

Program

Time: May 17-19, 2023

Venue: Hyatt Regency Osaka, Japan

Registration

Time: 09:00-21:00, May 16, 2023 (Tuesday); Place: Lobby, 1F, Hyatt Regency Osaka

Opening Ceremony

Time: 09:00-09:10, May 17, 2023 (Wednesday); Place: Sapphire + Crystal, 2F, Hyatt Regency Osaka

Keynote Forum

Time: 09:10-12:10, May 17, 2023 (Wednesday); Place: Sapphire + Crystal, 2F, Hyatt Regency Osaka

Moderator *Dr. Peter B. Harrington*, Professor, Ohio University, USA

09:10-09:15 **Moderator's Introduction**

09:15-09:40 *Title: Chiroptical Spectroscopy in the Solid State*

Dr. Reiko Kuroda, Professor, Chubu University; Emeritus Professor of the University of Tokyo, Japan

09:40-10:05 *Title: The Virtual Patient to Test Drugs In-silico*

Dr. Hans Leuenberger, Professor Emeritus, University of Basel, Switzerland

10:05-10:30 *Title: Catalytic Activity and Colloidal Stability of Lipid-Palladium Nanoparticle Assemblies in Water*

Dr. Young-Seok Shon, Professor, California State University, USA

10:30-10:55 *Title: Integrating Smart Metals and Damage Resistant Materials in Replaceable Components for Bridges of the Future*

Dr. M. Saiid Saiidi, Professor Emeritus, University of Nevada, Reno, USA

10:55-11:20 *Title: Machine Learning Opportunities for Chemical Analysis*

Dr. Peter B. Harrington, Professor, Ohio University, USA

11:20-11:45 *Title: Strategy of Hybrid Concept for the Sustainable "Coal-to Green Energy Transition" - Plan 2050 in Bulgaria*

Dr. Georgi Dimitrov Todorov, Professor, Head of CoE "Mechatronics and Clean Technologies", Dean of the Faculty of Industrial Technology, Technical University of Sofia, Bulgaria

11:45-12:10 *Title: Bound States in the Continuum and Non-linear Wave Phenomena*

Dr. Sergei V. Shabanov, Professor, University of Florida, USA (Video)

The 8th Annual Conference of AnalytiX-2023

AnalytiX 01: Frontiers in Microscopy and Molecular Imaging

Time: 14:00-17:40, May 17, 2023 (Wednesday); Place: Tatsuta, 5F, Hyatt Regency Osaka

Chair *Dr. Jay Theodore Cremer*, Chief Scientist, Adelphi Technology, Inc., USA

Co-Chair *Dr. Knut Moeller*, Professor for Medical Informatics, Furtwangen University, Germany

14:00-14:05 **Chair's Introduction**

14:05-14:30 *Title: Polarized Red Laser 650 nm Microscopy: Imaging Thick Sections of Teeth*

Dr. Santiago Gomez, Professor, University of Cadiz, Spain

- 14:30-14:55 **Title:** *Polarized, Cold Neutron Microscopy with Magnetic Compound Refractive Lenses*
Dr. Jay Theodore Cremer, Chief Scientist, Adelphi Technology, Inc., USA
- 14:55-15:20 **Title:** *Microscope Stage for Cells Live Measurements under Constant Magnetic Force - Design, Develop and Research*
Dr. Daniel Dziob, Jagiellonian University Medical College, Poland
- 15:20-15:45 **Title:** *Ultrathin Metal Coatings as a Solution for Successful SEM Imaging of Nano-electrospinning Fibers*
Dr. Anna E. Walkiewicz, Application Specialist, Quorum Technologies Limited, UK
- 15:45-16:00 **Coffee Break**
- 16:00-16:25 **Title:** *Real-Time Lung Perfusion Monitoring with Electrical Impedance Tomography*
Dr. Knut Moeller, Professor for Medical Informatics, Furtwangen University, Germany
- 16:25-16:50 **Title:** *Changes in Pelvic Alignment in a Woman Before and After Childbirth, Using Three-Dimensional Pelvic Models Based on Magnetic Resonance Imaging: A Longitudinal Observation Case Report*
Dr. Asuka Sakamoto, Lecturer, Nishikyusyu University, Japan
- 16:50-17:15 **Title:** *Low Energy Electron Microscopy for Advanced Materials*
Dr. Iлона Mullerova, Director, Institute of Scientific Instruments, Czech Academy of Sciences, Czech Republic
- 17:15-17:40 **Title:** *Understanding Catalyst Nanoparticles for Energy Conversion by Advanced Electron Microscopy*
Dr. Paulo Ferreira, Full Professor, Department of Mechanical Engineering at IST, University of Lisbon, Portugal

AnalytiX 02: Crystallography and Crystal Engineering

Time: 14:00-18:05, May 17, 2023 (Wednesday); Place: Yoshino, 5F, Hyatt Regency Osaka

Chair **Dr. Yuzuru Miyazaki**, Professor, Tohoku University, Japan

Co-Chair **Dr. Toru Asaka**, Associate Professor, Nagoya Institute of Technology, Japan

14:00-14:05 **Chair's Introduction**

14:05-14:30 **Session Keynote Speech**

Title: *Structural Analysis and Design of Novel Ion Conductors*

Dr. Masatomo Yashima, Professor, Tokyo Institute of Technology, Japan

14:30-14:55 **Title:** *Stereolithographic Additive Manufacturing of Dielectric Microlattices in Photonic Crystals for Terahertz Wave Control*

Dr. Soshu Kirihara, Professor, Osaka University, Japan

14:55-15:20 **Title:** *Superspace Approach to the Incommensurate Crystal Structure of Higher Manganese Silicide-Based Thermoelectric Materials*

Dr. Yuzuru Miyazaki, Professor, Tohoku University, Japan

15:20-15:45 **Title:** *A New Method to Co-crystallize Organics with Chaperone Compounds*

Dr. Kenji Yoza, Application Scientist, Bruker, Japan

15:45-16:00 **Coffee Break**

- 16:00-16:25 **Title:** *Crystal Structure and Magnetocrystalline Anisotropy in Hexaferrites, Examined by Electron Microscopy and Diffraction Techniques*
Dr. Toru Asaka, Associate Professor, Nagoya Institute of Technology, Japan
- 16:25-16:50 **Title:** *Unusual Dielectric Response of Sizable-Glass Formers with Polar Rotors*
Dr. Marzena Rams-Baron, Associate Professor, University of Silesia in Katowice, Poland
- 16:50-17:15 **Title:** *High Pressure Synthesis and Structural Phase Transition of the Strontium Tungstate $Sr_3W_2O_9$*
Dr. Daisuke Urushihara, Assistant Professor, Nagoya Institute of Technology, Japan
- 17:15-17:40 **Title:** *Liquid Phase Crystal Growth of Metal Oxide Nanostructures and Their Gas/Molecular Sensing - SnO_2 , TiO_2 , ZnO -*
Dr. Yoshitake Masuda, Senior Research Scientist, National Institute of Advanced Industrial Science and Technology, Japan
- 17:40-18:05 **Title:** *Structural Changes in Porous Lithium Disilicate and Lithium Metasilicate Systems during Formation of Voids and Self-healing Processes Examined by Molecular Dynamics Simulations*
Dr. Junko Habasaki, Assistant Professor, Tokyo Institute of Technology, Japan

AnalytiX 03: Environmental & Pharmaceutical Analysis

Time: 14:00-17:40, May 17, 2023 (Wednesday); Place: Kamo, 5F, Hyatt Regency Osaka

Chair **Dr. Erik R. Christensen**, Distinguished Professor Emeritus, University of Wisconsin-Milwaukee, USA

Co-Chair **Dr. Magdalena Maj-Zurawska**, Professor, University of Warsaw, Poland

14:00-14:05 **Chair's Introduction**

14:05-14:30 **Title:** *Qualitative Screening for Fungicide Dithiocarbamates Using QuEChERS Methodology*
Dr. Hubert Zipper, Research Manager, CVUA Stuttgart, Germany

