TRANSFORM 4EUROPE

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SOFIA UNIVERSITY ST. KLIMENT OHRIDSKI

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SMART TRANSFORMATION LECTURES
OPEN DUAL LECTURE SERIES

21 April 2023, 13:00-16:00 EEST

Sofia University "St. Kliment Ohridski"

15, Tsar Osvoboditel, blvd; 1504, Sofia, Bulgaria

Within the scope of the Transform4Europe Alliance, Sofia University invites you to take part in our Open Dual Lectures event. Four speakers come together in one place to hold a lecture on the following topics:

CLIMATE CHANGE & ENERGY SECURITY

13:00-14:30 EEST, Aula – Sofia University Rectorate

Speakers: Prof. Vanni Lughi, PhD, Department of Engineering and Architecture – University of Trieste, Italy

Kostantsa Rangelova, Senior Analyst, Economic Program, Center for the Study of Democracy, Sofia, Bulgaria

Moderator: Mariya Trifonova, PhD, Faculty of Economics and Business Administration

SMART CITIES FOR SUSTAINABLE DEVELOPMENT

14:30-16:00 EEST, Aula – Sofia University Rectorate

Speakers: Prof. dr. inż. Lucjan Kozielski, Faculty of Science and Technology, University of Silesia in Katowice, Poland

Mariyana Hamanova, Executive Director of Cleantech Bulgaria

Moderator: Assoc. Prof. Stelian Dimitrov, Faculty of Geology and Geography

The objectives of the event are:

✓ encourage the academia-industry dialogue;
✓ define knowledge and know-how transfer methodologies;
✓ professional update and growth;
✓ strengthening of the bonds among institutional partners

Zoom link: https://us02web.zoom.us/j/88139702643

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CLIMATE CHANGE & ENERGY SECURITY

From the entrepreneurial perspective:

The lecture will present the Energy and Climate Security Risk Index, a data-driven policy instrument developed by CSD. The index breaks down the vulnerabilities of Member States and the EU as a whole into four risk dimensions within the energy policy trilemma: achieving security of supply, affordability, and sustainability, all while minimizing geopolitical risks. The pilot assessment of the ECSRI demonstrates that Europe's energy and climate security risks have increased markedly since the annexation of Crimea in 2014. A number of European countries increased their dependence on Russian natural gas imports, with Italy and Germany alone accounting for half of this growth. To enable its influence over European energy markets, Russia entrenched powerful patronage networks to influence strategic decisions and undermine the common European energy and climate security policy. The tool dissects and compares the vulnerabilities of selected Member States and the EU as a whole and provides guidance on possible energy and climate security policy pathways. The lecture will touch upon on how this instrument could be used by private companies, financial institutions, and various economic actors.

Kostantsa is a Senior Energy and Climate Analyst at the Center for the Study of Democracy, focusing on the politics and economics of energy transition, energy security, and international energy markets, as well as European energy, climate, and just transition policies. Before joining the Center for the Study of Democracy, Kostantsa was directing research activities at JBC Energy in Vienna, an independent consultancy, where she focused on international energy markets and geopolitics, providing advisory and data-driven insights to leading international energy companies, financial institutions, and international organisations.

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From the academic perspective:

This lecture will focus on the urgent need, the dynamics and the possible bottlenecks of a transition to a radically different energy system. I will first show why acting on the energy system is by far the most important factor in abating greenhouse gas emissions; then I will describe some key issues, dynamics and technologies in the current and future energy system; finally, as the core of my lecture, I will show the role of materials and especially of critical raw materials on the energy transition, and how this can affect global economic and geopolitical equilibria.

Vanni Lughi is associate professor of materials at the University of Trieste. He received a PhD and a MS in Materials from the University of California at Santa Barbara, where he worked on functional thin films and coatings. As head of the nano Materials & Energy Laboratory at the University of Trieste, his research and teaching activity has been focusing over the past 15 years on nanostructured materials for energy-related applications (such as photovoltaics, thermal insulation, thermal barrier coatings) as well as on systemic, interdisciplinary and technoeconomic aspects key technologies for the energy transition. He has led or participated in over 10 energy-related research projects funded by public institutions and private companies. Since 2013, he is the director of the annual International Summer School on Energy "Giacomo Ciamician".

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SMART CITIES FOR SUSTAINABLE DEVELOPMENT

From the entrepreneurial perspective:

- Cross sectoral academia-business collaboration for greener and more sustainable urban planning and development.

  Cleantech Bulgaria is official partner of the European Institute for Innovation and Technologies (EIT) and the Knowledge and Innovation Communities (KICs) - EIT Climate KIC, EIT Manufacturing, EIT Food, EIT Urban Mobility, EIT Raw materials.

Mrs. Mariyana Hamanova is Executive director of Cleantech Bulgaria. She has over 10 years of experience in project management in the field of sustainable development, environmental protection, circular economy, optimization of resources in the industry and business etc. Mrs. Hamanova is responsible for management of various programs for business incubation, access to funding of start-ups, as well as establishing collaborations with the EIT Community.
Mariyana Hamanova graduated from the University of Konstanz, Germany and holds a dual Master's degree from FOM University - Essen, Germany and the Technical University of Sofia.

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From the academic perspective:

The lecture will present **advancements in digital technologies**, such as the Internet of Things (IoT), cloud computing, and cyber-physical systems that have revolutionized a broad spectrum of smart city applications. The significant contributions and rapid developments of advanced artificial intelligence-based technologies and approaches, like, machine learning and deep learning, which are applied for extracting accurate information from extensive data, perform a potential role in IoT applications. Moreover, blockchain technology's fast adoption also contributes a significant role in the development of the new digital smart city ecosystem. Thus, artificial intelligence and blockchain technology convergence revolutionize smart city infrastructures to establish sustainable ecosystems for IoT applications. Nevertheless, these advancements and technological improvements also provide both opportunities and challenges for sustainable development.

Professor Lucjan Kozielski initiated many joint activities between universities and industry. He managed numerous projects in the field of intelligent sensors, both in the field of basic research and the implementation of scientific achievements in industrial practice.
*L. Kozielski for the implementation of new techniques for the recovery of vibration energy from road and pavement slabs received a prestigious distinction - the **Polish Intelligent Development Award 2017**.*
Author of over 100 publications, 67 of which were published in international journals, and the author of 7 patents.