



**Faculty of Power Engineering and Power Machines,  
Technical University of Sofia, Bulgaria**

## INVITATION

**26<sup>th</sup> Scientific Conference  
on  
Power Engineering and Power Machines  
Conference (PEPM'2021)  
of  
Faculty of Power Engineering and  
Power Machines**

# PE-PM 2021

**18-21 SEPTEMBER 2021**

**SOZOPOL, BULGARIA**

**FIRST CALL FOR PAPERS  
[www.copepm.eu](http://www.copepm.eu)**

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## Submission process

### Abstract

- ❖ Should be written in English, not exceeding 350 words;
- ❖ Full name(s) of Autor(s), their affiliation, e-mail address, contact of corresponding Author;
- ❖ Abstract template can be found on the conference website;
- ❖ To be sent to the e-mail of the conference:

[conference@copepm.eu](mailto:conference@copepm.eu)

### Full paper

- ❖ Should be submitted via on-line platform which will be further announced.
- ❖ Papers sent by e-mail will not be considered!
- ❖ Reports not complying with the mandatory layout or not received by the specified deadline shall not undergo reviewing and publishing

## Publication

- ❖ Blinded peer review process of the papers will be considered;
- ❖ **Accepted papers** will be published in E3S Web of Conferences (cited in **SCOPUS**; ISSN:2267-1242, SJR: 0,166)
- ❖ More information about the Journal can be found on the website <https://www.e3s-conferences.org> ;

## REGISTRATION FEE

Regular participant (By 31 August): 150 EUR  
Ph. D Student: 120 EUR  
Additional paper: 50 EUR  
Accompanying person: 60 EUR  
Regular participant (After 31 August): 180 EUR

No more than **2** papers per participant.

Registration fee covers: Publication of the accepted articles in E3S Web of Conferences Scientific Journal, attendance in all sessions, conference materials, all meals and Gala dinner. The Fee for other participants includes all the meals, coffee breaks and the Gala Dinner for one person.

## CONFERENCE TOPICS

Renewable Energy Technologies  
Thermodynamics, Heat and Mass Transfer  
Building Efficiency Improvements and HVAC systems  
Fundamental and Applied Fluid Mechanics  
Thermal Comfort, Indoor Air Quality  
Hydraulic and Pneumatic Fluid Power Systems  
Electrohydraulic Power and Control Systems  
Energy and Environment Protection  
Nuclear Technologies  
Control and Automation of energy processes  
Design and Technologies for Clothing and Textiles  
Advanced Fibres and Materials, Innovative Textiles  
Comfort Science, Ecological and Environmental Textiles

## PAYMENT DETAILS

The registration fee should be transferred to the bank account of Technical University-Sofia-Technologies Ltd, Technical University of Sofia, Sofia, Bulgaria

Eurobank Bulgaria AD, Sofia Branch  
1000 Sofia, 8, Kliment Ohridski, blvd  
SWIFT BIC (head quarter): BPBIBGSF  
in BGN: IBAN: BG89BPBI 79401 04613 9702  
in EUR: IBAN: BG98BPBI 79401 44613 9701

### Reason for payment:

Participation in the conference "PEPM'21".  
Also add the name of corresponding Author.  
Send a copy of the payment order to the conference email. Send invoice information.

## IMPORTANT DATES

30 March	Abstract submission
15 April	Abstract acceptance and notification
30 May	Full paper submission
30 June	Paper acceptance notification
30 Juli	"Camera ready submission"

## LANGUAGE

- ❖ Official language of the conference is English

## VENUE

- ❖ The conference will be hosted in resort town Sozopol, located on the Black sea coast;
- ❖ Conference address: ul. "Lazuren bryag" 7, Sozopol



