ◆ Section 1 Electrical Power Systems & Smart Grids (Part 2)
- ◆ Section 2 Energy Efficiency (Part 2)
- ◆ Section 6 Power Engineering (Part 2)

13:00 – 14:00 Lunch

14:00 – 15:15

➤ Round Table RT1: *The importance of power systems digitalization and the role of academia in promoting digital technologies (Part 1)*

➤ Technical session T3:

- ◆ Section 3 Environmental Impact and Clean Energy (Part 1)
- ◆ Section 4 Fluid Mechanics and Technical Applications (Part 1)
- ◆ Section 5 Renewable Energies (Part 1)

15:15 – 15:30 Coffe Break

15:30 – 17:00

➤ Round Table RT1: *The importance of power systems digitalization and the role of academia in promoting digital technologies (Part 2)*

➤ Technical session T4:

- ◆ Section 3 Environmental Impact and Clean Energy (Part 2)
- ◆ Section 4 Fluid Mechanics and Technical Applications (Part 2)
- ◆ Section 5 Renewable Energies (Part 2)

19:00 – 22:00 Gala Dinner (*Palatul Bragadiru*)

Friday 15 October 2021

10:00 – 11:15

- Technical session T5:
 - ◆ Section 3 Environmental Impact and Clean Energy (Part 3)
 - ◆ Section 4 Fluid Mechanics and Technical Applications (Part 3)
 - ◆ Section 5 Renewable Energies (Part 3)
 - ◆ Session 7 Smart cities & digital transformation in energy (Part 1)

11:15 – 11:30 Coffe Break

11:30 – 13:00

- Round Table RT2: *Solvents and membrane for accelerating CO2 capture processes development*
- Technical session T6:
 - ◆ Section 4 Fluid Mechanics and Technical Applications (Part 4)
 - ◆ Section 5 Renewable Energies (Part 4)
 - ◆ Session 7 Smart cities & digital transformation in energy (Part 2)

13:00 – 14:00 Lunch

14:00 – 15:00 Closing Ceremony

SECTION 1 - Electrical Power Systems & Smart Grids

Thursday 14 October 2021

Technical Session T1 - S1 (10:00 – 11:15)

Location: UPB Central Library – Room 2.3

Session Chairs:

Constantin BULAC (University POLITEHNICA of Bucharest, Romania)

Mihai GAVRILAȘ (Gh. Asachi Technical University of Iași, Romania)

Technical support: Cătălin DAMIAN

- **S1-9** - OPTIMAL POWER FLOW WITH THREE OBJECTIVE FUNCTIONS USING IMPROVED DIFFERENTIAL EVOLUTION ALGORITHM: CASE STUDY IEEE 57-BUS POWER SYSTEM - AL-KAABI, Murtadha*
- **S1-58** - MULTIOBJECTIVE PROSUMER SURPLUS MANAGEMENT FOR OPTIMAL MICROGRID OPERATION IVANOV, - Ovidiu*; Neagu, Bogdan Constantin; Cibotărică, Marius Andrei; Gavrițaș, Mihai
- **S1-73** - OPTIMAL POWER FLOW IN HYBRID HVAC/HVDC NETWORKS CONSIDERING THE HIGH PENETRATION OF WIND GENERATION - Damian, Ioan Cătălin*; Ianțoc, Andreea Georgiana; Picioroagă, Irina; Damian, Brîndușa Mihaela; Bulac, Constantin
- **S1-75** - ADAPTED GREY WOLF OPTIMIZER FOR DYNAMIC ECONOMIC DISPATCH IN A HYBRID MICROGRID - Sidea O., Dorian*; Tudose, Andrei M.; Picioroaga, Irina I.; TOMA, Lucian; Bulac, Constantin
- **S1-118** - EV CHARGING CONTROL USING DSRC SYSTEM IN LVDN WITH DG PENETRATION - Alexandru, Kriukov *; Gavrițaș, Mihai

SECTION 1 - Electrical Power Systems & Smart Grids

Thursday 14 October 2021

Technical Session T2 - S1 (11:30 – 13:00)

Location: UPB Central Library – Room 2.3

Session Chairs:

Lucian TOMA (University POLITEHNICA of Bucharest, Romania)