14:30-14:55 **Title:** *Enhanced Catalytic Performance of $CuFeS_2$ Chalcogenides for Activation of Persulfate towards Decolorization and Disinfection of Pollutant in Water*
Dr. Yang-Wei Lin, Professor, Department of Chemistry, National Changhua University of Education, Taiwan

14:55-15:20 **Title:** *Sources of Organic Pollutants and Trace Elements in the Environment*
Dr. Erik R. Christensen, Distinguished Professor Emeritus, University of Wisconsin-Milwaukee, USA

15:20-15:45 **Title:** *Controversies, Consensus and Collaboration in the Use of $-I-131$ Therapy in the Differentiated Thyroid Cancer*
Dr. Ciprian Draganescu, Head of Nuclear Medicine Department, University Hospital of Martinique, France

15:45-16:00 **Coffee Break**

16:00-16:25 **Title:** *Voltammetric and Spectrophotometric Studies on DNA Interacting with Daunorubicin and Their Amidino Derivatives*
Dr. Magdalena Maj-Zurawska, Professor, University of Warsaw, Poland

16:25-16:50 **Title:** *Understanding Microbial Contaminants Occurrences in Domestic Water Supply Systems Using Non-Invasive Spectroscopic Techniques*
Dr. Herlina Abdul Rahim, Professor, University Technology of Malaysia, Malaysia

- 16:50-17:15 **Title:** *A Novel Bioassay with Improved Sensitivity, Dynamic Range and Serum Tolerance for the Quantification of the ADCC Activity of Therapeutic Antibodies*
Dr. Michael G. Tovey, Managing Director, Svar Life Science, France
- 17:15-17:40 **Title:** *Sustainability (CSR): Energy Efficiency in Building Sector and Its Environmental Impact*
Dr. Shashi Ram, Assistant Professor, National Institute of Technology Warangal, India

AnalytiX 04: Mass Spectrometry, Raman & NMR & IR Spectroscopy

Time: 09:00-12:40, May 18, 2023 (Thursday); Place: Tatsuta, 5F, Hyatt Regency Osaka

- Chair** **Dr. Michel Mermoux**, Research Director, LEPMI-CNRS, France
- Co-Chair** **Dr. Ciprian Mihai Cirtiu**, Head of Trace Metals Division, Institut National de Sante Publique du Quebec, Canada
- 09:00-09:05 **Chair's Introduction**
- 09:05-09:30 **Session Keynote Speech**
Title: *Possible Ring Exchange and Chiral Spin Fluctuations in Quasiperiodic Planar Antiferromagnets: Raman Observations*
Dr. Shoji Yamamoto, Professor, Hokkaido University, Japan
- 09:30-09:55 **Title:** *High Temperature Oxidation of Zircaloy-4 under Conditions Simulating a Loss of Cooling Accident in Nuclear Plants Spent Fuel Pools Examined with Raman Imaging and 18O Tracer Techniques*
Dr. Michel Mermoux, Research Director, LEPMI-CNRS, France
- 09:55-10:20 **Title:** *Detecting Falsified Oral Contraceptives with Visual Assessment and Diffuse Reflectance Spectroscopy: A Need to Supplement Traditional Pharmacopeia Techniques*
Dr. David Jenkins, Scientist II, Product Quality and Compliance, FHI 360, USA
- 10:20-10:45 **Title:** *Microdose Pharmacogenetic Study and MIST Evaluation of 14C- Tolubutamide in Healthy Subjects by Utility of Mass Spectrometry*
Dr. Zenzaburo Tozuka, Professor, Osaka University, Japan
- 10:45-11:00 **Coffee Break**
- 11:00-11:25 **Title:** *Design of NMR Supersequences: Ten 2D Spectra in a Single Measurement*
Dr. Eriks Kupce, Principal Scientist, Bruker BioSpin, UK
- 11:25-11:50 **Title:** *IR Imaging/Spectroscopy on Biological Samples*
Dr. Gianluca Greci, Research Assistant Professor, National University of Singapore, Singapore
- 11:50-12:15 **Title:** *Progress in the Analysis of Metal Nanoparticles to Assess Human Exposure*
Dr. Ciprian Mihai Cirtiu, Head of Trace Metals Division, Institut National de Sante Publique du Quebec, Canada
- 12:15-12:40 **Title:** *Determination of the ¹⁴⁴Ce/²³⁸U Ratio in Spent Nuclear Fuel Samples by Double Spike Isotope Dilution Mass Spectrometry*
Dr. Anthony Nonell, Researcher, Paris-Saclay University, CEA, France

AnalytiX 05: Novel Bioanalysis Method & Technology

Time: 09:00-12:40, May 18, 2023 (Thursday); Place: Yoshino, 5F, Hyatt Regency Osaka

Chair *Dr. Ming-Tsang Wu*, Distinguished Professor and Director, Research Center for Precision Environmental Medicine, Kaohsiung Medical University, Taiwan

Co-Chair *Dr. Mai Thanh Duc*, Associate Professor, University Paris Saclay, France

09:00-09:05 **Chair's Introduction**

09:05-09:30 **Title:** *Analysis of Non-Volatile Compounds in Exhaled Breath: Clinical Applications of Exhaled Breath Condensate Analysis*

Dr. Makoto Sawano, Professor, Saitama Medical University, Japan

09:30-09:55 **Title:** *Combination of Analytical Method and Epidemiological Design to Unravel the Exposure Source of Arsenic in Residents Next to One Heavy-Industrial Area*

Dr. Ming-Tsang Wu, Distinguished Professor and Director, Research Center for Precision Environmental Medicine, Kaohsiung Medical University, Taiwan

09:55-10:20 **Title:** *Polyphenols from Knotweed and Their Bioactivities*

Dr. Lea Pogacnik, Professor, Biotechnical Faculty, University of Ljubljana, Slovenia

10:20-10:45 **Title:** *Lecturers' Perceptions about Challenges and Ways of Dealing with the New Era in Higher Education During Covid-19 Pandemic*

Dr. Nitzza Davidovitch, Professor, Ariel University, Israel

10:45-11:00 **Coffee Break**

11:00-11:25 **Title:** *Lab-in-Droplet for Biomarker Analysis: From Instrumental Conception towards Diagnostic Applications*

Dr. Mai Thanh Duc, Associate Professor, University Paris Saclay, France

11:25-11:50 **Title:** *Three-Dimensional Imaging of NADH/NAD⁺ Ratio in Bacterial Colonies*

Dr. Yoshihide Tokunou, Assistant Professor, University of Tsukuba, Japan

11:50-12:15 **Title:** *Soft Mechanochemistry Based on Interfacial Anisotropy*

Dr. Daisuke Ishikawa, Lecturer, Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Japan

12:15-12:40 **Title:** *Towards the Detection of Biomarkers at the Single Molecule Limit*

Dr. John J. Kasianowicz, Physical Scientist, National Institute of Standards and Technology, USA

AnalytiX 06: X-ray Spectroscopy and Gamma Spectroscopy

Time: 09:00-12:40, May 18, 2023 (Thursday); Place: Kamo, 5F, Hyatt Regency Osaka

Chair *Dr. Wataru Yashiro*, Professor, Tohoku University, Japan

09:00-09:05 **Chair's Introduction**

09:05-09:30 **Title:** *Determination of Distributions and Structures of Cupric-Chloro Complexes in Hydrochloric Acid Solutions by UV-Vis and X-ray Absorption Spectroscopy and AB Initio Calculation*

Dr. Masahito Uchikoshi, Associate Professor, Tohoku University, Japan

09:30-09:55 **Title:** *Recent Advance and Future Potential in Grating-based X-ray Interferometry*

