

INNESS-2022 CONFERENCE PROGRAM

Venue - NAZARBAYEV UNIVERSITY, Block C3, 1 floor

DAY I, AUGUST 4, 2022

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| 8 ⁰⁰ –8 ⁵⁰ | REGISTRATION (near Red hall #1022) |
| 8 ⁵⁰ –9 ⁰⁰ | Red hall #1022 OPENING CEREMONY Prof. ZHUMABAY BAKENOV (Nazarbayev University (NU), National Laboratory Astana (NLA), Institute of Batteries (IoB)) Mr. RACHID MAANINOU (His Excellency Ambassador of the Kingdom of Morocco) |

KEYNOTE SESSION
Chairman: Prof. ZHUMABAY BAKENOV, Co-Chairman: Dr. ALIYA MUKANOVA

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| K1 9 ⁰⁰ –9 ³⁰ | Dr. RACHID YAZAMI Nanyang Technological University, Singapore | INNOVATIVE SOLUTIONS FOR LITHIUM-ION BATTERIES MANAGEMENT FOR ELECTRIC VEHICLES |
| K2 ONLINE 9 ³⁰ – 10 ⁰⁰ | Prof. ZHONG LIN WANG Georgia Institute of Technology, USA | THE FUNDAMENTAL SCIENCE AND TECHNOLOGY APPLICATIONS OF TRIBOELECTRIC NANOGENERATOR |
| K3 ONLINE 10 ⁰⁰ –10 ³⁰ | Prof. KIYOSHI KANAMURA Tokyo Metropolitan University, Japan | RECENT PROGRESS OF RECHARGEABLE LITHIUM METAL BATTERY |

10³⁰–10⁴⁰ **GROUP PHOTO** and 10⁴⁰–11⁰⁰ **COFFEE BREAK**

Red hall #1022
PARALLEL SESSIONS
Conference room #1010

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| AI. ADVANCED NANOMATERIALS FOR ENERGY STORAGE Chairman: Dr. RACHID YAZAMI, Co-Chairman: Dr. ALMAGUL MENTBAYEVA | | | BI. MODELING TOOLS IN MATERIALS SCIENCE Chairman: Prof. YANWEI WANG, Co-Chairman: Dr. AMANZHOL TURLYBEKULY | | |
| AI.1 11 ⁰⁰ –11 ³⁰ PLENARY | Prof. EVGENY ANTIPOV Moscow State University, RF | NOVEL PHOSPHATES AND FLUORIDE- PHOSPHATES ELECTRODE MATERIALS FOR ME-ION BATTERIES | BI.1 ONLINE 11 ⁰⁰ –11 ¹⁵ | Prof. DESMOND ADAIR NU, RK | AN EFFICIENT METHOD FOR COMBINING MULTI-CRITERIA SUBJECTIVE EVIDENCE WHEN SELECTING MATERIAL FOR FUEL CELL BIPOLAR PLATES |
| AI.2 ONLINE 11 ³⁰ –12 ⁰⁰ INVITED | Prof. HIROKAZU MUNAKATA Tokyo Metropolitan University, Japan | EVALUATION OF IONIC CONDUCTIVITY IN LiNi _{0.5} Co _{0.2} Mn _{0.3} O ₂ COMPOSITE ELECTRODES OF LITHIUM-ION BATTERIES BY DC POLARIZATION METHOD | BI.2 11 ¹⁵ –11 ³⁰ | Mr. MIRAT KARIBAYEV NU, RK | BINDING, REACTION, AND ACTIVATION ENERGIES OF OH ⁻ IONS INTERACTING AND REACTING TO SOME HEAD GROUPS OF ANION EXCHANGE MEMBRANE EXPLORED VIA THE DFT METHOD |
| AI.3 12 ⁰⁰ –12 ¹⁵ | Dr. ELISABETH TURRINI DistriTech | SOLUTIONS FOR BATTERY MATERIALS: SURFACE AREA AND PORE SIZE | BI.3 11 ³⁰ –11 ⁴⁵ | Ms. AIGERIM KABIEVA NU, RK | OPTIMAL DISTRIBUTION OF CATALYST IN POROUS PELLETS FOR A QUASI-STEADY-STATE REACTION WITH LANGMUIR-HINSHELWOOD KINETICS |
| AI.4 ONLINE 12 ¹⁵ –12 ³⁰ | Mr. ALEXANDR RYABIN Ural Federal University, RF | SINGLE PARTICLE APPROACH TO RAMAN STUDY OF LiFePO ₄ : SPATIAL RESOLUTION AND LASER- INDUCED DECOMPOSITION | BI.4 11 ⁴⁵ –12 ⁰⁰ | Ms. SALTANAT KAZBEK NU, RK | ENHANCEMENT OF THE POROUS CATALYST PRODUCTIVITY BY USING GAUSSIAN NONUNIFORM ACTIVITY DISTRIBUTION UNDER UNSTEADY-STATE REGIME |
| AI.5 12 ³⁰ –12 ⁴⁵ SPONSOR | Mr. VADIM DARNITSIN Interactive Corporation | THE NANO PARTICLE FORMATION BY ARC PLASMA DEPOSITION SYSTEM | BI.5 12 ⁰⁰ –12 ¹⁵ | Ms. AINUR DUSENOVA Zhubanov Aktobe Regional University, RK | MODEL OF SINGLE-ELECTRON TRANSISTOR BASED ON PRISMANES |
| | | | BI.6 ONLINE 12 ¹⁵ –12 ³⁰ | Prof. DESMOND ADAIR, NU, RK | SIMULATION OF HARVESTING VIBRATIONAL ENERGY WHEN UTILIZING MATERIAL WORK FUNCTIONS USING THE MODIFIED DIFFERENTIAL TRANSFORMATION METHOD |