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

Technical support: Cătălin DAMIAN

- **S1-15** - *LOAD ESTIMATION WITH THE CLUSTERING-BASED SELECTION OF THE ELECTRIC DISTRIBUTION SUBSTATIONS INTEGRATED IN SCADA SYSTEM* - Gheorghe, Grigoras *; Dandea, Vasilica; Neagu, Bogdan Constantin; Scarlatache, Florina
- **S1-16** - *HARDWARE AND SOFTWARE IMPLEMENTATION OF A SELFCALIBRATING SMART METER WITH TAMPER DETECTION* - Avram, Sebastian*; Paven, Loredana; Crauciuc, Maria; VasIU, Radu; Chiciudean, Dan
- **S1-25** - *STATE OF THE ART OF HYBRID AC-DC MEDIUM VOLTAGE GRIDS* - Diaconu, Teodor-Ioan*; Sănduleac, Mihai; Eremia, Mircea
- **S1-31** - *TRENDS TO INCREASE THE LIFE CYCLE OF A SUBSTATION IN CONTEXT OF SMART GRID* - Ion, Georgiana*; Costinaş, Sorina; Andrei, Stan; Ţiboacă, Marius
- **S1-83** - *SINGULAR VALUE DECOMPOSITION BASED APPROACH FOR VOLTAGE STABILITY ASSESSMENT IN POWER DISTRIBUTION SYSTEMS* - Iantoc, Andreea Georgiana*; Bulac, Constantin; Picioroagă, Irina; Sidea, Dorian O.; Triştiu, Ion

SECTION 2 - Energy Efficiency

Thursday 14 October 2021

Technical Session T1 - S2 (10:00 – 11:15)

Location: UPB Central Library – Room 3.1

Session Chairs:

Roxana PĂTRAȘCU (University POLITEHNICA of Bucharest, Romania)

Marcel ISTRATE (Gh. Asachi Technical University of Iași, Romania)

Technical support: Aida DELCEA

- **S2-28 - FUNCTIONAL OPTIMIZATION RESOURCES OF A CONSTRUCTION MATERIALS MANUFACTURING COMPANY** - Felea, Ioan; Moldovan, Vasile*; Meianu, Dragos; Rancov, Nicolae
- **S2-40 - ON THE TRACK OF HEAT LOSSES REDUCTION FOR AN EDUCATIONAL HERITAGE BUILDING BY USING DYNAMIC SIMULATIONS** - Catalina, Tiberiu*; Stanica, Roxana
- **S2-43 - STRATEGIES FOR OPTIMIZING ENERGY CONSUMPTION IN BUILDINGS** - Nicolae, Adriana Elena*, Necula, Horia, Carutasiu, Bogdan
- **S2-44 - HEAT DEMAND ANALYSIS OF DISTRICT HEATING SUBSTATIONS FOR OPERATION IMPROVEMENT** - Patrascu, Roxana; Cenusă, Victor-Eduard; Norisor, Mihaela*; Minciuc, Eduard
- **S2-74 - ENERGY EFFICIENCY AND COMPRESSED AIR SYSTEMS. A CASE STUDY** - Moraru, Georgiana; Istrate, Marcel

SECTION 2 - Energy Efficiency

Thursday 14 October 2021

Technical Session T2 - S2 (11:30 – 13:00)

Location: UPB Central Library – Room 3.1

Session Chairs:

Eduard MINCIUC (University POLITEHNICA of Bucharest, Romania)

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

Technical support: Aida DELCEA

- **Invited speaker: Michel Feidt (Université de Lorraine, France)**
- **S2-29 - ENERGY EFFICIENCY OF A NOVEL LOW CARBON BIO-BASED MATERIAL FOR BUILDING** - Zeghari, Kaoutar; Louahlia, Hasna*; Voicu, Ionut; Boutouil, Mohamed; Goodhew, Steve; Streiff, François
- **S2-62 - REDUCING THE ENVIRONMENTAL IMPACT OF INDUSTRIAL END-USERS BY USING COST EXEMPTION SCHEMES. LESSONS LEARNED FROM AN ENERGY MANAGEMENT PERSPECTIVE** - Mircea Scripcariu, Gheorghiu, Cristian*; Bitir - Istrate, Ioan Sevastian; Constantinescu, Oana; Gheorghe, Ștefan; Gheorghiu, Miruna; Dobrică, Alexandra Gabriela
- **S2-55 - POTENTIAL ANALYSIS OF A RECIPROCATING ACTIVE MAGNETIC REGENERATOR AT ROOM TEMPERATURE** - Botoc, Dorin*; Siroux, Monica; Salceanu, Alexandru
- **S2-82 - PRELIMINARY RESULTS – NUMERICAL SIMULATIONS FOR HEAT RECOVERY SYSTEM FROM WASTEWATER** - Danca, Paul Alexandru*; Albayati, Amjed; Ivanov, Martin ; Terziev, Angel; Mijorsk, Sergey
- **S2-98 - APPLICATION OF THE NEW ROMANIAN METHODOLOGY FOR BUILDINGS ENERGY PERFORMANCE FOR A SINGLE-FAMILY HOUSE** - Damian, Andrei*; Vartires, Andreea
- **S2-115 - ENERGY EFFICIENCY OF AN OIL INJECTED SCREW COMPRESSOR OPERATING AT VARIOUS DISCHARGE PRESSURES** - Tomescu, Sorin*; Petrescu, Valentin; Serban, Alexandru; Voicu, Sebastian

SECTION 3 - Environmental Impact and Clean Energy

Thursday 14 October 2021

Technical Session T3 - S3 (14:00 – 15:15)