Dr. Wataru Yashiro, Professor, Tohoku University, Japan

- 09:55-10:20 **Title:** *Theoretical Study of the Properties of X-ray Diffraction Moire Fringes*
Dr. Jun-ichi Yoshimura, Former Researcher, High Energy Accelerator Research Organization, Japan
- 10:20-10:45 **Title:** *From X-ray Diffraction to MOs: XMO Analysis of Difformohydrazide*
Dr. Kiyooki Tanaka, Senior Researcher, Nagoya Industrial Science Research Institute, Japan
- 10:45-11:00 **Coffee Break**
- 11:00-11:25 **Title:** *Operando X-ray Nanospectroscopy Observation of Devices Using 2D Channel Layers*
Dr. Hirokazu Fukidome, Associate Professor, Tohoku University, Japan
- 11:25-11:50 **Title:** *The Group of Professors Portraits from the Collection of Collegium Maius Painted by Jan Trycjusz. The Significance of Technological Research and X-ray Examinations in the Attribution of These Portraits*
Dr. Anna Jasinska, Curator, Museum of Jagiellonian University, Poland
- 11:50-12:15 **Title:** *Grounds of the 19th and 20th Century Paintings as a Tool of Authentication of the Works of Art*
Dr. Mirosław Wachowiak, Assistant Professor, Nicolaus Copernicus University in Torun, Poland
- 12:15-12:40 **Title:** *Development of Spatio-Temporal Orientation of Children with Down Syndrome through Educational Platforms after Roumanian Pandemic Lockdown*
Dr. Ofelia Popescu, Lecturer, Polytechnic University of Bucharest, Romania
Dr. Nicoleta Leonte, Assistant Professor, Polytechnic University of Bucharest, Romania

AnalytiX 07: Bioanalysis in Human Diseases & Infectious Diseases

Time: 14:00-17:40, May 18, 2023 (Thursday); Place: Tatsuta, 5F, Hyatt Regency Osaka

Chair **Dr. Avraham Dayan**, Professor, Tel Aviv University, Israel

Co-Chair **Dr. Makoto Kano**, Former Professor of Physics, Tokyo University of Science, Japan

14:00-14:05 Chair's Introduction

14:05-14:30 Title: *Walk-Through Screening System for COVID-19*

Dr. Ji Yong Lee, Director, Division of Infectious Disease, H Plus Yangji Hospital, South Korea

14:30-14:55 Title: *Cancer Targeted Treatment by RGD-Modified Dihydrolypoamide Dehydrogenase*

Dr. Avraham Dayan, Professor, Tel Aviv University, Israel

14:55-15:20 Title: *Gut Microbial, Inflammatory and Metabolic Signatures in Older People with Physical Frailty and Sarcopenia: Results from the BIOSPHERE Study*

Dr. Anna Picca, Associate Professor, LUM University, Casamassima, Italy

15:20-15:45 Title: *Effects of L-Arginine Plus Vitamin C Supplementation on Physical Performance, Endothelial Function and L-Arginine Metabolism in Adults with Long COVID*

Dr. Matteo Tosato, Assistant Professor, Catholic University of Rome, Italy

15:45-16:00 Coffee Break

16:00-16:25 Title: *The Necessity of Environmental Scientific Literacy for Dealing with Corona Pandemic*

Dr. Makoto Kano, Former Professor of Physics, Tokyo University of Science, Japan

- 16:25-16:50 **Title:** *Strptococcus Pneumoniae and Its Family Planning with Five Carbon Sugar Alcohol Xylitol*
Dr. Sunil Palchaudhuri, Professor, Wayne State University, USA
- 16:50-17:15 **Title:** *In Vivo Raman Spectroscopy Analysis for Improving Clinical Skin Cancer Detection*
Dr. Hai-Shan Zeng, Professor, University of British Columbia Cancer Research Centre, Canada
- 17:15-17:40 **Title:** *Using Blood-Derived Immune Cells in Inform on Human Disease*
Dr. John Miles, Professor, James Cook University, Australia

AnalytiX 08: Terahertz Spectroscopy and Laser Spectroscopy

Time: 14:00-16:10, May 18, 2023 (Thursday); Place: Yoshino, 5F, Hyatt Regency Osaka

Chair **Dr. Jay Theodore Cremer**, Chief Scientist, Adelphi Technology, Inc., USA

14:00-14:05 Chair's Introduction

14:05-14:30 **Title:** *Precision Measurement of Molecular Vibrational Transition Frequencies*
Dr. Masatoshi Kajita, Senior Researcher, National Institute of Information and Communications Technology, Japan

14:30-14:55 **Title:** *Superconducting Wollaston Prism for Spin Echo Scattering Angle Measurement*
Dr. Jay Theodore Cremer, Chief Scientist, Adelphi Technology, Inc., USA

14:55-15:20 **Title:** *Electronic Structures of Ti₂O₃ Films Revealed by Soft X-ray Angle-Resolved Photoemission Spectroscopy*
Dr. Kohei Yoshimatsu, Associate Professor, Tohoku University, Japan

15:20-15:45 **Title:** *Means to Understand the Laser Damage*
Dr. Herve Piombini, Senior Engineer, CEA Le Ripault, France

15:45-16:10 **Title:** *Optical Harmonics Spectroscopy of Semiconductors and Dielectrics*
Dr. Victor Pavlov, Chief Researcher, Ioffe Institute, Russian Academy of Sciences, Russia

AnalytiX 09: Chemometrics and Chromatography

Time: 14:00-18:05, May 18, 2023 (Thursday); Place: Kamo, 5F, Hyatt Regency Osaka

Chair **Dr. Federico Marini**, Professor, University of Rome "La Sapienza", Italy

Co-Chair **Dr. Riccardo Calvani**, Research Associate, Catholic University of the Sacred Heart in Rome, Italy

14:00-14:05 Chair's Introduction**14:05-14:30 Session Keynote Speech**

Title: *An Automated Support Vector Elastic Net for Calibration and Classification for Chemotyping Complex Materials*

Dr. Peter B. Harrington, Professor, Ohio University, USA

14:30-14:55 **Title:** *Rethinking SIMCA for One and Multiple Blocks*

Dr. Federico Marini, Professor, University of Rome "La Sapienza", Italy

14:55-15:20 **Title:** *Variable Sorting for Normalization*

Dr. Jean-Michel Roger, Senior Researcher, INRAE Montpellier Centre, France

15:20-15:45 **Title:** *Automation of (Big) Data Processing in Analytical Chemistry Using Bayesian Statistics: Why, When and How*

Dr. Gabriel Vivo-Truyols, CEO and Founder, Tecnometrix, Spain

15:45-16:00 **Coffee Break**

- 16:00-16:25 **Title:** *Biomarkers for Aging-Related Conditions: The Role of Chemometrics*
Dr. Riccardo Calvani, Research Associate, Catholic University of the Sacred Heart in Rome, Italy
- 16:25-16:50 **Title:** *Data Analytics, Driving the Digital Revolution*
Dr. Johan Hultman, Manager OEM & Embedded Solutions, Sartorius Data Analytics, Sweden
- 16:50-17:15 **Title:** *Evaluation of Different Analytical Tools for Studying the Performance of Extraction and Membrane Processes During Biosurfactant Refinery*
Dr. Xanel Vecino Bello, Postdoc Researcher, University of Vigo, Spain
- 17:15-17:40 **Title:** *Development and Validation of HPLC-DAD-MS/MS Analytical Methods for the Chemical Characterization of Hop and Related Products*
Dr. Letricia Barbosa-Pereira, Associate Researcher, University of Santiago de Compostela, Spain
- 17:40-18:05 **Title:** *Systematic Chiral Method Development Approach for Early Phase Product Development*
Dr. Nilesh K. Joshi, Assistant General Manager, Syngene Amgen Research and Development Centre, Syngene International Ltd., India

AnalytiX 10: Materials in Analytical Chemistry

Time: 09:00-12:15, May 19, 2023 (Friday); Place: Tatsuta, 5F, Hyatt Regency Osaka

