

Frontier Symposium of Engineered Science
&
2nd International Symposium on Emerging Materials and Devices
June 23 - June 29, 2024

Symposium Organizers
Zhanhu Guo, Northumbria University, UK
Nurxat Nuraje, National Laboratory Astana, Nazarbayev University, Kazakhstan

Day 1: Monday, June 24

Board Meeting

Venue: Nazarbayev University, conference hall C4, 268

Day 2: Tuesday, June 25

Venue: Rixos President Hotel, conference hall, Konayev 7, Astana

8:00 - 9:00	Registration
9:00 - 9:15	Opening Ceremony: Welcome Music by Kazakh National Art University Speakers: Prof. Zhanhu Guo, Prof. Nurxat Nuraje
9:15 - 12:30	Session 1: Advanced Polymer Nanocomposites Session Chairs: Prof. Salimgerey Adilov, Dr. Zhexenbek Toktarbay
9:15 - 9:45 Speaker 1:	<i>Keynote Speech</i> Topic: Multifunctions of Advanced Nanocomposites in Engineered Science Fields Speaker: Prof. Zhanhu Guo
9:45 - 10:15 Speaker 2:	<i>Keynote Speech</i> Topic: Composite Materials and Structures Speaker: Prof. Ramazan Asmatulu
10:15 – 10:35 Speaker 3:	Topic: Tunable nanostructures from polyaniline derivatives: adhesive gecko-inspired conducting polymers Speaker: Prof. Salimgerey Adilov
10:35 – 11:00	<i>Coffee Break</i>
11:00 – 11:15 Speaker 4:	Topic: Synthesis of gels based on acrylates and pentaerythritol tetrakis (3-mercaptopropionate) by thiol-ene “click” polymerization

	Speaker: Galiya Irmukhametova
11:15 - 11:30 Speaker 5:	Topic: MOF based nano composite membranes for selective separation of thiophene derivatives. Speaker: Aigerim Ospanova
11:30 - 11:50 Speaker 6:	Topic: Synthesis of low-porosity ZrO ₂ -based ceramics at low sintering temperatures for MLCC applications Speaker: Prof. Rafael Shairzyanov
11:50 - 12:10 Speaker 7:	Topic: Design of graphene oxide-based membranes for water purification from organic contaminants Speaker: Prof. Gulnar Sugurbekova
12:10 - 12:30 Speaker 8:	Topic: Polymer nano composite membranes for separation process Speaker: Dr. Zhexenbek Toktarbay
12:30 - 14:00	<i>Lunch Break</i>
14:00 – 16:30	Session 2: Smart Soft Materials Session Chairs: Dr. Khadichakhan Rafikova, Dr Munziya Abutalip
14:00 - 14:30 Speaker 1:	<i>Keynote speech</i> Topic: Polypholytes in Advanced Polymer Science and Emerging Technologies Speaker: Prof. Sarkyt Kudaibergenov
14:30 - 15:00 Speaker 2:	<i>Keynote speech</i> Topic: Smart Soft Materials with Multiscale Architecture and Dynamic Surface Topographies Speaker: Prof. Luyi Sun
15:00 – 15:15 Speaker 3:	Topic: Experimental and Numerical Simulation Studies of the Zwitterionic Polymers for Enhanced Oil Recovery Speaker: Damir Karimov
15:15 – 15:30 Speaker 4:	Topic: Unlocking the mysteries of influenza A: exploring its evolution, impact and future challenges Speaker: Prof. Nurgul Amangeldi
15:30 - 15:45 Speaker 5:	Topic: Development of Novel Functional Hybrid Materials Based on Conducting Polymers Speaker: Dr. Dana Kanzhgitova
15:45 – 16:00 Speaker 6:	Topic: Advanced Room-Temperature Hydrogen Detection Using Polyaniline-Based Conducting Polymers

	Speaker: Perizat Askar
16:00 – 16:30	<i>Coffee Break</i>
16:30 – 17:00	Session 3: Photocatalytic Water Splitting Session Chairs: Dr. Vladislav Kudryashov, Dr. Evgeniya Seliverstova
16:30 - 17:00 Speaker 1:	<i>Keynote Speech</i> Topic: Defect engineering towards improved photocatalysis Speaker: Prof. Chuanyi Wang
17:00 - 17:30 Speaker 2:	<i>Keynote Speech</i> Topic: Design of Functional Nanomaterials and Their Applications Speaker: Prof. Nurxat Nuraje
17:30 - 17:50 Speaker 3:	Topic: Heavy atom effect on the deactivation of excited electronic state of the dyes in the plasmon field of metal nanoparticle Speaker: Prof. Niyazbek Ibrayev
17:50 - 18:05 Speaker 4:	Topic: Photocatalytic activity of TiO ₂ /rGO/CdS nanocomposite Speaker: Dr. Evgeniya Seliverstova
18:05 – 18:20 Speaker 5:	Topic: Enhancing Solar Water-Splitting Efficiency with Upconversion Materials Speaker: Yerbolat Magazov
18:20 – 18:30 Speaker 6:	Topic: Science and Industry Speakers: Company Representatives JSC SciTest
18:30 - 19:30:	Poster Session: Best Poster Award by JSC SciTest Session Chairs: Dr. Olzat Toktarbaiuly, Dr. Aitkazy Kaisha