Location of Sozopol

Coordinates:  42°25'N 27°42'E



# 2021

## PEPM Hybrid Conference AGENDA



Powered by Organizing Committee

# Conference flow

Friday, September 17

**14:00 – 18:00** Conference Registration

**19:30 – 23:00** Welcome cocktail ([Holiday house Sozopol](#))

Saturday, September 18

**9:00 – 12:00** Conference Registration

**10:00 – 10:30** Opening Ceremony  
Prof. Totyo Totev, Conference Chairman

**10:30 – 12:00** A Word from the Sponsors

**12:00 – 13:30** Lunch break (on your own)

## Saturday, September 18 Attendance session (Conference Hall)

**Session Chairman: Prof. Dr. Totyo Totev**

**13:30 – 13:40**

**ID 34:** Optimization of the distance between the rows in solar collectors' arrays

*Merima Zlateva*

**13:40 – 13:50**

**ID 36:** An approach for reducing the air conditioning costs in office buildings in Vietnam

*Momchil Vassilev; Van Hung Tran; Thanh Nhan Phan; Nikola Kaloyanov*

**13:50 – 14:00**

**ID 15:** Verification and validation of a new CFD model of fixed regenerator for heat recovery from air

*Angel Penev; Lyubomir P. Tsokov; Momchil Vassilev*

**14:00 – 14:10**

**ID 33:** Mathematical models of the energy characteristics of a backpressure steam turbine based on a simulation study

*Kaloyan Hr Hristov*

**14:10 – 14:20**

**ID 38:** Thermal-hydraulic analysis of a VVER-1000 core in MSLB conditions

*Ivan G Spasov*

**14:20 – 14:30**

**ID ...:** Modeling of unbalanced regenerators for recovery of waste heat from air: a modern overview

*Angel Penev*

**14:30 – 14:40**

**ID ...:** Influence of the return network water temperature on the production of heat and electricity from an backpressure steam turbine installation

*Ivan Genovski, Kaloyan Hristov*

**14:40 – 15:00**

*Coffee Break*

**15:00 – 15:10**

**ID 29:** Modelling indoor pollutant distribution via passive scalar and virtual box approach

*Georgi Pitchurov; Detelin Markov; Iskra S. Simova; Rositsa Velichkova; Peter Stankov; Radostina A. Angelova*

**15:10 – 15:20**

**ID 31:** Design and constructive – technological development for children’s art clothing

Radka Atanasova; Magdalena Pavlova; Monika Merkova

**15:20 – 15:30**

**ID 46:** Application of ICT in the Online Education of Apparel Design and Production within the framework of ICT-TEX project

Hassan Saeed; Yordan Kyosev; Radka Atanasova; Angel K Terziev; Carla Hertleer

**15:30 – 15:40**

Session discussions

**19:30 – 23:00**

Gala dinner ([Hotel Selena](#))



# Sunday, September 19 Online session (Virtual session 1)

Web link: [Joint the Virtual session 1 here](#)

**Session Chairman: Prof. Dr. Gabriel Negreanu**

**Topic: *Thermal Equipment***

**10:00 – 10:15**

**ID 7:** Comparative analysis between methane and hydrogen regarding ignition and combustion in diffusive mode

Gabriel P Negreanu; Lucian Mihăescu; STANCIU Dorin; Gheorghe Lazaroiu; Ionel Pisa

**10:15 – 10:30**

**ID 20:** Energy and economic analysis of an ORC combined to steam boiler

Mocanu Gabriel; Ion V. Ion; Cristian C Iosifescu; Florin Popescu

**10:30 – 10:45**

**ID 22:** Air-to-water heat pump assessment: Part 1 – Experimental setup

Nadezhda Doseva, Daniela Chakyrova, Svetoslav Stoianov, and Iliya Hadhidimov

**10:45 – 11:00**

**ID 28:** Air-to-water heat pump assessment: Part 2 – Exergetic and exergoeconomic analyses

Nadezhda Doseva, Daniela Chakyrova

**11:00 – 11:15**

**ID 37:** Comparative technical and economic analysis of innovative methods for waste heat recovery from flue gases for boiler type BKZ 220-100