- Chair** **Dr. Christian J. Engelsen**, Senior Scientist, SINTEF Building and Infrastructure, Norway
- Co-Chair** **Dr. Mariusz Pietrzak**, Associate Professor, Faculty of Chemistry, Warsaw University of Technology, Poland
- 09:00-09:05 **Chair's Introduction**
- 09:05-09:30 **Title:** *Spectroscopic Ellipsometry: Thin Film Solutions from Deep Ultra-Violet to Terahertz*
Dr. Jianing Sun, Applications Engineer, J. A. Woollam Co., Inc., USA
- 09:30-09:55 **Title:** *New Method to Directly Measure the CO₂-Binding to Cementitious Materials*
Dr. Christian J. Engelsen, Senior Scientist, SINTEF Building and Infrastructure, Norway
- 09:55-10:20 **Title:** *Numerical Analysis and Investigation of Surfaces with Protrusions*
Mr. Mitsuru Nishikawa, Production Technology Engineer, Production Technology Center, Asahi Kasei Corporation, Japan
- 10:20-10:45 **Title:** *Electrochemical Analysis of Correlation Between Doping Level and Electrical Properties of Conducting Polymers*
Dr. Ichiro Imae, Associate Professor, Hiroshima University, Japan
- 10:45-11:00 **Coffee Break**
- 11:00-11:25 **Title:** *Application on Multifunctional Nanoparticles in Modern Immunoassays*
Dr. Mariusz Pietrzak, Associate Professor, Faculty of Chemistry, Warsaw University of Technology, Poland
- 11:25-11:50 **Title:** *Colorimetric Papers for the Selective Detection of Novichok Agents*
Dr. Alexandre Carella, Senior Researcher, French Alternative Energies & Atomic Energy Commission, France
- 11:50-12:15 **Title:** *Narrow-Gap Rheometry - A Tool to Characterize Mechanical Properties of Biological Samples*
Dr. K. M. Imran Bashir, Postdoctoral Researcher, LSTME Busan, South Korea

AnalytiX 11: Sensors and Microarrays

Time: 09:00-12:40, May 19, 2023 (Friday); Place: Yoshino, 5F, Hyatt Regency Osaka

Chair *Dr. Weiwei Dang*, Associate Professor, Baylor College of Medicine, USA

Co-Chair *Dr. Yasuhiro Iida*, Professor, Kanagawa Institute of Technology, Japan

09:00-09:05 **Chair's Introduction**

09:05-09:30 **Session Keynote Speech**

Title: Fractional Calculus and Hybrid Functions in Optical Spectral of Solids and Photonic Sensors

Dr. Mohsen Razzaghi, Giles Distinguished Professor & Head of Department of Mathematics and Statistics, Mississippi State University, USA

09:30-09:55 *Title: Photoactivated Capillary Flow for Advanced Droplet Manipulation: A Numerical Study*

Dr. Takahiro Tsukahara, Professor, Tokyo University of Science, Japan

09:55-10:20 *Title: High Throughout Replicative Aging Analysis for Budding Yeast*

Dr. Weiwei Dang, Associate Professor, Baylor College of Medicine, USA

10:20-10:45 *Title: Simulated Hyperspectral Imagery for Remote Sensing Algorithm Design*

Dr. Robert Sundberg, President Emeritus, Spectral Sciences, Inc., USA

10:45-11:00 **Coffee Break**

11:00-11:25 *Title: Development of Novel DNA Methylation Analysis Method in Combination with Recombinant Dnmt1 and Bisulfite Sequence*

Dr. Yasuhiro Iida, Professor, Kanagawa Institute of Technology, Japan

11:25-11:50 *Title: Formation of Metal Cluster Ions in Laser Desorption/Ionization Mass Spectrometry for the Biosensing Applications*

Dr. Chih-Ching Huang, Professor, Department of Bioscience and Biotechnology, National Taiwan Ocean University, Taiwan

11:50-12:15 *Title: Spectroelectrochemical Evaluation of the Interaction of Pharmaceutical Compounds with Serum Proteins and Liposomes for Drug Delivery Systems*

Dr. Monica Florescu, Associate Professor, Transilvania University of Brasov, Romania

12:15-12:40 *Title: 2D Mono Detection Spatially Super Resolved RF Imaging for Radar Applications*

Dr. Gabay Isahar, Researcher, Bar-Ilan University of Ramat Gan, Israel

AnalytiX 12: Frontiers in Analytical Chemistry

Time: 09:00-12:40, May 19, 2023 (Friday); Place: Kamo, 5F, Hyatt Regency Osaka

Chair *Dr. Joel B. Tellinghuisen*, Emeritus Professor, Vanderbilt University, USA

Co-Chair *Dr. Stepan Urban*, Professor, University of Chemistry and Technology, Czech Republic

09:00-09:05 **Chair's Introduction**

09:05-09:30 **Session Keynote Speech**

Title: Comparison of Mobile State-of-the-Art Raman Instruments and New Perspectives in Cultural Heritage Studies

Dr. Luc Moens, Professor, Ghent University, Belgium

09:30-09:55 *Title: The Possibilities of Mass Selected Ion Beam*

Dr. Masashi Nojima, Junior Associate Professor, Tokyo University of Science, Japan

- 09:55-10:20 **Title:** *Calibration: Detection, Quantification, and Confidence Limits Are (Almost) Exact When the Data Variance Function Is Known*
Dr. Joel B. Tellinghuisen, Emeritus Professor, Vanderbilt University, USA
- 10:20-10:45 **Title:** *Characterization of Surfactant Amphiphilicity by Chromatography*
Dr. Yuji Yamashita, Associate Professor, Chiba Institute of Science, Japan
- 10:45-11:00 **Coffee Break**
- 11:00-11:25 **Title:** *Forensic Identification of Persons Using the Scent Trace*
Dr. Stepan Urban, Professor, University of Chemistry and Technology, Czech Republic
- 11:25-11:50 **Title:** *Surface Reaction Mechanism in a-Si:H Growth at High Temperature*
Dr. Yasutake Toyoshima, Invited Senior Researcher, National Institute of Advanced Industrial Science and Technology, Japan
- 11:50-12:15 **Title:** *Phase Separation Dynamics in an Annealed Polymer: Fullerene Blend Analyzed Using the Critical Point Model of the Permittivity*
Dr. Rafi Shikler, Associate Professor, Ben Gurion University of the Negev, Israel
- 12:15-12:40 **Title:** *Experimental Investigation of Liquid Film Thickness Between Coalescing Air Bubbles*
Dr. Takayuki Morokuma, Assistant Professor, Kanagawa University, Japan

AnalytiX 13: Video Forum

- 1 **Title:** *Ionophore-Based Ion-Selective Electrodes: Analysis in Non-zero Current Modes*
Dr. Konstantin N. Mikhelson, Professor, St. Petersburg State University, Russia
- 2 **Title:** *The Gyrotron - Quasi-Optical Relativistic Cyclotron Resonance Maser*
Dr. Michael I. Petelin, Professor, Institute of Applied Physics, Russia
- 3 **Title:** *The Art of Detecting Traces of Explosives*
Dr. Vladimir Matveevich Gruznov, Chief Researcher, Trophimuk Institute of Petroleum Geology and Geophysics, Siberian Branch of Russian Academy of Sciences, Russia
- 4 **Title:** *A Platform of Micro-Thermocouple Array for Single-Cell Temperature Measurement*
Dr. Shengyong Xu, Professor, Peking University, China
- 5 **Title:** *Topologically Stabilized Spin Configurations in Rare-Earth-Based Systems Using Polarized Neutron Scattering*
Dr. Amitesh Paul, Senior Research Scientist, Guangdong-Technion Israel Institute of Technology, China
- 6 **Title:** *The Impact of Heavy Metals on Plants and Soil Samples in Camp2 Quarry Site Akamkpa Local Government Area, Cross River State Nigeria*
Dr. Eteng E. Ofem, Lecturer, Department of Biochemistry, Federal University of Agriculture, Nigeria
- 7 **Title:** *Lorentz Microscopy Methods for Magnetic Domain Structure Study*
Dr. Liudmila Kveglis, Professor, Sarsen Amanjolov East Kazakhstan University, Russia
- 8 **Title:** *Reconstruction of Experimental Data and Images Using Shift Methods*
Dr. Andrey Novikov-Borodin, Senior Scientist, Institute for Nuclear Research, Russian Academy of Sciences, Russia
- 9 **Title:** *Reconstruction of LTI System Signals Using Test Measurements*
Dr. Andrey Novikov-Borodin, Senior Scientist, Institute for Nuclear Research, Russian Academy of Sciences, Russia

