



IEEE Nanotechnology Council
Advancing Nanotech for Humanity



2021 IEEE NTC

Summer School on Nanotechnology:

*“Nanomaterials & Nanotechnologies for
Advanced Energy Systems”*



Constanta, Romania
20-24 September, 2021

Name and Contact info of Proposer (Organization/Institution, City, email):

Prof. Eden Mamut

*Institute for Nanotechnologies and Alternative Sources of Energy, Ovidius University of
Constanta, Romania*

Summer School Aim and Theme	Topics, Lectures and Lecturers
<p><i>The aim of the summer school is to offer a holistic approach on the development of advanced energy systems integrating nanomaterials and nanotechnologies.</i></p> <p><i>The theme of the summer school is the holistic approach in developing “safe-by-design” advanced energy systems integrating nanomaterials and nanotechnologies for performance improvement, reduction of environmental impact and the substitution of critical materials. The advanced energy systems are referring to fuel cells, thermoelectric convertors, hybrid solar panels and electro-opto-chemical reactors.</i></p>	<p><i>Multiscale and Multiphysics Modeling and Optimization of Advanced Energy Systems integrating Nanomaterials and Nanotechnologies, Lecturer: Prof. Eden Mamut, PhD, Ovidius University of Constanta, Romania</i></p> <p><i>Optimal Structures for High Performance Energy Systems, Lecturer: Prof. Adrian Bejan, PhD, Duke University, USA</i></p> <p><i>Metamaterials for Opto-Electro-Bio-Chemical Systems, Lecturer: Dr. Michele Giocondo, CNR – Nanotech, Italy</i></p> <p><i>The Principles of “Safe-by-Design” Concept for Developing Systems Integrating Nanomaterials and Nanotechnologies, Lecturer: Dr. Flemming Cassee, European Nanosafety Cluster</i></p> <p><i>Substitution of Critical Materials by Nanomaterials and Nanotechnologies for Energy Applications, Lecturer: Prof. Anna Vedda, PhD, University of Milano-Bicocca, Italy</i></p> <p><i>Improving the Performances of the Thermoelectric Convertors by Nanotechnologies, Lecturer: Prof. Theodorian Borca-Tasciuc, PhD, Rensselaer Polytechnic Institute, USA</i></p> <p><i>Nanomaterials and Nanotechnologies for Fuel Cells, Lecturer: Prof. Robert Steinberger-Wilckens, PhD, University of Birmingham, UK</i></p>
<p>Members of Summer School Committee</p> <ul style="list-style-type: none">➤ <i>Prof. Eden Mamut, PhD, Ovidius University of Constanta, Romania</i>➤ <i>Prof. Theodorian Borca-Tasciuc, PhD, Rensselaer Polytechnic Institute, USA</i>➤ <i>Prof. Anna Vedda, PhD, University of Milano-Bicocca, Italy</i>➤ <i>Dr. Flemming Cassee, European Nanosafety Cluster</i>➤ <i>Dr. Michele Giocondo, CNR – Nanotech, Italy</i>➤ <i>Prof. Robert Steinberger-Wilckens, PhD, University of Birmingham, UK</i>➤ <i>Prof. Adrian Bejan, PhD, Duke University, USA</i>	

Tentative program and schedule

	Monday September 20, 2021	Tuesday September 21, 2021	Wednesday September 22, 2021	Thursday September 23, 2021	Friday September 24, 2021
Morning (2 hours)	Lecture on: Optimal Structures for High Performance Energy Systems, Lecturer: Prof. Adrian Bejan, PhD, Duke University	Lecture on: Multiscale and Multiphysics Modeling and Optimization of Advanced Energy Systems integrating Nanomaterials and Nanotechnologies, Lecturer: Prof. Eden Mamut, PhD, Ovidius University of Constanta, Romania	Lecture on: The Principles of “Safe-by-Design” Concept for Developing Systems Integrating Nanomaterials and Nanotechnologies, Lecturer: Dr. Flemming Cassee, European Nanosafety Cluster	Technical tour with visits to the Cernavoda Nuclear Power Plant, Petromidia Oil Refinery and RADET Renewable Energy Plant for District Heating	Lecture on: Improving the Performances of the Thermoelectric Convertors by Nanotechnologies, Lecturer: Prof. Theodorian Borca-Tasciuc, PhD, Rensselaer Polytechnic Institute, USA
Morning (2 hours)	Lecture on: Metamaterials for Opto-Electro-Bio-Chemical Systems, Lecturer: Dr. Michele Giocondo, CNR – Nanotech, Italy		Lecture on: Substitution of Critical Materials by Nanomaterials and Nanotechnologies for Energy Applications, Lecturer: Prof. Anna Vedda, PhD, University of Milano-Bicocca, Italy		Lecture on: Nanomaterials and Nanotechnologies for Fuel Cells, Lecturer: Prof. Robert Steinberger-Wilckens, PhD, University of Birmingham, UK
Afternoon (2 hours)	Lab demonstrations	Simulation Lab works	Lab Demonstration		Closure of the Summer school

The application form may be accessed at the following link:

https://docs.google.com/forms/d/e/1FAIpQLSezEHWUKiFulSSVCu1XleaAcWsCRGmNUyBv0tOs-jUMDilkQ/viewform?usp=sf_link