Location: UPB Central Library – Room 3.1

Session Chairs:

Cristian DINCĂ (University POLITEHNICA of Bucharest, Romania)

Ana-Maria CORMOȘ (Babes-Bolyai University of Cluj Napoca, Romania)

Technical support: Cristian STANCIU

- **S3-12** - APPLICATION OF CARBONATE LOOPING CYCLE AS AN ENERGY-EFFICIENT DECARBONIZATION PROCESS OF KEY FOSSIL-INTENSIVE INDUSTRIAL APPLICATIONS - Cormos, Calin-Cristian*; Simion, Dragan; Ana-Maria, Cormos; Letitia, Petrescu; Vlad Cristian, Sandu; Ionela Dorina, Dumbrava; Stefan, Galusnyak
- **S3-22** - EXPERIMENTAL INVESTIGATIONS OF HYDROGEN IGNITION IN LAB SCALE COMBUSTOR - Andrei Vlad Cojoccea, Mihnea Gall, Ionuț Porumbel, Tudor Cuciuc, Madalina Botu
- **S3-54** - NOVEL TECHNOLOGY FOR CO₂ CAPTURE USING GREEN SOLVENTS - Mihăilă, Eliza Gabriela*; Popa, Daria Gabriela; Slavu, Nela; Dincă, Cristian
- **S3-59** - TECHNICAL AND ECONOMICAL ASSESSMENT OF IGCC PLANT EQUIPPED WITH CHEMICAL ABSORPTION PROCESS - Tanase, Alexandra - Iuliana*; Cristian, Dinca; Banica, Cosmin Karl
- **S3-100** - TECHNICAL AND ECONOMICAL ASSESSMENT OF MEMBRANE INTEGRATION IN IGCC - Dincă, Ionela Valentina*; Cristian, Dinca
- **S3-103** - PRODUCTION OF H₂-RICH SYNGAS FROM BIOMASS GASIFICATION WITH CO₂ CAPTURE TECHNOLOGY - Slavu, Nela; Banica, Cosmin Karl; Cristian, Dinca*

SECTION 3 - Environmental Impact and Clean Energy

Thursday 14 October 2021

Technical Session T4 - S3 (15:30 – 17:00)

Location: UPB Central Library – Room 3.1

Session Chairs:

Tiberiu APOSTOL (University POLITEHNICA of Bucharest, Romania)

Elena VULPAȘU (Technical University of Civil Engineering Bucharest, Romania)

Technical support: Cristian STANCIU

- **S3-8** - *BIOMASS ENERGY PROCESSES INVOLVED IN HEATING: MOROCCO CASE STUDY* - El Makroum, Reda*; Berrissoul, Mohamed; Salih Alj, Yassine
- **S3-11** - *INFLUENCE OF IRON AND MANGANESE REGARDING THE WATER CORROSIVITY – A STUDY CASE IN BUZAU TOWN, ROMANIA* - Elena, Vulpașu*; Gabriel, Racovițeanu; Eduard, Dineț; Ioana, Stănescu
- **S3-13** - *THE RATIO CARBON/NITROGEN - INFLUENCE ON THE NITRIFICATION PROCESS IN BIOLOGICAL AERATED FILTER* - Faskol, Adel S.*; Racovițeanu, Gabriel; Vulpasu, Elena
- **S3-51** - *CARBONATION AND CAPATATION OF CO2: OPTIMISATION OF A FEASIBILITRY DEMONSTRATION* - Duquenne, Philippe*; Dumbrava, Virgil
- **S3-52** - *ANALYSIS OF YEARLY AND DAILY VARIATION OF THE GROUND LEVEL OZONE CONCENTRATION IN BUCHAREST, ROMANIA* - Iordache, Vlad; Radu, Valentin Mihai; Vasile, Vasilica*;
- **S3-107** - *BIODEGRADABLE WASTE TREATMENT: SEWAGE SLUDGE COMPOSTING - A CASE STUDY* - Cocârță, Diana Mariana*; Stan, Constantin; Apostol, Tiberiu; Streche, Constantin; Murariu, Alin; Feodorov, Cristina; Todirascu, Adrian

SECTION 3 - Environmental Impact and Clean Energy

Friday 15 October 2021

Technical Session T5 - S3 (15:30 – 17:00)

Location: UPB Central Library – Room 3.1

Session Chairs:

Gabriela DUMITRAN (University POLITEHNICA of Bucharest, Romania)

Elena-Cristina RADA (University of Insubria, Italy)