AnalytiX 13: Video Forum

- 10 *Title: Combined Hyperspectral and Holographic Diagnostics of Volume Defects in Optical Materials*
Dr. Victor Dyomin, Lab Head, National Research Tomsk State University, Russia

The 10th Annual Congress of Nano Science and Technology-2023**NANO 01: Nanotech for Applications**

Time: 14:00-17:15, May 17, 2023 (Wednesday); Place: Yamato A, 5F, Hyatt Regency Osaka

Chair *Dr. Kofi Adu*, Associate Professor, Penn State University, USA

14:00-14:05 **Chair's Introduction**

14:05-14:30 *Title: Nano Science of Metal Oxide and Their Sensor Applications*

Dr. Yoshitake Masuda, Research Group Leader, National Institute of Advanced Industrial Science and Technology, Japan

14:30-14:55 *Title: 3D Textiles for Technical Applications – State of the Art and Future Prospects*

Dr. Wilhelm-Alexander Buesgen, Professor, Niederrhein University of Applied Sciences, Germany

14:55-15:20 *Title: Binderless Carbon Nanotube Flexible Membranes: Architecture, Device and Energy Applications*

Dr. Kofi Adu, Associate Professor, Penn State University, USA

15:20-15:45 *Title: Multisensory Nanotech System for Farming Optimisation*

Dr. Janez Trontelj, Professor, University of Ljubljana, Slovenia

15:45-16:00 **Coffee Break**

16:00-16:25 *Title: Triboelectric Energy Harvesting Devices and How Nanoscale Structures Impact Macroscale Devices Conversion Efficiency*

Dr. Sylvain Blayac, Center of Microelectronics in Provence, France

16:25-16:50 *Title: Green Synthesis of Si and Al Nanoparticles by Pulsed Laser Ablation in Water for Spartium Junceum L. Fibres Modification*

Dr. Sandra Bischof, Head, Textile Science Research Centre, Croatia

16:50-17:15 *Title: Plasma Etching Techniques for New Nanostructured Fractal Surfaces*

Dr. Claudia Riccardi, Professor, Milano Bicocca University, Italy

NANO 02: New Nanomaterials (I)

Time: 14:00-16:25, May 17, 2023 (Wednesday); Place: Yamato B, 5F, Hyatt Regency Osaka

Chair *Dr. Jean-Louis Bobet*, Professor, Universie de Bordeaux, France

Co-Chair *Dr. Rachel Desfeux*, Professor, University of Artois, France

14:00-14:05 **Chair's Introduction**

14:05-14:30 *Title: Microstructure, Macro- and Nanoscale Piezoelectric Properties in Ba_{0.85}Ca_{0.15}Ti_{0.9}Zr_{0.1}O₃ (BCTZ) Thin Films Grown by Pulsed Laser Deposition on Various Substrates for Energy Harvesting*

Dr. Rachel Desfeux, Professor, University of Artois, France

- 14:30-14:55 **Title:** *New Magnesium Rich Alloys: Structure, Magnetic and H Sorption Properties. Possible Application for "Light Mobility"*
Dr. Jean-Louis Bobet, Professor, University of Bordeaux, France
- 14:55-15:20 **Title:** *Atomic Layer Deposition for Nanocomposite Electrodes for Supercapacitors*
Dr. Daniel Qi Tan, Deputy Head, Guangdong Technion - Israel Institute of Technology, China
- 15:20-15:45 **Title:** *Enhanced Organic Optoelectronic Devices by Interfacial Engineering*
Dr. Soyeon Kim, Senior Researcher, Korea Institute of Materials Science, South Korea
- 15:45-16:00 **Coffee Break**
- 16:00-16:25 **Title:** *The Role of Nano-scale Elastic Heterogeneity in Mechanical Tribological Behavior of a Cu-Zr Metallic Glass thin Film During*
Dr. Qing Wang, Professor, Shanghai University, China
- NANO 03: New Nanomaterials (II)**
Time: 09:00-12:40, May 18, 2023 (Thursday); Place: Yamato A, 5F, Hyatt Regency Osaka
- Chair** **Dr. Laleh Alisaraie**, Associate Professor, Memorial University of Newfoundland, Canada
- 09:00-09:05 **Chair's Introduction**
- 09:05-09:30 **Title:** *Combined Plane Wave and Localized Basis Sets (CPLB) Approach: A Study of H/D Adsorption on Metal Surface*
Dr. Takayoshi Ishimoto, Professor, Hiroshima University, Japan
- 09:30-09:55 **Title:** *Inorganic Nanoparticles for Tuberculous Meningitis Treatment*
Dr. Alessandra Pinna, Independent Fellow, Imperial College London, UK
- 09:55-10:20 **Title:** *Development of Sustainable Supercapacitor for Superb Electrochemical Performance*
Dr. Anil Kumar, Professor, Indian Institute of Technology Roorkee, India
- 10:20-10:45 **Title:** *Nanoparticles and Cytoskeletal Proteins*
Dr. Laleh Alisaraie, Associate Professor, Memorial University of Newfoundland, Canada
- 10:45-11:00 **Coffee Break**
- 11:00-11:25 **Title:** *A Functional Carbon Dots Induce Ferroptosis by Suppressing PLPP4 Activity to Inhibit Glioblastoma Growth*
Dr. Kun Deng, Research Associate, Central South University, China
- 11:25-11:50 **Title:** *Structure Design and Properties of Fluorinated Benzodifuranone based Organic Conjugated Nanomaterials*
Dr. Xin Shi, Shaanxi University of Technology, China
- 11:50-12:15 **Title:** *Nanostructure Fabrication and Modification on Semiconductor Materials by Focused Ion Beam*
Dr. Lin-Jun Wang, Technological Engineer, University of Science and Technology of China, China
- 12:15-12:40 **Title:** *Development of Multifunctional Au-Fe₃O₄ Nanoparticles for Cancer Therapy*
Dr. Loi Tonthat, Assistant Professor, Tohoku University, Japan

NANO 04: Nanomedicine and Nanobiotechnology

Time: 09:00-11:10, May 18, 2023 (Thursday); Place: Yamato B, 5F, Hyatt Regency Osaka

- Chair** **Dr. Christelle Monville**, Professor, Evry's University, France
- 09:00-09:05 **Chair's Introduction**
- 09:05-09:30 **Title:** *Optimization of Liposome Manufacturing for Improved Sterilizing Filtration in Drug Manufacturing*
Dr. Aude Iwaniec, R&D Team Leader, Pall Corporation, UK
- 09:30-09:55 **Title:** *Cell-based Therapy Using Pluripotent Stem Cells for Retinitis Pigmentosa*
Dr. Christelle Monville, Professor, Evry's University, France
- 09:55-10:20 **Title:** *Unique Intradermal (Skin) Interface Platform that Can: Improve Vaccines (Immunity, Durability, Safety, Dose Sparing X5) and Enable Novel Higher-Performance, Painless Aesthetic Delivery*
Dr. Shuki Yeshurun, Founder, Nanopass Technologies, Israel
- 10:20-10:45 **Title:** *Hybrid Cyanine/Methotrexate Nanoparticles for Synergistic PDT/Chemotherapy*
Dr. Anyanee Kamkaew, Associate Professor, Suranaree University of Technology, Thailand
- 10:45-11:10 **Title:** *Serum CCL20 and EGF Detection by SERS as the Promising Tool for Microwave Ablation Outcome Prediction of Hepatocellular Carcinoma Patients*
Dr. Yuzhen Ouyang, Scholar, Central South University, China