LUNCH BREAK

Red hall #1022
PARALLEL SESSIONS
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| AII. ADVANCED NANOMATERIALS FOR ENERGY STORAGE Chairman: Prof. EVGENY ANTIPOV, Co-Chairman: Dr. AISHUAK KONAROV | | | BII. ADVANCED NANOMATERIALS FOR DIFFERENT APPLICATIONS Chairman: Prof. MANNIX BALANAY, Co-Chairman: Dr. FAIL SULTANOV | | |
| AII.1 ONLINE 14 ⁰⁰ –14 ³⁰ PLENARY | Prof. NAE-LIH WU National Taiwan University, Taiwan | ENGINEERING ARTIFICIAL ELECTRODE- ELECTROLYTE INTERPHASE FOR ADVANCED LI- ION BATTERIES | BII.1 14 ⁰⁰ –14 ³⁰ INVITED | Prof. ZULKHAIR MANSUROV Institute of Combustion Problems, RK | RECENT ADVANCES AND OUTLOOK IN NANOTECHNOLOGY |
| AII.2 14 ³⁰ –15 ⁰⁰ PLENARY | Prof. ARTEM ABAKUMOV Skolkovo Institute of Science and Technology (Skoltech), RF | HOW ADVANCED TRANSMISSION ELECTRON MICROSCOPY CAN CONTRIBUTE TO BATTERY RESEARCH? | BII.2 14 ³⁰ –14 ⁴⁵ | Mr. ZHANDOS SADIRKHANOV NU, RK | SELF-POWERED ORGANOMETAL HALIDE PEROVSKITE PHOTODETECTOR WITH EMBEDDED SILVER NANOWIRES |
| AII.3 ONLINE 15 ⁰⁰ –15 ³⁰ INVITED | Prof. FU MING WANG National Taiwan University of Science and Technology, Taiwan | THE DEVELOPMENT OF SUPER ELECTRICALLY CONDUCTIVE SI MATERIAL WITH POLYMER BRUSH ACID AND EMERALDINE BASE AND ITS AUTO-SWITCH DESIGN FOR HIGH-SAFETY AND HIGH-PERFORMANCE LITHIUM-ION BATTERY | BII.3 14 ⁴⁵ –15 ⁰⁰ | Mr. ARTYOM NOVIKOV Skoltech, RF | CHARGE-TRANSPORT MATERIALS IMPACT ON THE PEROVSKITE SOLAR CELLS STABILITY |
| AII.4 15 ³⁰ –15 ⁴⁵ SPONSOR | Mr. ALEXANDER PUCHKOV E-Global Corporation | RIGAKU'S X-RAY SPECTROMETERS AND DIFFRACTOMETERS | BII.4 15 ⁰⁰ –15 ¹⁵ | Ms. ZHULDYZ YELZHANOVA NU, RK | A MORPHOLOGICAL STUDY OF SOLVOTHERMALLY GROWN SnO ₂ NANOSTRUCTURES FOR APPLICATION IN PEROVSKITE SOLAR CELLS |
| AII.5 15 ⁴⁵ –16 ¹⁵ INVITED | Prof. SERGEY LEVCHENKO Skoltech, RF | NOVEL SYMBOLIC REGRESSION AND DATA MINING APPROACHES IN ENERGY MATERIALS RESEARCH | BII.5 15 ¹⁵ –15 ³⁰ | Mr. IVAN PRIKHNO Moscow State University, RF | SWITCHABLE MEMBRANE MATERIALS BASED ON ELECTROACTIVE POLYAZINES |
| AII.6 16 ¹⁵ –16 ⁴⁵ | Prof. PAVEL SOROKIN National University of Science and Technology MISiS, RF | CURRENT PROGRESS IN THE STUDY OF ULTRATHIN DIAMOND FILMS. ACHIEVEMENTS AND CHALLENGES | BII.6 15 ³⁰ –15 ⁴⁵ | Dr. EKATERINA FEDOTOVA Moscow Power Engineering Institute, RF | EFFECTS OF CLIMATE VARIABILITY AND CLIMATE CHANGE ON WIND POWER INTEGRATION INTO POWER SYSTEMS |