Technical support: Cristian STANCIU

- **S3-49 - DICLOFENAC DEGRADATION UNDER HIGH PRESSURE HYDRODYNAMIC CAVITATION FIELD** - Dumitran, Gabriela ; Ciocanea, Adrian*; Vuta, Liana; Diminescu, Mihaela; Nichita, Cornelia; Vasile, Eugeniu
- **S3-50 - MODELING OF HYDROCARBONS PROPAGATION ON THE JIU RIVER BASED ON ADVECTION-DIFFUSION EQUATION** - Dumitran, Gabriela *; Vuta, Liana; Diminescu, Mihaela
- **S3-72 - A HYDRODYNAMIC CAVITATION – HIGH VOLTAGE DISCHARGE IN WATER PROCEDURE FOR RECYCLING PLATINUM GROUP METALS CONTAINED IN THREE-WAY CATALYST CONVERTERS** - Ciocanea, Adrian*; Vasile, Eugeniu; Bădic , Mihai; Budea, Sanda; Stamatina, Serban
- **S3-77 - MSW MANAGEMENT IN A LACUSTRINE AREA: CIRCULAR ECONOMY CRITERIA AND EFFECTS OF COVID-19 EMERGENCY** - Karaeva, Anzhelika ; Torretta, Vincenzo ; Magaril, Elena Romenovna ; Conti, Fabio; Ghiringhelli, Giorgio ; Rada, Elena Cristina *
- **S3-110 - THE IMPACT OF PHOTOVOLTAIC POWER SYSTEM ON CARBON FOOTPRINT IN THE WASTEWATER TREATMENT PLANT** - Boncescu, Corina* ; Robescu, Lăcrămioara Diana

SECTION 4 - Fluid Mechanics and Technical Applications

Thursday 14 October 2021

Technical Session T3 - S4 (14:00 – 15:15)

Location: UPB Central Library – Room 3.2

Session Chairs:

Corneliu BĂLAN (University POLITEHNICA of Bucharest, Romania)

Ilinca NĂSTASE (Technical University of Civil Engineering Bucharest, Romania)

Technical support: Eliza Isabela TICĂ

- **S4-46** - *NUMERICAL STUDY OF AIR QUALITY MONITORING UNDER CONDITIONS OF A URBAN FIRE* - Dima, Mihai; Ene, Iulian-Cristian*; Iordache, Vlad
- **S4-53** - *VERIFICATION OF VENTILATION SYSTEM EFFICIENCY IN A CURVED SUBWAY TUNNEL IN CASE OF FIRE USING NUMERICAL MODELING* - Kubinyecz, Francisc-Vladimir*; Teodosiu, Cătălin
- **S4-56** - *MEDICAL IMAGE-BASED NUMERICAL SIMULATION OF THE ABDOMINAL AORTA – FLOW* - Totorean, Alin F.; Ioncica, Maria C.*; Bernad, Sandor I.; Ciocan, Tiberiu; Totorean, Claudia I.; Bernad, Elena S.
- **S4-63** - *DRUG PARTICLE DYNAMICS IN TWO DIFFERENT SIMPLIFIED STENT GEOMETRIES* - Ioncica, Maria C.*; Totorean, Alin F.; Bernad, Sandor I.; Ciocan, Tiberiu; Totorean, Claudia I.; Bernad, Elena S.
- **S4-79** - *STABILITY OF THE LID-CAVITY FLOW AT LOW REYNOLDS NUMBERS* - Tanase, Nicoleta Octavia*; Broboana, Diana; Balan, Corneliu

SECTION 4 - Fluid Mechanics and Technical Applications

Thursday 14 October 2021

Technical Session T4 - S4 (15:30 – 17:00)

Location: UPB Central Library – Room 3.2

Session Chairs:

Sanda-Carmen GEORGESCU (University POLITEHNICA of Bucharest, Romania)

Mihnea SANDU (Technical University of Civil Engineering Bucharest, Romania)

Technical support: Eliza Isabela TICĂ

- **S4-10** - *URBANISATION AND CLIMATE CHANGE IMPACT ON URBAN WATER* - Alexandra Georgiana Ioan, Iulian Iancu, Alexandru Dimache, Anton Anton
- **S4-17** - *THE INFLUENCE OF SURFACE TENSION ON RADIAL WICKING IN PAPER* - Botta, Daciana*; Magos, Istvan; Balan, Corneliu
- **S4-32** - *TRANSITION FROM THREADS TO DROPLETS IN A MICROCHANNEL FOR LIQUIDS WITH NO VISCOSITY CONTRAST* - Chiriac, Eugen*; Avram, Marioara; Balan, Corneliu
- **S4-42** - *IMPACT OF SOLID HYDROPHILIC SPHERES ON FLUID SURFACES* - Magos, István*; Bălan, Corneliu
- **S4-94** - *EXPERIMENTAL STUDY ON THE THERMAL ENVIRONMENT INSIDE A VEHICLE CABIN WITH INNOVATIVE AIR DIFFUSERS* - Danca, Paul Alexandru*; Nastase, Ilinca
- **S4-112** - *DESIGN AND SIMULATION OF ADAPTIVE NEURO-FUZZY INFERENCE SYSTEM INVERSE CONTROLLER FOR A COUPLED TANK SYSTEM* - Alshareefi, Hamid*; Lupu, Ciprian; Olteanu, Severus; Ismail, Laith