NANO 05: Breaking Research of Nano Science and Technology

Time: 16:00-18:10, May 18, 2023 (Thursday); Place: Yamato A, 5F, Hyatt Regency Osaka

- Chair** **Dr. Shuji Ogata**, Professor, Nagoya Institute of Technology, Japan
- 16:00-16:05 **Chair's Introduction**
- 16:05-16:25 **Title:** *Cationic Comb-Type Copolymer Assisted Aptamer-patterned DNA Hydrogels*
Dr. Jie Du, Professor, Hainan University, China
- 16:25-16:45 **Title:** *DFT-based Simulations on Protonation Free-Energy and Adhesion Strength of Epoxy Resin in Moist Environment*
Dr. Shuji Ogata, Professor, Nagoya Institute of Technology, Japan
- 16:45-17:05 **Title:** *A Co-evolution Construction Framework for Base Transfer Learning Model Selection in Edge/Cloud Infrastructure Systems*
Dr. Jingtao Sun, Senior Researcher, Hitachi, Ltd., Japan
- 17:05-17:25 **Title:** *Alignment of Organic Semiconductors by Solution-Shearing in Active Layer Preparation for Organic Field-Effect Transistors*
Dr. Yu-Tai Tao, Distinguished Research Fellow, Institute of Chemistry, Academia Sinica, Taiwan
- 17:25-17:45 **Title:** *SERS-based Aptasensors for Detection of Viruses, Cells and Small Molecules*
Dr. Ruziyeva Aliyeva, Researcher, Moscow State University, Russia
- 17:45-18:10 **Title:** *- Room Temperature Operation of Single Electron Transistors and Their Hybridization with CMOS*
Dr. Rasika Dhavse, Associate Professor, Department of Electronics Engineering, Sardar Vallabhbhai National Institute of Technology, India

NANO 06: New Nanomaterials (III)

Time: 14:00-16:50, May 18, 2023 (Thursday); Place: Yamato B, 5F, Hyatt Regency Osaka

Chair *Dr. Shuki Yeshurun*, CEO, Tortechn Nanofibers, Israel

Co-Chair *Dr. Rachel Desfeux*, Professor, University of Artois, France

14:00-14:05 **Chair's Introduction**

14:05-14:30 **Title:** *Ferroelectric BaTiO₃ and Self-oxidized N:BaTiO₃ Oxynitride Epitaxial Heterostructures for Water-Splitting and Spintronics Applications*

Dr. Antoine Barbier, Research Director, C.E.A., France

14:30-14:55 **Title:** *Thermal and Electrical Properties of Energy Materials in Controlled Nanoparticles*

Dr. Xizu Wang, Senior Scientist, Institute of Materials Research and Engineering (IMRE), Singapore

14:55-15:20 **Title:** *Unique Properties of Ultra-Long Carbon Nano Tube (ULCNT) that Can Open New Opportunities in the World of Materials*

Dr. Shuki Yeshurun, CEO, Tortechn Nanofibers, Israel

15:20-15:45 **Title:** *Large-Scale Growth of Transition Metal Dichalcogenide Materials and Its Application for Resistive Switching Memories*

Dr. Yuanmin Du, Senior Research Fellow, Nanyang Technological University, Singapore

15:45-16:00 **Coffee Break**

16:00-16:25 **Title:** *Nanoscale Ferroelectricity in Innovative Ln₂WO₆ (Ln = La, Pr and Nd) Thin Films*

Dr. Rachel Desfeux, Professor, University of Artois, France

16:25-16:50 **Title:** *Liquid Cell Transmission Electron Microscopy Technique for Polymeric Nanoparticles*

Dr. Chisato Takahashi, Senior Researcher, National Institute of Advanced Industrial Science and Technology, Japan

NANO 07: Nano Electronics, Nano Optics, Nano Photonics and Nanomagnetism

Time: 09:00-12:15, May 19, 2023 (Friday); Place: Yamato A, 5F, Hyatt Regency Osaka

Chair *Dr. Ken Morita*, Professor, Chiba University, Japan

09:00-09:05 **Chair's Introduction**

09:05-09:30 **Title:** *Ultrafast Magnetic Vortex Control for Energy Saving Spintronics*

Dr. Chenglong Jia, Professor, Lanzhou University, China

09:30-09:55 **Title:** *Higher-order Spin States Generated by Focused Higher-order States of Photon*

Dr. Ken Morita, Professor, Chiba University, Japan

09:55-10:20 **Title:** *Development of BiFeO₃-based Multiferroic Thin Films with Large Magneto-Optical Kerr Effect for Spatial Light Modulator Driven by Electric Field*

Dr. Satoru Yoshimura, Professor, Akita University, Japan

10:20-10:45 **Title:** *Magneto-optical Properties of Wider Gap Magnetic Semiconductor Films Prepared by MBE, and an Inquiry into the Practicality of These Films*

Dr. Masaaki Imamura, Emeritus Professor, Fukuoka Institute of Technology, Japan

10:45-11:00 **Coffee Break**

- 11:00-11:25 **Title:** *Piezoelectricity Temperature Limits of Sol-gel Composite Materials*
Dr. Makiko Kobayashi, Professor, Kumamoto University, Japan
- 11:25-11:50 **Title:** *Synergistic Effect of P Doping and Mo-Ni-based Heterostructure Electrocatalyst for Overall Water Splitting*
Dr. Feihong Jia, Shaanxi University of Technology, China
- 11:50-12:15 **Title:** *Ultrathin MoS₂ Nanosheets Decorated on NiSe Nanowire Arrays as Advanced Trifunctional Electrocatalyst for Overall Water Splitting and Urea Electrolysis*
Dr. Yan Li, Shaanxi University of Technology, China

NANO 08: Video Forum

- 1 **Title:** *Interstitial Flow: Two Elucidating Examples of First-principle Modeling Applied to Microscale Bioflows*
Dr. Francesco Romano, Associate Professor, Arts et Metiers, Campus of Lille, France
- 2 **Title:** *Substantiation of the Initial Level of Material World*
Dr. Valentyn Nastasenko, Professor, Kherson State Maritime Academy, Ukraine
- 3 **Title:** *Femtosecond Laser Micro/Nano Fabrication*
Dr. Xin Li, Professor, Beijing Institute of Technology, School of Mechanical Engineering Laser Micro/Nano Fabrication Laboratory, China
- 4 **Title:** *Molecularly Imprinted Polymer Solid Phase Extraction Coupled with Liquid Chromatography-High Resolution Mass Spectrometry for the Detection of Gonyautoxins 2&3 in Seawater*
Dr. Yiwen Zhang, Lecturer, Dalian University of Technology, China
- 5 **Title:** *The Effects of Nanoscale Graphite Powders on Organic-Inorganic Composite Cross-Linked Polyacrylamide Gel*
Dr. Shiling Zhang, Engineer, CNPC Engineering Technology R&D Company Limited, China
- 6 **Title:** *Sound Localization in Web-based 3D Environments*
Dr. Gianluca Memoli, University of Sussex, UK
- 7 **Title:** *Nanocarbon Materials for Different Application*
Dr. Zulkhair Mansurov, Councilor of the General Director, Institute of Combustion Problems, Kazakhstan

Smart Devices Symposium 2023

SDS 01: Intelligent Materials for Smart Devices

Time: 14:00-15:45, May 18, 2023 (Thursday); Place: Yamato A, 5F, Hyatt Regency Osaka

- Chair** **Dr. Alicja Krella**, Professor, Institute of Fluid-Flow Machinery Polish Academy of Science, Poland
- 14:00-14:05 **Chair's Introduction**
- 14:05-14:30 **Title:** *Innovative Packaging Concepts Boost Silicon Carbide (SiC) Power Semiconductor Performance and Efficiency*
Mr. Filippo Di Giovanni, Strategic Marketing Manager, STMicroelectronics SRL, Italy
- 14:30-14:55 **Title:** *Influence of Deposition Techniques on the Resistance of PVD Coatings to Cavitation Erosion*
Dr. Alicja Krella, Professor, Institute of Fluid-Flow Machinery Polish Academy of Science, Poland