COFFEE BREAK

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| 16 ¹⁵ –17 ⁰⁰ LABORATORY TOUR Dr. AMANZHOL TURLYBEKULY | 16 ⁴⁵ –18 ⁰⁰ POSTER SESSION Shanyrak Hall Chairman: Dr. BATUKHAN TATKAYEV; Co-chairman: Mr. ARMAN UMIRZAKOV; Co-chairman: Dr. ARAILYM NURPEISSOVA |
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| Red hall #1022 | | PARALLEL SESSIONS | | Conference room #1010 | |
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| AIII. ADVANCED NANOMATERIALS FOR ENERGY STORAGE | | | BIII. ADVANCED NANOMATERIALS FOR DIFFERENT APPLICATIONS | | |
| Chairman: Prof. ZHUMABAY BAKENOV, Co-Chairman: Prof. BERIK UZAKBAIULY | | | Chairman: Dr. SERGEY TOKAREV, Co-Chairman: Dr. BAKTIYAR SOLTABAYEV | | |
| K4 ONLINE 09 ³⁰ –09 ³⁰ KEYNOTE | Prof. SUNG-SOO KIM Chungnam National University, South Korea | BOOSTING THE ELECTROCHEMICAL PROPERTIES OF Mg-DOPED SiO _x ALLOY BY CARBON COATING FOR FABRICATION OF HIGH-ENERGY LITHIUM-ION BATTERIES | BIII.1 09 ³⁰ –09 ⁴⁵ | Dr. SERGEY TOKAREV Nesmeyanov Institute of Organoelement Compounds of Russian Academy of Sciences, RF | RUTHENIUM (II) COMPLEXES OF IMIDAZO-1,10-PHENANTHROLINES: HETEROGENEOUS ELECTRON TRANSFER AND GAS SENSORY PROPERTIES |
| K5 ONLINE 9 ³⁰ –10 ⁰⁰ KEYNOTE | Prof. SEUNG-TAEK MYUNG Sejong University, South Korea | MN-BASED HIGH-CAPACITY CATHODE MATERIALS FOR SODIUM-ION BATTERY | BIII.2 09 ⁴⁵ –10 ⁰⁰ | Ms. ALIYA ZHAGIPAROVA NU, RK | KEY FACTORS AND PERFORMANCE CRITERIA IN WEARABLE STRAIN SENSORS BASED ON POLYMER NANOCOMPOSITES |
| AIII.1 10 ⁰⁰ –10 ¹⁵ | Ms. YERKEZHAN YERKINBEKOVA, NU, RK | FUNCTIONALIZED LIGNIN-CONTAINED NANOFIBROUS SEPARATOR WITH HIGH STABILITY FOR SAFE LITHIUM-ION BATTERIES BY UV-ELECTROSPINNING | BIII.3 10 ⁰⁰ –10 ¹⁵ | Dr. GULNUR KALIMULDINA, NU, RK | FLEXIBLE SINGLE ELECTRODE TRIBOELECTRIC NANOGENERATOR |
| AIII.2 10 ¹⁵ –10 ³⁰ | Ms. NARDANA BAZYBEK NU, RK | MAXIMIZING SPECIFIC CAPACITY OF NUTTY HARD CARBON: IMPACT OF TREATMENT CONDITIONS ON STRUCTURAL AND ELECTROCHEMICAL PROPERTIES | BIII.4 10 ¹⁵ –10 ³⁰ | Mr. YERKEBULAN KADYROV NLA, RK | Ti DOPED ZnO FILMS DEPOSITED BY MAGNETRON SPUTTERING FOR GAS SENSORS |