SECTION 4 - Fluid Mechanics and Technical Applications

Friday 15 October 2021

Technical Session T5 - S4 (10:00 – 11:15)

Location: UPB Central Library – Room 3.2

Session Chairs:

Diana-Maria BUCUR (University POLITEHNICA of Bucharest, Romania)

Andrei-Mugur GEORGESCU (Technical University of Civil Engineering Bucharest, Romania)

Technical support: Ionuț Stelian GRECU

- **S4-38** - *THE INFLUENCE OF VENTILATION GAPS ON THE DYNAMICS OF A FIRE IN AN ENCLOSED SPACE* - Burada, Denis-Mihai*; Gionea, Florin-George; Georgescu, Andrei-Mugur
- **S4-78** - *EXPERIMENTAL VALIDATION OF THE HUMAN THERMAL PLUME OF THE DRIVER INSIDE A VEHICLE CABIN* - Jamin, Amaury*; Janssens, Bart; Bosschaerts, Walter; Danca, Paul Alexandru; Nastase, Ilinca; Bode, Florin
- **S4-101** - *NUMERICAL SIMULATION OF VORTEX BREAKDOWN WITH CODE_SATURNE* - Mitrut, Robert; Bucur, Diana Maria; Dunca, Georgiana*; Cervantes, Michel J.
- **S4-105** - *NUMERICAL STUDY OF CRITICAL VELOCITY OF THE AIRFLOW IN VENTILATED TUNNELS DURING FIRE INCIDENTS* - Gionea, Florin-George*; Burada, Denis-Mihai; Georgescu, Andrei-Mugur
- **S4-116** - *EXPERIMENTAL ANALYSIS ON A MODEL OF A SMALL DUCTED WIND TURBINE EQUIPPED WITH PASSIVE FLOW CONTROL DEVICES* - Chiulan, Elena-Alexandra*; Coșoiu, Costin Ioan; Georgescu, Andrei-Mugur; Anton, Anton; Degeratu, Mircea

SECTION 4 - Fluid Mechanics and Technical Applications

Friday 15 October 2021

Technical Session T6 - S4 (11:30 – 13:00)

Location: UPB Central Library – Room 3.2

Session Chairs:

Georgiana DUNCA (University POLITEHNICA of Bucharest, Romania)

Ion TRIȘTIU (University POLITEHNICA of Bucharest, Romania)

Technical support: Ionuț Stelian GRECU

- **S4-34** - WALL-MODEL FOR TURBULENT FLOWS UNDER AN ADVERSE PRESSURE GRADIENT - ASYMMETRIC DIFFUSER - Greco, Ionuț Stelian; Dunca, Georgiana*; Bucur, Diana Maria; Cervantes, Michel J.
- **S4-71** - WATER HAMMER ANALYSIS ON A MAIN PIPE - Popa, Ion; Perju, Sorin*; Martan, Florian Marian; Ungureanu, Ionut Daniel
- **S4-88** - NEW APPROACH OF PRESSURE LOSSES IN HYDRAULIC POWER SYSTEMS - Safta, Carmen-Anca*; Georgescu, Sanda-Carmen; Dumitrescu, Liliana
- **S4-96** - EXPERIMENTS AND NUMERICAL SIMULATIONS OF WATER FLOW OVER A SLIT WEIR FOR MEASURING VERY SMALL DISCHARGES AT RIVER INTAKES - Gogoșe Nistoran, Daniela-Elena; Simionescu, Ștefan-Mugur*; Tănase, Nicoleta-Octavia
- **S4-99** - DESIGN AND NUMERICAL INVESTIGATION OF A SMALL AXIAL HYDROKINETIC TURBINE - Bucur, Diana Maria; Greco, Ionuț Stelian; Mitruț, Robert; Drăgoi, Constantin; Stroilescu, Adrian-Ion; Dunca, Georgiana*

SECTION 5 - Renewable Energies

Thursday 14 October 2021

Technical Session T3 - S5 (14:00 – 15:15)

Location: UPB Central Library – Room 2.1

Session Chairs:

Constantin IONESCU (University POLITEHNICA of Bucharest, Romania)

Cosmin MĂRCULESCU (University POLITEHNICA of Bucharest, Romania)