Day 3: Wednesday, June 26

Venue: Rixos President Hotel, conference hall, Konayev 7, Astana

9:00 - 10:30	Session 4: Biomass to Value Added Chemicals Session Chairs: Dr. Minavar Shaimardan, Dr. Maira Seiilgazy
9:00 - 9:30	<i>Keynote speech</i>

Speaker 1:	Topic: Benign-by-design sustainable protocol for the synthesis of platform chemicals Speaker: Prof. Rafa Luque
9:30 – 10:00 Speaker 2:	<i>Keynote speech</i> Topic: Biomass chemistry for the synthesis of pharmaceutical intermediates Speaker: Prof. Alina-Mariana Balu Balu
10:00 – 10:15 Speaker 3:	Topic: Microflow Synthesis of Prazosin from Agro-Based Biomass Speaker: Harry K. Megbenu
10:15 – 10:30 Speaker 4:	Topic: Synthesis of 5-HMF Using Innovative Approaches and DES Solvent Speaker: Makpal Rakhatkyzy
10:30 - 11:00	<i>Coffee Break</i>
11:00 – 14:00	Session 5: Functional Materials for Environmental and Nanomedicine Applications Session Chairs: Dr. Munziya Abutalip
11:00 – 11:30 Speaker 1:	<i>Keynote Speech</i> Topic: Mass Transfer Enhancement for Gas Diffusion Electrode Based Electrochemical Reactors Speaker: Prof. Terence Liu
11:30 - 11:50 Speaker 2:	Topic: Nanophotosensitizers toward advanced photodynamic therapy of Cancer Speaker: Prof. Gulzat Aitkaliyeva
11:50 - 12:10 Speaker 3:	Topic: Chitosan-gellan gum polyelectrolyte complex for isoniazid delivery Speaker: Prof. Cheung Siu Yin
12:10 - 12:25 Speaker 4:	Topic: Agricultural waste derived synthetic zeolites and nanocomposites for environmental applications Speaker: Prof. Zhandos Tauanov
12:30 – 13:30	<i>Lunch Break</i>
13:30 - 13:45 Speaker 5:	Topic: Mechanisms of mercury removal from water with highly efficient mxene and silver cryogel Speaker: Dr. Alzhan Baimenov
13:45 – 14:00 Speaker 6:	Enhanced Water Desalination with Multifunctional Zwitterionic Polymeric Membrane Speaker: Dr. Munziya Abutalip

14:00 - 15:40	Session 6: Advanced Functional Materials and AI Session Chairs: Dr. Bakhytzhan Baptayev, Dr. Dana Kanzhigitova
14:00 - 14:20 Speaker 1:	Topic: Three-stage creep of asphalt concrete Speaker: Prof. Bagdat Teltayev
14:20 - 14:35 Speaker 2:	Topic: Petroleum coke-based carbon materials and their electrochemical characteristics Speaker: Prof. Yerbol Tileuberdi
14:35 – 14:50 Speaker 3:	Topic: Materials for photovoltaic applications: Towards stable and cost-effective production of electricity from sunlight Speaker: Dr. Bakhytzhan Baptayev
14:50 – 15:05 Speaker 4:	Topic: Earthquake Forecasting in Kazakhstan Territory: Modeling with Machine Learning Speaker: Prof. Marat Nurtas
15:05 – 15:25 Speaker 5:	Topic: Desirable Properties of ZnSnOy by Annealing Treatment with a Real-Time Observation of Resistivity Speaker: Dr. Aitkazy Kaisha
15:25 – 15:40 Speaker 6:	Topic: Development of a novel composite utilizing low-rank coal and cattle manure Speaker: Dr. Alina Alibekova
15:40 – 15:55 Speaker 7:	Topic: 3D Conducting Hybrid Composite Polymer Network for an Ultra-Sensitive and Flexible Hydrogen Gas Sensor at Room Temperature and Micro-supercapacitors Speaker: Guldana Zhigerbayeva
15:55 – 16:10 Speaker 8:	Topic: Zinc oxide based materials for Concrete applications Speaker: Mergen Zhazitov
16:10 – 16:20 Speaker 9:	Topic: Science and Industry Speakers: Company Representatives JSC IC LAB
16:20-17:00	Poster Session: Best Poster Award by JSC IC LAB Session Chairs: Dr. Olzat Toktarbaiuly, Dr. Aitkazy Kaisha
17:00 - 18:00	Closing Session and Awards Ceremony
19:00 ---	Banquet Organized by Engineered Science Society

Day 3: Thursday, June 27.

Lab tour to Nazarbayev University/"Burabay Sightseeing for Invited Speakers"

Day 4: Friday, June 28.

Renewable Energy Laboratory (Research Discussion and Potential Collaboration)