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National Recovery and Resilience Plan
of the Republic of Bulgaria

Scientific and Innovation Forum

"Science and practice in innovative materials and green technologies for sustainable development"

05.11.2025		
Ilia Valov Members of the Scientific and Innovation Council on Innovative Materials and Green Technologies	10:00–10:05	Welcoming
Neli Koseva Scientific Secretary-General of the BAS and Coordinator of the Investment C2.I2: "Increasing the innovation capacity of the BAS in the field of green and digital technologies" National Recovery and Resilience Plan	10:05–10:15	Congratulatory Address
Hydrogen Based Technologies **Chair Ilia Valov**		
Monica Santamaria *University of Palermo - Italy*	10:15–10:50	Electrochemical Technologies for Green Hydrogen Production and Biomass Valorization
Plamen Nikolov *Institute of Electrochemistry and Energy Systems* *Bulgarian Academy of Sciences*	10:50–11:25	Proton -acceptor and –donor Polymers as Additives Improving Electrical Performance to Vanadium Electrolyte for Red-Ox Flow Batteries
Coffee break 11:25–11:55		
Dimitrinka Nikolova *Institute of Catalysis* *Bulgarian Academy of Sciences*	11:55–12:30	Scaling Up Robust and Efficient Catalysts for Clean Hydrogen Technology: From Lab-Scale Synthesis to Technological Readiness
Galin Borisov *Institute of Electrochemistry and Energy Systems* *Bulgarian Academy of Sciences*	12:30–13:00	Zero-Gap Type Hydrogen Generator – Metal-Based Gas Diffusion Electrodes, Diaphragm/Separator Electrode Assembly, and Possibility for Stack Configuration
Discussion panel	13:00–13:30	
Lunch 13:30–14:30		

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Modern Low-Carbon Technologies. Renewable Energy Sources and CO_2 Capture, Storage and Utilization **Chair Tatyana Tabakova**		
Svetlana Ivanova *University of Seville - Spain*	14:30–15:10	Catalytic Hydrogenation Reactions as a Tool for CO_2 Valorization
Margarita Popova *Institute of Organic Chemistry with Centre of Phytochemistry Bulgarian Academy of Sciences*	15:10–15:40	CO_2 Capture on Adsorbents Prepared from Waste Materials
Coffee break 15:40–16:10		
Margarita Popova *Institute of Organic Chemistry with Centre of Phytochemistry Bulgarian Academy of Sciences* **Dimitar Panayotov** *Institute of General and Inorganic Chemistry Bulgarian Academy of Sciences* **Konstantin Hadjiivanov** *Institute of General and Inorganic Chemistry Bulgarian Academy of Sciences*	16:10–16:40	Carbon Capture, Utilization, and Storage (CCUS): Effective Technologies for Reducing CO_2 Emissions and Climate Change Mitigation Related Research at BAS
Alexander Radulov *Geological Institute Bulgarian Academy of Sciences*	16:40–17:10	From Earthquake Geology Toward Safe and Efficient Carbon Capture and Storage in North Western Bulgaria
Discussion panel	17:10–17:30	

06.11.2025

Technologies for Sustainable Biomass Valorization **Chair Svilen Simeonov**		
Fernanda Neira D'Angelo *TU/E - Netherlands*	10:00–10:30	Furanics as Bio-Based Building Block: Kinetics and Reaction Engineering Insights
Ivalina Trendafilova *Institute of Organic Chemistry with Centre of Phytochemistry Bulgarian Academy of Sciences*	10:30–10:50	Biomass-Derived Carboxylic Acid-Assisted Synthesis of Mesoporous Silica Xerogels

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Boyko Tsyntsarski *Institute of Organic Chemistry with Centre of Phytochemistry Bulgarian Academy of Sciences*	10:50–11:20	Ecological Technology for Conversion of Waste Biomass to an Innovative Product (Activated Carbon) with Wide Application
Coffee break 11:20–11:40		
Petko Denev *Institute of Organic Chemistry with Centre of Phytochemistry Bulgarian Academy of Sciences*	11:40–12:10	Subcritical Water Extraction: A Green Technology for Recovering Plant Biologically Active Substances
Carlos Afonso University of Lisbon - Portugal	12:10–12:40	SyntheticTransformations of Biomass Derived Building Blocks under Flow Conditions
Consolato Rossmini *Institute of Organic Chemistry with Centre of Phytochemistry Bulgarian Academy of Sciences*	12:40–13:00	From Biodiesel Byproduct to Dual Resource: Agueous-Phase Valorization of Glycerol and its Derivates
Ioanna Papavasileiou *University of Patras - Greece*	13:00–13:30	Energy Storage in Supercapacitors Based on Biomass Residues
Lunch 13:30–14:30		
Innovative Polymer, Composite, Metal Materials and Alloys **Chair Kiril Krezhov**		
Nikolay Nedialkov *Institute of Electronics Bulgarian Academy of Sciences*	14:30–15:00	Laser Methods for the Development of Sensors and Self-Cleaning Surfaces
Emil Philipov *Institute of Electronics Bulgarian Academy of Sciences*	15:00–15:20	Femtosecond Laser Surface Structuring of Glass and Polymers for Sustainable Applications in Photovoltaic Systems
Antoniya Sabcheva Ilieva *Burgas Free University*	15:20–15:50	Investigations of Polypropylene Composites Filled with Biogenic $CaCO_3$
Coffee break 15.50–16.10		
Martin Ravutsov *Institute of Organic Chemistry with Centre of Phytochemistry Bulgarian Academy of Sciences*	16:10–16:30	Towards Sustainable Synthesis of 5-Aminolevulinic Acid
Svetoslav Kolev *South-West University "Neofit Rilski" and IE-BAS*	16:30–16:50	Ferrite-Based Nanocomposites for Microwave Applications

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07.11.2025		
Chair Svilen Simeonov		
Georgios Avgouropoulos *University of Patras - Greece*	10:00–10:35	Technological Aspects of Internal Reforming Methanol Fuel Cells for Portable Applications
Allesandro Lavacchi *University of Florence-Italy*	10:35–11:10	From Design to Device: Integrating Nanostructures for Efficient Electrocatalysis
Round Table discussion with Members of the Scientific and Innovation Council 1, Project Coordinators, and Business Partners	11:10–13:30	
Svilen Simeonov Closing ceremony	13:30–13:35	