Technical support: Mihai-Rareş SANDU, Claudia-Madalina DUMITRU

- **S5-57 - RENEWABLE ENERGY SOURCES USED FOR A LOW ENERGY BUILDING REHABILITATION -** Popescu, Lelia; Popescu, Răzvan; Damian, Andrei*; Şerban, Alexandru
- **S5-61 - INVESTIGATION OF THE AIR LAYER THICKNESS INFLUENCE FOR A NOVEL DOUBLE SKIN TRANSPIRED SOLAR COLLECTOR -** Berville, Charles*; Bode, Florin; Croitoru, Cristiana
- **S5-87 - NUMERICAL ANALYSIS OF PCM PACKED BED HEAT STORAGE COUPLED WITH TRANSPIRED SOLAR COLLECTOR -** Pop, Octavian; Berville, Charles*; Bode, Florin; Croitoru, Cristiana
- **S5-114 - INTEGRATION OF THERMAL PANELS IN THE DISTRICT HEATING OF BUCHAREST, ROMANIA -** Frusescu, Dorian Corneliu*; Minciuc, Eduard; Darie, George; Barbu, Madalina

SECTION 5 - Renewable Energies

Thursday 14 October 2021

Technical Session T4 - S5 (15:30 – 17:00)

Location: UPB Central Library – Room 2.1

Session Chairs:

Adrian CIOCĂNEA (University POLITEHNICA of Bucharest, Romania)

Daniela POPESCU (Gh. Asachi Technical University of Iași, Romania)

Technical support: Mihai-Rareș SANDU, Claudia-Madalina DUMITRU

- **S5-48** - *STUDY ON OPTIMAL SOLAR THERMAL TECHNOLOGY USED FOR DHW PREPARATION BASED ON TRNSYS SIMULATION* - Sandu, Mihai Rareș*; Ionescu, Constantin Ionescu; Iordache, Gabriela; Dumitru, Claudia Madalina
- **S5-86** - *MATHEMATICAL MODELLING OF UNGLAZED TRANSPIRED SOLAR COLLECTORS* - Pop, Octavian; Berville, Charles*
- **S5-90** - *INTEGRATION OF HYBRID PHOTOVOLTAIC THERMAL PANELS (PVT) IN THE DISTRICT HEATING SYSTEM OF BUCHAREST, ROMANIA* - Barbu, Madalina*; Minciuc, Eduard; Tutica, Diana; Frusescu, Dorian Corneliu
- **S5-102** - *STUDY OF HYDROKINETIC TURBINE SHROUDS* - Danca, Paul Alexandru; Bunea, Florentina*; Nicolaie, Sergiu; Nedelcu, Adrian; Tanase, Nicolae; Babutanu, Corina Alice
- **S5-109** - *THE IMPACT OF ECOLOGICAL FLOW IN RENEWABLE ENERGY PRODUCTION* - Drăgoi, Constantin; Pîrăianu, Vlad-Florin*; Constantinescu, Oana Mihaela

SECTION 5 - Renewable Energies

Friday 15 October 2021

Technical Session T5 - S5 (10:00 – 11:15)

Location: UPB Central Library – Room 2.1

Session Chairs:

Carmen SAFTA (University POLITEHNICA of Bucharest, Romania)

Florin BODE (Technical University of Cluj-Napoca, Romania)

Technical support: Mihai-Rareş SANDU, Claudia-Madalina DUMITRU

- **S5-47** - VERTICAL AXIS WIND TURBINE BLADE MANUFACTURING USING COMPOSITE MATERIALS - Bucur, Ioana Octavia *; Mălăeş, Ion; Predescu, Mihai
- **S5-67** - EXPERIMENTAL RESEARCH ON THE OPERATION OF A PVT HYBRID SOLAR SYSTEM - Budea, Sanda*; Simionescu, Stefan-Mugur; Ciocanea, Adrian
- **S5-70** - ON USING WELLS TURBINES TO HARVEST WAVE ENERGY AT THE BLACK SEA. CASE STUDY FOR A 5 KW TURBINE - Dragomirescu, Andrei*
- **S5-76** - SHORT-TERM FORECASTING OF WIND POWER GENERATION - Dan, Florin Ciprian*; Hora, Cristina; Bendea, Gabriel

SECTION 5 - Renewable Energies

Friday 15 October 2021

Technical Session T6 - S5 (11:30 – 13:00)

Location: UPB Central Library – Room 2.1

Session Chairs:

Radu PORUMB (University POLITEHNICA of Bucharest, Romania)

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

Technical support: Mihai-Rareş SANDU, Claudia-Madalina DUMITRU

- **S5-30** - *SHORT TERM DAILY STORAGE NEED ASSESSMENT FOR A LARGE PV DEPLOYMENT SCENARIO - PRELIMINARY CASE STUDY FOR REPUBLIC OF MOLDOVA* - Efremov, Cristina ; Arion, Valentin; Sanduleac, Mihai*
- **S5-41** - *TECHNO-ECONOMIC ANALYSIS OF A RES MICROGRID: AN APPLICATION OF HOMER SOFTWARE* - Popescu, Daniela*
- **S5-65** - *LAND USE POTENTIAL FOR PV PRODUCTION IN SYNERGY WITH AGRICULTURE - PRELIMINARY ANNALYSIS FOR ROMANIA* - Sanduleac, Mihai*; Tristiu, Ion; Mandiș, Alexandru; Dorel, Stanescu; Solomon, Mircea
- **S5-69** - *INTEGRATION OF ENERGY STORAGE SYSTEMS INTO THE POWER SYSTEM FOR ENERGY TRANSITION TOWARDS 100% RENEWABLE ENERGY SOURCES* - Braga, Dumitru*
- **S5-108** - *TECHNICAL POWER LOSSES IN ELECTRICAL DISTRIBUTION NETWORKS WITH RENEWABLE ENERGY SOURCES. CASE STUDY: GALATI ZONE, ELECTRICA MUNTENIA NORD* - Bittenbinder, Alex; Barbulescu, Constantin*; Salinschi, Marin; Kilyeni, Stefan