- 14:55-15:20 *Title: Development of Novel Conducting Polymers for the Application to the Thermoelectric Devices*
Dr. Ichiro Imae, Associate Professor, Hiroshima University, Japan
- 15:20-15:45 *Title: Potential of Fe-SMA Bars in Controlling Bridge Column Permanent Drift under Near-Fault Earthquakes*
Dr. M. Saiid Saiidi, Professor Emeritus, University of Nevada, Reno, USA
- 15:45-16:00 **Coffee Break**

SDS 02: Technology Innovation in Smart Devices

Time: 14:00-17:40, May 18, 2023 (Thursday); Place: Kibune, 5F, Hyatt Regency Osaka

- Chair** **Prof. Stephan-Reiff-Marganec**, Head of School Computing and Engineering, University of Derby, UK
- Co-Chair** **Dr. Alben Mihovska**, Associate Professor, Aarhus University, Denmark
- 14:00-14:05 **Chair's Introduction**
- 14:05-14:25 *Title: Technologies from Lukaszewicz-PIAP Institute Focused on Mobile Robots for Special Purposes, as Well as Automatization of Industrial Tasks and Processes*
Dr. Maciej Cader, Deputy Director for Research, Lukaszewicz - PIAP Institute, Poland
- 14:25-14:45 *Title: Service Computing and Data Processing Architectures: The Foundations of Smart Devices*
Prof. Stephan Reiff-Marganec, Head of School Computing and Engineering, University of Derby, UK
- 14:45-15:05 *Title: Advanced Sorting Systems with Smart Sensors Utilizing X-ray and IR hyperspectral Imaging*
Dr. Jacek Kolacz, CEO, Comex Group, Poland
- 15:05-15:25 *Title: Autonomous and Adaptive Behaviors for Robotics*
Dr. Luca Muratore, Technologist, Italian Institute of Technology, Italy
- 15:25-15:45 *Title: Growing Need for Belief Representation Interoperability*
Dr. Aaron Bramson, AI Principal Researcher, GA Technologies Inc., Japan
- 15:45-16:00 **Coffee Break**
- 16:00-16:20 *Title: Data Mining and Smart Devices*
Dr. Ayahiko Niimi, Associate Professor, Future University Hakodate, Japan
- 16:20-16:40 *Title: Enabling Smart Environments through Artificial Intelligence*
Dr. Alben Mihovska, Associate Professor, Aarhus University, Denmark
- 16:40-17:00 *Title: Ceramic Based Packaging Solutions for High Performance Sensors with Focus on X-Ray Detectors*
Marc Bechtold, VIA Electronic GmbH, Germany
- 17:00-17:20 *Title: The Power of Experience Journey in a Digital Era (Video)*
Dr. Nada Nasser Said Al Subhi, Lecturer, Higher College of Technology, Oman
- 17:20-17:40 *Title: Optimization of Cellular Phone Networks with Numerical Conformal Mappings*
Dr. Antti Rasila, Associate Professor, Guangdong Technion - Israel Institute of Technology, China

SDS 03: Technology Innovation in Smart Devices

Time: 09:00-12:20, May 19, 2023 (Friday); Place: Yamato B, 5F, Hyatt Regency Osaka

Chair **Dr. Harald Schwarz**, Professor, The Brandenburg University of Technology Cottbus–Senftenberg, Germany

09:00-09:05 **Chair's Introduction**

09:05-09:25 **Title:** *Towards the Intelligent Road-Vehicle Integration through Nano/Micro Sensors Road Strips*

Dr. Evangelos Bekiaris, Director, Hellenic Institute of Transport, Centre for Research and Technology Hellas, Greece

09:25-09:45 **Title:** *The Possible Contribution of Smart Grids to a Secured and Nationwide Power Supply*

Dr. Harald Schwarz, Professor, The Brandenburg University of Technology Cottbus–Senftenberg, Germany

09:45-10:05 **Title:** *Scheduling Multiple Maintenances and Production Scheduling through a Three-Level Particle Swarm Optimization Algorithm*

Dr. Felix T. S. Chan, Professor and Vice Dean, Macau University of Science and Technology, Macao, China

10:05-10:25 **Title:** *Stress Comparison Between Working and Relaxing with Woman's Wearable Smart Underwear*

Mr. Pai-En Yang, Associate Research Fellow, Taiwan Textile Research Institute, Taiwan

10:25-10:45 **Title:** *Management of Thyroid Dysfunction Induced by Anti-Cancer Agents Used for the Cancer Therapy of Other Organs*

Dr. Yukiko Nakata, Director, Osaka-Kizugawa Health Co-operative Association, Minato Seikyo Clinic, Japan & Specially Appointed Associate Professor, Osaka University, Japan

10:45-11:00 **Coffee Break**

11:00-11:20 **Title:** *Robotic-Assisted Tele-Echography*

Dr. Rui Cortesao, Professor, University of Coimbra, Portugal

11:20-11:40 **Title:** *High Efficient Data Center in Smart City: A Survey of TCP Incast Solutions to Improve Data Center Network Performance*

Dr. Cheng-Yuan Ho, Associate Professor, National Taiwan University, Taiwan

11:40-12:00 **Title:** *Designing Streets for Autonomous Vehicles, A Survey of Possible Changes in Stockholm*

Mr. Zeev Bohbot, Lecturer, KTH Royal Institute of Technology, Sweden

12:00-12:20 **Title:** *Medipost as a Smart Electronic System Dedicated to Imbalance Disorders Monitoring*

Dr. Michal Szermer, Assistant Professor, Lodz University of Technology, Poland

SDS 04: Video Forum

1 **Title:** *Gerontechnology with Social Robots*

Dr. Kelvin Tan, Senior Lecturer, Singapore University of Social Sciences, Singapore

2 **Title:** *Advance Power Supply Units for the Structural Health Monitoring of the Bridges*

Dr. Rahul Kalyankar, Engineering Specialist, Loram Technologies Inc. USA

3 **Title:** *Ultra High Performance Concrete: A Solution for Accelerated Bridge Pier Cap Rehabilitation and Replacement*

Dr. Atul Patil, Structural Engineer, HNTB Corporation, USA

SDS 04: Video Forum

- 4 **Title:** *Smart Adaptation of Bone Tissue at the Nanoscale within Hierarchical Organization of the Skeleton*
Dr. Andrey Pavlychev, Professor, Saint Petersburg State University, Russia
- 5 **Title:** *Maraging Steel Reinforced with Carbon Fiber for Flywheel Rotors*
Dr. Carlos Frajuca, Professor, Instituto Federal de Sao Paulo, Brazil

The Inaugurate World Chemistry Congress 2023**IWCC 01: Chemistry and Catalysis Science**

Time: 14:00-18:20, May 17, 2023 (Wednesday); Place: Kibune, 5F, Hyatt Regency Osaka

Chair **Dr. Edwin J. Routledge**, Associate Professor of Aquatic Ecotoxicology, Brunel University London, UK

Co-Chair **Dr. Christine Hahn**, Associate Professor, Texas A&M University Kingsville, USA

14:00:14:05 Chair's Introduction

14:05:14:25 Title: *Targeting Translational Mechanism for Autoimmune Disease Therapeutics*
Dr. Xian Chen, Professor, Department of Biochemistry and Biophysics, School of Medicine at University of North Carolina (UNC)-Chapel Hill, USA

14:25-14:45 Title: *Towards a Sustainable Chemical Future*
Dr. Edwin J. Routledge, Associate Professor of Aquatic Ecotoxicology, Brunel University London, UK

14:45-15:05 Title: *Microstructural Analysis of Activated Carbon-based Electrode Materials for Supercapacitors*
Dr. Wenliang Zhu, Professor, Kyoto Institute of Technology, Japan

15:05-15:25 Title: *To Fix Nature's Mistake: Repairing Human Faulty Genes by Small Molecules*
Dr. Timor Baasov, Professor, Technion-Israel Institute of Technology, Israel