Hristo Beloev, Iliya Iliiev, Angel Terziev, Andrey Kibarin, Madina Aliyarova

**11:15 – 11:30**

**ID 35:** An experimental study for drying *Pisum sativum* on an electric dryer and a heat pump dryer

Merima Zlateva; Thanh Nhan Phan; Van Hung Tran; Nikola Kaloyanov

**11:30 – 11:45**

**ID 40:** Influence evaluation of the ship propulsion system on the energy efficiency for small, medium and large container vessels

Viktor Kr. Nikiforov

<b>11:45 – 12:00</b>	<b>ID 41:</b> Impact study of the fuel type used on the energy costs values and harmful emissions generation Viktor Kr. Nikiforov
<b>12:00 – 12:15</b>	Session discussions
<b>12:15 – 13:30</b>	Lunch (on your own)

## Sunday, September 19 Online session (Virtual session 2)

Web link: [Join the Virtual session 2 here](#)

**Session Chairman: Assoc. Prof. Dr. Martin Ivanov**

Topic: *Thermodynamics, Heat and Mass Transfer, Building Efficiency Improvements and HVAC systems*

<b>13:30 – 13:45</b>	<b>ID 8:</b> Modelling and numerical simulation of fire in a coffee storage hall Nina Penkova; Kalin S Krumov; Boian M Mladenov; Yordan Stoyanov
<b>13:45 – 14:00</b>	<b>ID 42:</b> The influence of the structure of laminar flows on the characteristics of equipment Vasyl Arsirii; Oleg V Kravchenko; Bohdan SAVCHUK; Olena ARSIRII
<b>14:00 – 14:15</b>	<b>ID 11:</b> Heat transfer in outer walls with layers of different density Andrey Rymarov; Dmitriy Titkov
<b>14:15 – 14:30</b>	<b>ID 43:</b> Modelling and numerical simulation of the transport phenomena in water thermal energy storage tanks Nikola Kaloyanov; Rosen Tsekov; Nina Penkova
<b>14:30 – 14:45</b>	<b>ID 1:</b> Possibilities for obtaining pellets by single-screw extrusion of biomass from black pine (pinus nigra arn.) Apostol Simitchiev



**14:45 – 15:00**

**ID 2:** Thermodynamic and kinetic parameters of biomass from black pine (pinus nigra arn.)

Stanislava Tz. Tasheva

**15:00 – 15:15**

**ID 3:** Investigating the kinetics at low temperature heatpump drying and conventional drying of osmotic dehydrated blueberries

Hristo Hristov

**15:15 – 15:30**

Session discussions and Coffee brake

Topic: *Fundamental and Applied Fluid Mechanics, Hydraulic and Pneumatic Drive and Control Systems*

**15:30 – 15:45**

**ID 32:** Parameters influencing the droplet formation in a focusing microfluidic channel

Grigorov, Jordan A. Denev, Boris Kirov and Vassil Galabov

**15:45 – 16:00**

**ID 13:** GA-tuning of Multivariable PID Controller for Electrohydraulic Load-Sensing Servo System

Alexander St. Mitov; Tsonyo Slavov; Jordan Kralev; Ilcho Angelov

**16:00 – 16:15**

**ID 18:** Reduction of the Battery Capacity of Hybrid Electric Vehicle with the Help of Electrically Assisted Turbocharger

Ivaylo Stoyanov; Milen Mihaylov; Teodor B. Iliev (University of Ruse)

**16:15 – 16:30**

**ID 24:** Modularity Design of the Bamboo Plastic Fiber Forming Machine

Nguyen Thanh Nam ; Nguyen Hoang Hiep, Vinh Long

**16:30 – 16:45**

**ID 27:** Modularity design of instant coffee powder packaging machine

Svetlin Antonov; L. K. Dien

**16:45 – 17:00**

Session discussions. Closing of panel

## Sunday, September 19 Online session (Virtual session 3)

Web link: [Joint the Virtual session 3 here](#)