SECTION 6 - Power Engineering

Thursday 14 October 2021

Technical Session T1 - S6 (10:00 – 11:15)

Location: UPB Central Library – Room 3.2

Session Chairs:

Daniel DUPLAC (University POLITEHNICA of Bucharest, Romania)

Doru VĂȚĂU (Politehnica University of Timisoara, Romania)

Technical support: Andrei BUDU

- **S6-14** - *STUDY OF THE STRUCTURAL MECHANICAL BEHAVIOUR IN LIQUID LEAD ENVIRONMENT FOR THE ALFRED GENERATION IV REACTOR* - Stoica, Livia-Nicoleta*; Radu, Vasile; Nitu, Alexandru Ionut; Prisecaru, Ilie
- **S6-23** - *COMPARISON BETWEEN RELAP/SCDAPSIM/MOD3.4 AND MOD3.6+ IN SIMULATING A CANDU6 SBO* - Nistor-Vlad, Roxana-Mihaela*; Dupleac, Daniel; Budu-Stanila, Andrei-Razvan; Dumitrescu, Victoria
- **S6-24** - *SEVERE ACCIDENT PROGRESSION IN CANDU USING A DETAILED MODEL FOR THE CORE DISASSEMBLY PHASE – PRELIMINARY RESULTS* - Dumitrescu, Victoria*; Nistor-Vlad, Roxana-Mihaela; Dupleac, Daniel; Andrei-Razvan, Budu-Stanila
- **S6-26** - *DEVELOPMENT OF THE ASYST VER 3.X LWR/HPWR BEST ESTIMATE INTEGRAL CODE* - Dupleac, Daniel*; Nistor-Vlad, Roxana-Mihaela; Allison, Chris; Hohorst, Judith; Perez-Ferragut, Marina
- **S6-122** - *CONSIDERATIONS ABOUT POWER SYSTEMS RELIABILITY* - Crisovan, Florian Iulian; Pocola, Adrian Augustin; Dogaru, Elvis Alexandru ; Frigura-Iliasa, Mihaela; Frigura-Iliasa, Flaviu Mihai*; Vatau, Doru

SECTION 6 - Power Engineering

Thursday 14 October 2021

Technical Session T2 - S6 (11:30 – 13:00)

Location: UPB Central Library – Room 3.2

Session Chairs:

Marian COSTEA (University POLITEHNICA of Bucharest, Romania)

Dorin BICĂ (George Emil Palade University of Medicine, Pharmacy, Science and Technology of Targu Mures)

Technical support: Andreea IANȚOC

- **S6-19** - *UNCERTAINTY PROPAGATION IN THE ESTIMATION OF BENDING STRESS IN ACSR CONDUCTORS* - Campos, Damián Federico*; Ajas, Andrés Elías
- **S6-21** - *A NEW APPROACH FOR THE COEXISTENCE STUDY OF URBAN BUILDINGS NEAR HIGH VOLTAGE OVERHEAD LINES* - Zetu, Constantin; Neagu, Bogdan Constantin*; Grigoras, Gheorghe; Scarlatache, Florina
- **S6-33** - *ANALYSIS OF THE CO2 EMISSIONS FROM BATTERY ELECTRIC VEHICLES CHARGING CONSIDERING THE POWER GENERATION MIX* - Dulău, Lucian Ioan*; Bică, Dorin
- **S6-89** - *MATHEMATICAL MODEL OF THE LIFTING WORKING MODE OF A MOBILE PLATFORM WITH HYDRAULIC DRIVE* - Dumitrescu, Liliana; Safta, Carmen-Anca*; Cristescu, Corneliu; Rădoi, Radu; Bălan, Ioan
- **S6-120** - *THE INFLUENCE OF TWO MAIN DOPPANTS ON THE ELECTRICAL PROPERTIES OF METAL OXIDE VARISTORS* - Dogaru, Elvis Alexandru; Pocola, Adrian Augustin; Crisovan, Florian Iulian; Frigura-Iliasa, Mihaela; Frigura-Iliasa, Flaviu Mihai*; Vatau, Doru
- **S6-121** - *ABOUT ESTABLISHING THE FUNCTIONAL SERVICE LIMITS FOR LOW VOLTAGE METAL OXIDE VARISTORS* - Dogaru, Elvis Alexandru; Pocola, Adrian Augustin; Crisovan, Florian Iulian; Frigura-Iliasa, Mihaela; Frigura-Iliasa, Flaviu Mihai*; Vatau, Vlad

