

CSE 2023

Conference for Sustainable Energy, 7th Edition
Transilvania University of Brasov, 26-28 October 2023

Conference venue:

**R&D Institute of the Transilvania University of Brasov; Laboratory Building: L2
Institutului Street No. 10, Brasov**

Synthetic Conference Program

Romanian time (CEWT+1)	Thursday, 26.10.2023
9:30 – 10:00	Participants registration
10:00 – 10:15	Opening Ceremony of CSE 2023 Ion Visa
10:15 – 10:30	Sustainable Development in the Brasov County Mihai Pascu
10:30 – 11:15	PL 1 Soteris Kalogirou
11:15 – 11:50	<i>Coffee break</i>
	Wind, hydro and hybrid renewable energy systems in carbon neutral communities
11:50 – 12:10	1.1.
12:10 – 12:30	1.2.
12:50 – 14:00	<i>Lunch</i>
	Solar-thermal systems for carbon neutral communities
14:00 – 14:20	2.1.
14:20 – 14:40	2.2.
	Workshop: Photocatalytic systems for advanced wastewater treatment
14:40 – 15:00	3.1.
15:00 – 15:20	3.2.
15:20 – 15:40	3.3.
15:40 – 16:00	3.4.
16:00 – 16:20	3.5.
16:20 – 16:40	3.6.
18:00 – 20:00	<i>Conference dinner, Restaurant: Roata Norocului</i>

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Romanian time (CEWT+1)	Friday, 27.10.2023
10:00 – 10:30	PL 2 Maria Gavrilescu
10:30 – 11:00	PL 3 Laurentiu Fara
11:00 – 11:30	<i>Coffee break</i>
	Photovoltaic systems for carbon neutral communities
11:30 – 11:50	4.1.
11:50 – 12:10	4.2.
12:10 – 12:30	4.3.
12:30 – 12:50	4.4.
12:50 – 13:10	4.5.
13:10 – 13:30	4.6
13:30 – 14:30	<i>Lunch</i>
	Cooperation in research, education and training on carbon neutral communities
14:30 – 14:50	5.1.
14:50 – 15:10	5.2.
	Saturday, 28.10.2023
10:00 – 11:30	Workshop: Trends in the research on sustainability

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Detailed Conference Program

(Presenting Author is underlined)

Thursday, October 26, 2023

9:30 – 10:00	Participants registration
10:00 – 10:15	Opening ceremony The Conference for Sustainable Energy in the sustainable community of the R&D Institute of the Transilvania University of Brasov <i><u>Visa Ion</u></i> <i>Transilvania University of Brasov, Romania</i>
10:15 – 10:30	Sustainable Development in the Brasov County <i><u>Mihai Pascu</u></i> Sustainable Development Agency of the Brasov County
10:30 – 11:15	PL1 - Status of Renewable Energy Systems in the World and Prospects <i><u>Kalogirou Soteris</u></i> Fellow of the European Academy of Sciences and Founding Member of the Cyprus Academy of Sciences, Letters, and Arts Cyprus University of Technology, Cyprus
11:15 – 11:50	Coffee break
11:50 – 12:30	Oral presentations: Wind, hydro and hybrid renewable energy systems in carbon neutral communities
12:30 – 14:00	Lunch break
14:00 – 14:40	Oral presentations: Solar-thermal systems for carbon neutral communities
14:40 – 16:20	Workshop: Photocatalytic systems for wastewater treatment
18:00 – 20:00	Conference dinner, Roata Norocului Restaurant

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Friday, October 27, 2023

- 10:00 – 10:30** **PL2 - *Phytomining* – Integrating environmental phyto-remediation with biomass valorization for the recovery of some critical metals and energy**
Gavrilescu Maria
Gheorghe Asachi Technical University of Iasi, Romania
- 10:30 – 11:00** **PL3 The strategy for the renewable energy sources in Romania and their development perspectives for the next 20 years**
Laurentiu Fara
Romanian Academy of Sciences, Renewable Energy Commission
- 11:00 – 11:30** Coffee break
- 11:30 – 13:10** **Oral presentations: Photovoltaic systems for carbon neutral communities**
- 13:10 – 14:20** Lunch
- 14:20 – 15:00** **Oral presentations: Cooperation in research, education and training on carbon neutral communities**