Session Chairman: Assoc. Prof. Dr. Angel Terziev

Topic: *Renewable energy technologies; Hydraulic and pneumatic machines and equipment*

**13:30 – 13:45**

**ID 9:** Assessing the diversification of energy mix with the methods of entropy and hierarchy of information

Iliyan I Petrov

**13:45 – 14:00**

**ID 12:** Renewable energies projects selection: block criteria systematization with AHP and Entropy-MOORA methods in MCDM

Iliyan I Petrov

**14:00 – 14:15**

**ID 26:** A design of solar battery cleaning system by modularity method

Svetlin Antonov; L. K. Dien

**14:15 – 14:30**

**ID 10:** Investigations of a vertical axis wind turbine with frontal cylindrical guide vane unit

Rossen Sashov Iliev

**14:30 – 14:45**

**ID 25:** A research on the formability and springback phenomena of pvc sheet in single point incremental forming (spif) technology

Nguyen Thanh Nam; Nguyen Hoang Hiep, Vinh Long; Nguyen Tan Hung; Tran Trong Hy

**14:45 – 15:00**

**ID 17:** Design of direct acting differential pressure control valve test bench.

Ognyan Bekriev ; Radoslav Asenov

**15:00 – 15:15**

**ID 19:** Experimental study of the accuracy of measuring of a central water meter

Aleksandar Stanilov

<b>15:15 – 15:30</b>	<b>ID 21:</b> CFD analysis of the behavior of a submersible vehicle in multiple flow directions and elevator and rudder fin configurations Georgi Todorov; Konstantin Kamberov; Blagovest N. Zlatev
<b>15:30 – 15:45</b>	<b>ID 4:</b> Operating stress of photovoltaic panels Ivaylo Stoyanov; Teodor B. Iliev
<b>15:45 – 16:00</b>	<b>ID 47:</b> On the Development of a Real Time Water Monitoring System Sandel Zaharia, Gabriel Iana, Cristian Monea and Mihnea Sandu
<b>16:00 – 16:10</b>	Session discussions and Coffee brake

Topic: *Design and Technologies for Clothing and Textiles*

<b>16:00 – 16:15</b>	<b>ID 46:</b> Application of ICT in the Online Education of Apparel Design and Production within the framework of ICT-TEX project Hassan Saeed, Yordan Kyosev, Radka Atanasova, Angel Terziev, Carla Hertleer
<b>16:15 – 16:30</b>	<b>ID 30:</b> Modification of Leather Surface Using Low-Pressure Plasma and Antimicrobial Reagent Sanja Ercegovic; Jadranka Akalović; Tomislav Ivanković; Anja Ludaš; Katarina Ištef
<b>16:30 – 16:45</b>	<b>ID 16:</b> Tangram based technology for clothing design Boryana G Georgieva-Gushtanova
<b>16:45 – 17:00</b>	<b>ID 23:</b> Methods for personal cooling in hot environment used in clothing and wearables Atanas Vasilev; Radostina A. Angelova; Rositsa Velichkova
<b>17:00 – 17:15</b>	<b>ID 39:</b> Development of boutique denim clothing by the "upcycling" method Magdalena Pavlova
<b>17:15 – 17:30</b>	Session discussions. Closing of panel

## Poster session, September 19 **Hall conference**

Session Chairman: Assoc. Prof. Dr. Merima Zlateva

Topic: *Renewable energy technologies*

**10:00 – 17:30**

**ID 45:** Determination of the optimal air-fuel ratio for upgraded biogas engine operation

Radostin Dimitrov, Penka Zlateva

**10:00 – 17:30**

**ID 44:** Electronic measuring system design for photovoltaic panels analysis

Krastin Yordanov; Iliya Hadzhidimov; Penka Zlateva