COFFEE BREAK

| AIV. ADVANCED NANOMATERIALS FOR ENERGY STORAGE | | | BIV. ADVANCED NANOMATERIALS FOR DIFFERENT APPLICATIONS | | |
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| Chairman: Prof. ARTEM ABAKUMOV, Co-Chairman: Dr. NURZHAN UMIROV | | | Chairman: Dr. EVGENIIA STEPANIDENKO, Co-Chairman: Dr. BAKTIYAR SOLTABAYEV | | |
| AIV.1 10 ⁴⁵ –11 ⁰⁰ | Ms. ELENA ROMADINA Skoltech, RF | NOVEL ORGANIC MATERIALS FOR NON-AQUEOUS REDOX FLOW BATTERIES: IMPLEMENTATION OF TRIARYLAMINE AND PHENAZINE CORE STRUCTURES | BIV.1 ONLINE 11 ⁰⁰ –11 ¹⁵ | Dr. ELENA USHAKOVA ITMO University, RF | CHIRAL CARBON DOTS FOR BIOAPPLICATIONS |
| AIV.2 11 ⁰⁰ –11 ¹⁵ | Dr. MIKHAIL PETROV Mendeleev University of Chemical Technology of Russia, RF | HIGH-POWER AND INEXPENSIVE ORGANIC NEGOLYTE FOR REDOX FLOW BATTERY BASED ON ANTHRAQUINONE SULFO-DERIVATIVES MIXTURE | BIV.2 11 ¹⁵ –11 ³⁰ | Dr. EVGENIIA STEPANIDENKO ITMO University, RF | NIR-EMISSIVE CARBON DOTS PRODUCED FROM ORGANIC DYES VIA TEMPLATE-ASSISTED METHOD |
| AIV.3 11 ¹⁵ –11 ⁴⁵ INVITED | Prof. TAYFUR ÖZTÜRK Middle East Technical University, Turkey | DEVELOPMENT OF POLYAMORPHOUS CATHODES FOR IT-SOFCs | BIV.3 11 ³⁰ –11 ⁴⁵ | Dr. RUSTAM SHARIPOV, Kazakh-British Technical University, RK | USING THE WORKS OF M. FARADAY FOR THE DEVELOPMENT OF RESEARCH |
| AIV.4 11 ⁴⁵ –12 ⁰⁰ | Dr. FYODOR MALCHIK al-Farabi Kazakh National University, RK | BOOSTING MXENE CAPACITY BY SELF-OXIDATION IN AIR ATMOSPHERE FOR WATER-IN-SALT ELECTROLYTE-BASED SUPERCAPACITOR | BIV.4 11 ⁴⁵ –12 ⁰⁰ | Dr. GAUKHAR SMAGULOVA al-Farabi Kazakh National University, RK | OBTAINING CELLULOSE FIBERS FROM THE FALLEN LEAVES |
| AIV.5 12 ⁰⁰ –12 ¹⁵ | Ms. MADINA KALIBEK NU, RK | P-DOPED COFFEE GROUND-DERIVED HARD CARBON FOR BOOSTING SODIUM-ION BATTERIES | BIV.5 12 ⁰⁰ –12 ¹⁵ | Mr. BAYAN K Aidar al-Farabi Kazakh National University, RK | OBTAINING COMPOSITIONAL FIBERS VIA ELECTROSPINNING METHOD |
| AIV.6 ONLINE 12 ¹⁵ –12 ²⁵ SPONSOR | Dr. JÁNOS GOMBKÖTŐ G and G Instruments Ltd. | ANALYTICAL EQUIPMENT FOR CATALYST AND BATTERY CHARACTERISATION | BIV.6 ONLINE 12 ¹⁵ –12 ³⁰ | Dr. EKATERINA SOLNTSEVA Rosatom State Atomic Energy Corp., RF | ROSATOM STATE ATOMIC ENERGY CORPORATION CAPACITIES AND TECHNOLOGIES IN HYDROGEN ENERGY |