Saturday, October 28th, 2023

- 10:00 – 11:30** **Workshop: Trends in the research on sustainability
European trends and EU grant proposals**
Soteris Kalogirou, Anca Duta

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TOPIC 1: WIND, HYDRO AND HYBRID RENEWABLE ENERGY SYSTEMS IN CARBON NEUTRAL COMMUNITIES

Thursday, October 26, 2023, 11:50 – 12:30

Chairperson: Jaliu Codruta

11:50 – 12:10 **Dynamic analysis of two wind turbines with 2-DOF speed increaser and counter-rotating vs. conventional electric generator**

1.1. *Neagoie M.¹, Jaliu C.¹, Saulescu R.²*

¹Transilvania University of Brasov, RESREC R&D Centre

²Transilvania University of Brasov, Design of Mechanical Elements and Systems R&D Centre

12:10 – 12:30 **Energy performance of a ground – water heat pump installed in a Low Energy Building**

1.2.

Patrolea A., Moldovan M., Visa I.

Transilvania University of Brasov, RESREC R&D Centre

TOPIC 2: SOLAR-THERMAL SYSTEMS FOR CARBON NEUTRAL COMMUNITIES

Thursday, October 26, 2023, 14:00 – 14:40

Chairperson: Moldovan Macedon

14:00 – 14:20 **Numerical simulations and experimental testing of triangle solar thermal collectors efficiency**

2.1. *Rusea I., Moldovan M., Visa I.*

Transilvania University of Brasov, RESREC R&D Centre

14:20 – 14:40 **Efficiency improvement of triangle solar-thermal collectors with internal cavity by using turbulators with different shapes**

2.2.

Moldovan M., Rusea I., Visa I.

Transilvania University of Brasov, RESREC R&D Centre

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TOPIC 3 - WORKSHOP: PHOTOCATALYTIC SYSTEMS FOR ADVANCED WASTEWATER TREATMENT

Thursday, October 26, 2023, 14:40 – 16:20

Chairperson: Duta Anca

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| 14:40 – 15:00 | Photocatalytic beads for advanced wastewater treatment |
| 3.1. | <u>Covei M.</u>
Transilvania University of Brasov, RESREC Centre |
| 15:00 – 15:20 | Substrate influence on the properties of TiO₂ photocatalytic surfaces |
| 3.2. | <u>Stroescu H¹</u> , <u>Gartner M.¹</u> , <u>Calderon Moreno J.M.¹</u> , <u>Atkinson I.¹</u> ,
<u>Bratan V.¹</u> , <u>Covei M.²</u> , <u>Gheorghita S.²</u> , <u>Bogatu C.²</u> , <u>Perniu D.²</u> , <u>Duta A.²</u>
¹ Institute of Physical Chemistry <i>Ilie Murgulescu</i> of the Romanian Academy, Bucharest, Romania; ² Transilvania University of Brasov, RESREC Centre |
| 15:20 – 15:40 | VIS-/Solar-active composites based on TiO₂ and carbon derivatives (GO and gC₃N₄) |
| 3.3. | <u>Gartner M.¹</u> , <u>Stroescu H¹</u> , <u>Calderon Moreno J.M.¹</u> , <u>Atkinson I.¹</u> ,
<u>Bratan V.¹</u> , <u>Covei M.²</u> , <u>Gheorghita S.²</u> , <u>Bogatu C.²</u> , <u>Perniu D.²</u> , <u>Duta A.²</u>
¹ Institute of Physical Chemistry <i>Ilie Murgulescu</i> of the Romanian Academy, Bucharest, Romania; ² Transilvania University of Brasov, RESREC Centre |
| 15:40 – 16:00 | Photocatalytic thin films based on TiO₂ - g-C₃N₄ composites for advanced wastewater treatment |
| 3.4. | <u>Bogatu C.</u> , <u>Gheorghita S.</u> , <u>Covei M.</u> , <u>Duta A.</u>
Transilvania University of Brasov, RESREC R&D Centre |
| 16:00 – 16:20 | In situ prepared photocatalytic composite of TiO₂ - g-C₃N₄ |
| 3.5. | <u>Tismanar I.</u> , <u>Duta A.</u>
Transilvania University of Brasov, RESREC R&D Centre |
| 16:20 – 16:40 | Towards Quantum Nano-Carbon Electrodes without Carbon Footprint |
| 3.6. | <u>Mirica M.C.¹</u> , <u>Iorga M.I.¹</u> , <u>Buzatu D.L.¹</u> , <u>Putz M.V.^{1,2}</u>
¹ Laboratory of Renewable Energies-Photovoltaics, R&D National Institute for Electrochemistry and Condensed Matter, Timisoara
² Laboratory of Structural and Computational Physical-Chemistry for Nanosciences and QSAR, Biology-Chemistry Department, West University of Timisoara |