SECTION 7 - Smart cities & digital transformation in energy

Friday 15 October 2021

Technical Session T5 - S7 (10:00 – 11:15)

Location: UPB Central Library – Room 2.3

Session Chairs:

Virgilius DUMBRAVĂ (University POLITEHNICA of Bucharest, Romania)

Adrian PANĂ (Politehnica University of Timisoara, Romania)

Technical support: Andrei TUDOSE

- **S7-60** - ANALYSIS OF PROTECTIVE SOLUTIONS FOR UNDERGROUND CABLE SYSTEM – APPLICATION FOR DANANG DISTRIBUTION GRID - Nicoleta, Gabriela*; Nhu Khoa Nam, Nguyen; Trinh, Trung Hieu; Minh Quan , Duong; Vinh, Tran Tan
- **S7-64** - LABORATORY FOR DIGITAL TECHNOLOGIES TESTING AND SKILLS DEVELOPMENT OF PROFESSIONALS AND STUDENTS - Leu, Bogdan*; Marcolț, Mihai; Lebedov, Oana; Lișman, Cătălin Sava, Gabriela; Tanasiev, Vladimir; Gheorghiu, Cristian
- **S7-91** - SMART EDUCATION FOR POWER ENGINEERING DURING THE COVID-19 PANDEMIC - Dumbrava, Virgil*, Miclescu, Theodor , Bazacliu, Gabriel, Lazaroiu, George Cristian; Balaban, Georgiana; Stanculescu, Claudiu
- **S7-97** - HOLISTIC APPROACH FOR PLANNING THE ELECTRICAL NETWORKS OF SMART CITIES - Dumbrava, Virgil*; Dobrin, Bogdan; Lazaroiu, George Cristian; Balaban, Georgiana; Duquenne, Philippe ; Roscia, Mariacristina; Carlea, Filip
- **S7-119** - ALGORITHM FOR CALCULATING THE B-SPLINE COEFFICIENTS USED IN INTERPOLATIONS FOR HARMONICS ASSESSMENT IN POWER SYSTEMS APPLICATIONS - Pocola, Adrian Augustin; Dogaru, Elvis Alexandru; Crisovan, Florian Iulian; Frigura-Iliasa, Mihaela; Frigura-Iliasa, Flaviu M.*; Vatau, Doru

SECTION 7 - Smart cities & digital transformation in energy

Friday 15 October 2021

Technical Session T6 - S7 (11:30 – 13:00)

Location: UPB Central Library – Room 2.3

Session Chairs:

Luigi BERARDI (D'Annunzio University of Chieti-Pescara, Italy)

Vladimir TANASIEV (University POLITEHNICA of Bucharest, Romania)

Technical support: Andrei TUDOSE

- **S7-36** - *DIGITAL TRANSFORMATION PARADIGM FOR ASSET MANAGEMENT IN WATER DISTRIBUTION NETWORKS* - Ciliberti, Francesco Gino*; Berardi, Luigi; Laucelli, Daniele Biagio; Giustolisi, Orazio
- **S7-39** - *NUMERICAL SIMULATION OF THE NON-LINEAR RESPONSE OF HISTORIC MASONRY* - Scupin, Alexandra*; Văcăreanu, Radu
- **S7-66** - *APPLICABILITY OF RASPBERRY PI IOT DEVICE AS BACK UP PROTECTION DEVICE IN LOW AND MEDIUM VOLTAGE POWER SYSTEMS* - Kandamulla Arachchige, Buddhika Priyashantha*; Mocanu, Mariana; Petrescu, Catalin; Zafiu, Claudiu
- **S7-80** - *NUMERICAL STUDY OF PERSONALIZED VENTILATION IMPACT ON OCCUPANT COMFORT IN ENCLOSED SPACES* - Georgescu, Matei Razvan*; Nastase, Ilinca; Sandu, Mihnea; Meslem, Amina; Bode, Florin
- **S7-111** - *ENERGY-EFFICIENT SOLUTION FOR SMART LIGHTING THROUGH IOT* - Tanasiev, Vladimir*, Necula, Horia; Alistar, Adrian; Pătru, George Cristian; Badea, Adrian

ROUND TABLE RT 1

The importance of power systems digitalization and the role of academia in promoting digital technologies

Thursday 14 October 2021

14:00-15:15 & 15:30-17:00

Location: UPB Central Library – Room 2.3

Session Chairs: Bogdan LEU, Gabriela SAVA

ROUND TABLE RT 2

Solvents and membrane for accelerating CO₂ capture processes development

Friday 15 October 2021

11:30-13:00

Location: UPB Central Library – Room 2.3

Session Chairs: Cristian DINCĂ