LUNCH BREAK

| Red hall #1022 | | PARALLEL SESSIONS | | Conference room #1010 | |
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| AV. ADVANCED NANOMATERIALS FOR ENERGY STORAGE | | | BV. ADVANCED MATERIALS FOR DIFFERENT APPLICATIONS | | |
| Chairman: Prof. DMITRY PELEGOV, Co-Chairman: Dr. DAUREN BATYRBEKULY | | | Chairman: Dr. BATUKHAN TATYKAYEV, Co-Chairman: Dr. YER-TARGYN TLEUKENOV | | |
| AV.1 ONLINE 14 ⁰⁰ –14 ³⁰ INVITED | Dr. SIGITA TRABESINGER Research Department General Energy (ENE) Villigen, Switzerland | DECIPHERING THE MECHANISM OF FEC-INDUCED SEI FORMATION IN LI-ION BATTERIES | BV.1 ONLINE 14 ⁰⁰ –14 ³⁰ PLENARY | Prof. TORU WAKIHARA The University of Tokyo, Japan | UNDERSTANDING AND CONTROLLING ZEOLITE SYNTHESIS |
| AV.2 14 ³⁰ –15 ⁰⁰ INVITED | Prof. DMITRY PELEGOV Ural Federal University, RF | LIMITATIONS AND CAPABILITIES OF MICRO-RAMAN SPECTROSCOPY. ELECTRODE MATERIALS FOR LITHIUM BATTERY | BV.2 14 ³⁰ –15 ⁰⁰ INVITED | Prof. NURXAT NURAJE, NU RK | DESIGNING HETEROSTRUCTURED NANOMATERIALS FOR PHOTOCATALYTIC HYDROGEN GENERATION |
| AV.3 15 ⁰⁰ –15 ¹⁵ | Mr. OLZHAS KAUPBAY al-Farabi Kazakh National University, RK | REDUCED FORM OF PRUSSIAN BLUE (PRUSSIAN WHITE) CATHODE MATERIAL FOR APPLICATION IN TWO ELECTRODE SYSTEMS | BV.3 15 ⁰⁰ –15 ¹⁵ | Dr. ANASTASSIA MASHENTSEVA, The Institute of Nuclear Physics, RK | COMPOSITE-TRACK ETCHED MEMBRANES FOR ENVIRONMENTAL APPLICATIONS |
| AV.4 ONLINE 15 ¹⁵ –15 ³⁰ | Mr. YUMA SHIMBORI Tokyo Metropolitan University, Japan | APPLICATION OF 3DOM PI SEPARATOR TO LITHIUM METAL BATTERIES WITH IONIC LIQUIDS BASED ELECTROLYTE | BV.4 15 ¹⁵ –15 ³⁰ | Mr. NIKOLAY VINOGRADOV Samara State Technical University, RF | COMPOSITE ALUMINOSILICATE MATERIAL BASED ON HALLOYSITE AND MCM-41 AS A SUPPORT FOR HIGHLY EFFICIENT HYDROTREATING CATALYSTS |
| AV.5 15 ³⁰ –15 ⁴⁵ | Mr. NIKITA LUCHININ Skoltech, RF | KTIPO ₄ F AND α-TIPO ₄ AS ELECTRODE MATERIALS FOR METAL-ION BATTERIES | BV.5 15 ³⁰ –15 ⁴⁵ | Mr. DMITRY KOGOLEV Tomsk Polytechnic University, RF | LASER-ASSISTED ABLATION OF Uio-66 METAL-ORGANIC FRAMEWORK ON THE PET SURFACE FOR NOVEL ELECTRODE MATERIALS |
| AV.6 15 ⁴⁵ –16 ⁰⁰ | Mr. BAGDAULET SHUGAY NU, RK | ENHANCEMENT OF THE ELECTROCHEMICAL PERFORMANCE OF THE CATHODE MATERIAL NaNi _{0.5} Mn _{0.5} Zr _{0.2} O ₂ | | | |
| AV.7 16 ⁰⁰ –16 ¹⁵ | Mr. NURZHAN BAIKALOV NU, RK | CATALYTIC EFFECTS OF DIFFERENT LOADINGS OF Ni NANOPARTICLES ENCAPSULATED IN FEW LAYERS N-DOPED GRAPHENE AND SUPPORTED BY NDOPED GRAPHITIC CARBON IN LSB | | | |

COFFEE BREAK

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| 16 ⁰⁰ –16 ⁴⁵ LABORATORY TOUR Dr. AMANZHOL TURLYBEKULY (ask at the registration desk) | 16 ¹⁵ –17 ³⁰ POSTER SESSION Chairman: Dr. BATUKHAN TATYKAYEV; Co-chairman: Mr. ARMAN UMIRZAKOV; Co-chairman: Ms. AIGUL SHONGALOVA |
| 17 ³⁰ –18 ⁰⁰ | AWARD & CLOSING CEREMONY |
| 18 ⁰⁰ –18 ⁴⁰ | GALA PARTY |

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| SIGHTSEEING (ask at the registration desk) | |
| 09 ⁰⁰ –12 ⁰⁰ | The "ALZHIR" MUSEUM AND MEMORIAL COMPLEX (https://museum-alzhir.kz/) |
| 09 ⁰⁰ –18 ⁰⁰ | "KULAGER" RECREATION CENTER |