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TOPIC 4: PHOTOVOLTAIC SYSTEMS FOR CARBON NEUTRAL COMMUNITIES

Friday, October 27, 2023, 11:30 – 13:10

Chairperson: Burduhos Bogdan

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| 11:30 – 11:50 | Voltage balancing of the electrical energy storage elements |
| 4.1. | <u>Oancea C.D.</u>
Politehnica University of Bucharest, Faculty of Electronics,
Telecommunications and Information Technology, Romania |
| 11:50 – 12:10 | Analysis of software estimated vs. produced electrical energy by five types of photovoltaic modules installed in the continental climate |
| 4.2. | <u>Burduhos B.G., Neagoe M.</u>
Transilvania University of Brasov, RESREC R&D Centre |
| 12:10 – 12:30 | Hybrid SSA-GSK methaeuristic algorithm to determine the parameters of photovoltaic cells |
| 4.3. | <u>Ben-nagi A., AlHousrya O., Cotfas D.T., Cotfas P.A.</u>
Transilvania University of Brasov |
| 12:30 – 12:50 | Logistic metal-corrosion inhibitor adsorption isotherms for graphenic PV surfaces |
| 4.4. | <u>Putz M.V.^{1,2}</u>
¹ Laboratory of Renewable Energies-Photovoltaics, R&D National Institute for Electrochemistry and Condensed Matter –INCEMC– Timisoara;
² Laboratory of Structural and Computational Physical-Chemistry for Nanosciences and QSAR, Biology-Chemistry Department, West University of Timisoara |
| 12:50 – 13:10 | Photovoltaic armor and MPPT application for electric vehicles |
| 4.5. | <u>Corciova F., Cotfas P. A., Cotfas D. T., Stanca C. A., Craciun A., Comsit M.</u>
Transilvania University of Brasov, RESREC R&D Centre |
| 13:10 – 13:30 | Investigation of the partial shading effect of photovoltaic modules and optimization of their performance based on interconnection in a series-parallel PV approach |
| 4.6. | <u>Craciunescu D., Badescu Viorel</u>
"Candida Oancea" Institute of the Politehnica University of Bucharest, Romania |
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TOPIC 5: COOPERATION IN RESEARCH, EDUCATION AND TRAINING ON CARBON NEUTRAL COMMUNITIES

Friday, October 27, 2023, 14:30 – 15:10

Chairperson: Neagoie Mircea

14:30 - 14:50 **A science action dedicated to carbon-neutral education in Romania**

5.1. *Gorghiu G.¹, Bizoi M.², Mantescu G.³*

¹Teacher Training Department, Valahia University of Targoviste

²Faculty of Electrical Engineering, Electronics and Information
Technology, Valahia University of Targoviste

³Institute of Multidisciplinary Research for Science and Technology,
Valahia University of Targoviste

14:50 – 15:10 **Innovation and partnerships – driving forces for a successful
transition to a circular economy**

5.2. *Buiu O., Popescu I., Marinescu R.*

National Institute for R&D in Microtechnologies, Bucharest, Romania