

2021 IEEE NTC Summer School on Nanotechnology – „Nanomaterials and Nanotechnologies for Advanced Energy Systems”



REPORT on 2021 IEEE NTC Summer School on Nanotechnology

Constanta, Romania, 20-24 September, 2021

Summer School Chair: Prof. dr. Eden Mamut, Institute for Nanotechnologies and Alternative Sources of Energy, „Ovidius” University of Constanta, Romania

PART A: Summary of the Event

The IEEE Nanotechnology Council approved the organisation of a five-day summer school dedicated to researchers, professors and students, hosted by the Institute for Nanotechnologies and Alternative Sources of Energy (INAES), located at the „Ovidius” University of Constanta, from 20th to 24th September 2021.

The Summer School was chaired by Prof. dr. Eden Mamut, INAES Director.

The organization, administration, clerical works and formalities have been assured by Andreea-Iuliana Presura and the team from the Institute for Nanotechnologies and Alternative Energy Sources from Ovidius University of Constanta.

The theme of the school was „Nanomaterials and Nanotechnologies for Advanced Energy Systems”.

The aim of the organizers was to provide a holistic approach in developing “safe-by-design” advanced energy systems integrating nanomaterials and nanotechnologies and using multiscale and multiphysics modeling and optimization for performance improvement, reduction of environmental impact and the substitution of critical materials. The advanced energy systems that have been taking into consideration were biomass boilers, fuel cells, thermoelectric convertors, PV and hybrid solar panels and electro-opto-chemical reactors.

PART B: Description of the Event

The 2021 IEEE NTC Summer School on Nanotechnology in Romania was organized as a hybrid event, with a partial physical presence in the „Ovidius” University Campus, Block C, Hall A2, and online, via ZOOM Platform.

INSAE developed an official website of the event which can be accessed at the following link: <https://insae.ro/index.php/summer-school-on-nanotechnology-2021/>
The call for applications was widely disseminated through the IEEE NTC official website, the official website of the event, e-mail and social media channels.

The event attracted a total of 157 registered participants from 17 different countries: Albania, Azerbaijan, Brazil, China, Cyprus, Ecuador, Egypt, Germany, Greece, India, Iraq, Japan, Malaysia, Republic of Moldova, Romania, Russia and Turkey.

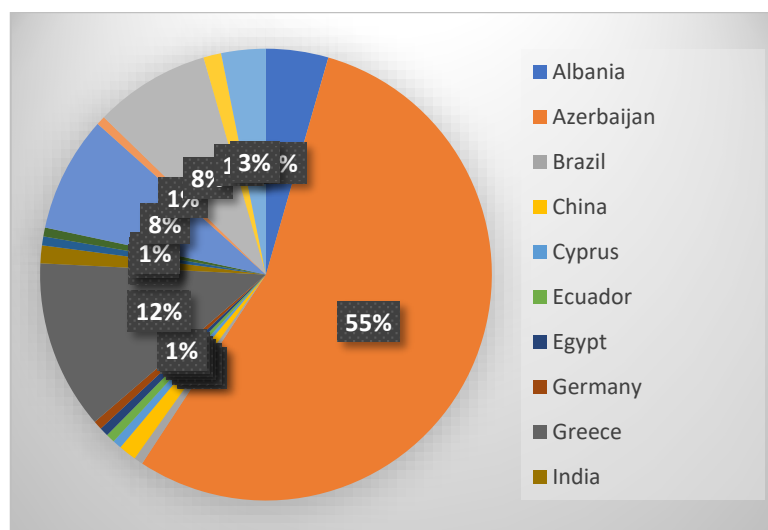


Fig. 1 – Centralized situation of the registrations to the 2021 IEEE NTC Summer School

In Table 1 there is included the schedule of the summer school, which consisted of 15 lectures that were provided by 12 lecturers.

Time	Monday September 20	Tuesday September 21	Wednesday September 22	Thursday September 23	Friday September 24
9-11	Eden Mamut: Multiscale & Multiphysics Optimization of Advanced Energy Systems Integrating Nanomaterials and Nanotechnologies	Bogdana Mitu: Opportunities in nanotechnology offered by plasma techniques for materials synthesis and functionalization	Abel Maharramov, Flora Hajiyeva: Polymer Nanocomposites and their Applications	Ion Stamatin, Adriana Balan: Nanostructured Electrocatalysts for High Performance Fuel Cells	Roberto Termine: Advanced plasmonic devices: enhancement of the properties of organic and perovskite solar cells through gold nanoparticles
11-13	Michele Giocondo: 2P-DLW nanofabrication technique for polymers, metals and nanocomposites, for the "Optimal Structures for High Performance Energy Systems Laboratory Demonstration	Antonio Ferraro: Metamaterials towards hyper resolution fabrication of 3D nanodevice.	Ion Stamatin, Adriana Balan: Nanostructured Electrocatalysts for High Performance Fuel Cells	Laboratory works 3NanoSAE	Tiziana Ritacco: Nanoparticles clustering for sensing, security and thermo – plasmonic applications
13-14	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break
14-16	John T.W. Yeow: Presentation of the IEEE Nanotechnology Technical Council Activities on Education Michele Giocondo: 2P-DLW nanofabrication technique for polymers, metals and nanocomposites,	Laboratory Works	Laboratory Works	Theodor Borca Tasciuc: Scanning Thermal Probe Microscopy for quantitative characterization of Seebeck coefficient, thermal conductivity, and temperature profiles at microscale	Diana Borca Tasciuc: Luminescent Solar Concentrators

	for the Optimal Structures for High Performance Energy Systems				
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Tabel 1 – Schedule of the 2021 IEEE NTC Summer School on Nanotechnology

During the works of the Summer School, there were offered to the participants possibilities for posting comments, questions, there were organized open discussions and other possibilities of interaction via the chat board of ZOOM Platform.

The video records of the lectures are uploaded on the website <https://insae.ro/index.php/summer-school-on-nanotechnology-2021/>

At the same time, the presentation slides and different movies are in the process of final review and very shortly will be uploaded on the same website.

After the closure of the Summer School, the participants received instructions regarding the procedure to obtain the Certificate of Attendance. They were informed that the organizers will issue the certificates based on their presence records in the ZOOM Platform during the lectures and the activities of the Summer School and based on the completion of an Assessment Quiz.

The Assessment Quiz was developed based on the questions (with single or multiple answer) that the lecturers have sent to the organizers.

The quiz (document attached) includes 25 questions with a single possible answer, each question counting for 4 points. The minimum threshold for the quiz was 60 points. After filling the quiz, the results were filled in the collecting database of the organizers. After the evaluation of the results, the participants will receive their Certificate of Attendance.

Some of the participants and lecturers are contributing at present to a special section of the IEEE Journal Transactions on Nanotechnology called “*Beyond Nano: Smart Nanomaterials, Nanotechnologies and Metamaterials for Plasmonics and Advanced Energy Systems*”, and a textbook with the contributions of the lecturers is under preparation.

[Transactions on Nanotechnology, Special Section “Beyond Nano: Smart Nanomaterials, Nanotechnologies and Metamaterials for Plasmonics and Advanced Energy Systems”](#)