15:25-15:45 Title: *From Fossil Refineries to Green Refineries*
Dr. Anton Friedl, Head of Research, TU Wien, Austria

15:45-16:00 Coffee Break

16:00-16:20 Title: *Development of an Efficient Acid-Free Palladium(II) Catalyzed Hydroarylation of Acetylene*
Dr. Christine Hahn, Associate Professor, Texas A&M University Kingsville, USA

16:20-16:40 Title: *Scalable Synthesis of Metal-Oxide Nanocatalysts by Flame-Spray-Pyrolysis Technology: Fine Tuning of Catalytic Efficiency via Control of Nanolattice*
Dr. Yiannis Deligiannakis, Professor, University of Ioannina, Greece

16:40-17:00 Title: *Hybrid Molecular Catalysts for H₂ Production from C1-substates at Near Ambient Conditions: The Challenges of High-Efficiency vs. Cost and Versatility*
Dr. Maria Louloudi, Professor, University of Ioannina, Greece

17:00-17:20 Title: *The Economics/Supply Chain Bottlenecks in Materials Needed for Wind Turbine Manufacturing*
Dr. Mariya Trifonova, Assistant Professor, Sofia University, Bulgaria

- 17:20-17:40 *Title: Bio-plastic from Banana Pseudo-Stems with Help of Ionic Liquid*
Dr. Kenji Takahashi, Professor, Kanazawa University, Japan
- 17:40-18:00 *Title: Synthesis Mesoporous Materials as Catalyst Support by Non-hydrolytic Sol-Gel*
Dr. Johan G. Alauzun, Associate Professor, University Montpellier, France
- 18:00-18:20 *Title: Self-assembly of Carbohydrate Block Copolymers: From Glyconanoparticles to Thin Films to Photonic Crystals*
Dr. Redouane Borsali, Research Professor and Director, CNRS, France

IWCC 02: Video Forum

- 1 *Title: Pesticide: Analytic, Residue*
Dr. Lydia Bondareva, Leading Researcher, Federal Scientific Center of Hygiene Named after F.F. Erisman, Russia
- 2 *Title: Enhancing the Photoluminescence of Monolayer MoS₂ through Gap-Assisted Synthesis*
Dr. Sheng-Kuei Chiu, Director, Feng Chia University, Taiwan

The World Congress of Physics Frontier 2023**WCPF 01: Video Forum**

- 1 *Title: Quantum Foundation as Seen by a Statistician*
Dr. Inge S. Helland, Professor Emeritus, University of Oslo, Norway
- 2 *Title: Holographic Beta Function in de Sitter Space*
Dr. Yoshihisa Kitazawa, Professor, KEK, Japan
- 3 *Title: Allosteric Pathway Identification Through Network Analysis: From Molecular Dynamics Simulations to Interactive 2D/3D Graphs and Beyond*
Dr. Luba Tchertanov, Research Director, Centre Borelli, ENS Paris-Saclay, France
- 4 *Title: Efficient Energy Cumulants for the Baxter – Wu Model*
Dr. Ioannis N. Velonakis, University of Athens, Greece
- 5 *Title: Effect of Structure Transformations on Generation of Optical Centers in KV and KU Quartz Glasses*
Dr. E. M. Ibragimova, Institute of Nuclear Physics AS RUz, Uzbekistan

The 9th World Energy Congress 2023**WEC 01: Latest Perspectives on Global Energy Policies and Utilization**

Time: 09:00-12:20, May 18, 2023 (Thursday); Place: Kibune, 5F, Hyatt Regency Osaka

Chair **Dr. Georgi Dimitrov Todorov**, Professor, Head of CoE "Mechatronics and Clean Technologies", Dean of the Faculty of Industrial Technology, Technical University of Sofia, Bulgaria

Co-Chair **Dr. Janet Xuanli Liao**, Associate Professor, University of Dundee, UK

09:00-09:05 Chair's Introduction

09:05-09:25 *Title: China's Carbon Neutrality Targets vs. the Use of Coal*

Dr. Janet Xuanli Liao, Associate Professor, University of Dundee, UK

09:25-09:45 *Title: Development of New Energy Vehicle Transmission System under the Dual Carbon Target*

Dr. Yong Chen, Professor, Guangxi University, China

09:45-10:05 *Title: Full Speed into the Electric Future: What Can We Expect of Lithium-Ion Technology in Vehicles?*

Dr. Daniela Werlich, CTO, CUSTOMCELLS® Group, Germany

- 10:05-10:25 **Title:** *Module Approach and Puzzle of Innovations for Breakthrough in the Batteries Improvement in Benefit of Electric Vehicles Development, Within and Beyond of the European Helios H2020 Project*
Dr. Yavor Petrov Sofronov, Associate Professor, Faculty of Industrial Technology, Technical University of Sofia, Bulgaria
- 10:25-10:45 **Title:** *Decarbonization: The Journey to Carbon-Free Systems*
Dr. Gene Hinkle, Managing Director, General Electric Energy Consulting, USA
- 10:45-11:00 **Coffee Break**
- 11:00-11:20 **Title:** *Trends and Emerging Technologies for the Development of Electric Vehicles*
Dr. Tiande Mo, Head of Green and Smart Mobility, Hong Kong Productivity Council, Hong Kong, China
- 11:20-11:40 **Title:** *A Novel Metallic Nuclear Fuel Design for High Burn-up Applications in Fast Neutron Reactors*
Dr. Di Yun, Professor, Xi'an Jiaotong University, China
- 11:40-12:00 **Title:** *Canada's Approach to Small Modular Reactor Regulation and International Collaboration*
Ms. Sarah Eaton, Director, Advanced Reactor Licensing, Canadian Nuclear Safety Commission, Canada
- 12:00-12:20 **Title:** *Case Onkalo - Finland Is the Global Leader in Final Disposal*
Mr. Juha Poikola, Manager, Public Relations, Teollisuuden Voima Oyj, Finland

WEC 02: Novel Technologies on Green Energy and Energy Storage

Time: 09:00-12:15, May 19, 2023 (Friday); Place: Kibune, 5F, Hyatt Regency Osaka

- Chair** **Dr. Jana Vejpravova**, Professor, Charles University, Czech Republic
- Co-Chair** **Mr. Tjerk Reijenga**, Architect Principal, BEAR-iD Sustainable Urban Planners and Architects, The Netherlands

- 09:00-09:05 **Chair's Introduction**
Session Keynote Speech
- 09:05-09:30 **Title:** *Advances in Computational Materials Design for Energy Conversion*
Dr. Hideaki Kasai, Professor, Osaka University, Japan
- 09:30-09:55 **Title:** *Green Optoelectronics Based on Graphene and Van Der Waals Materials*
Dr. Jana Vejpravova, Professor, Charles University, Czech Republic
- 09:55-10:20 **Title:** *Devices based on Graphene Heterostructures*
Dr. Martin Kalbac, Professor, J. Heyrovsky Institute of Physical Chemistry of the Czech Academy of Sciences, Czech Republic
- 10:20-10:45 **Title:** *How BIPV Will Change the Built Environment*
Mr. Tjerk Reijenga, Architect Principal, BEAR-iD Sustainable Urban Planners and Architects, The Netherlands
- 10:45-11:00 **Coffee Break**

- 11:00-11:25 **Title:** *Utilization of Wave Energy by Hybrid System*
Dr. Rositsa Velichkova, Associate Professor, Technical University of Sofia, Bulgaria
Title: *CO₂ Utilization in Advanced Power Generator and Olympic Ice Rink*
- 11:25-11:50 **Dr. Hua Tian**, Professor, Tianjin University, China
Title: *Preparation and Adsorption Properties of Amine Functionalized Mesoporous Humidity Control Material from Light-Emitting Diode Waste Quartz Sand and Granite Sludge*
- 11:50-12:15 **Ms. Ya-Wen Lin**, National Taipei University of Technology, Taiwan

WEC 03: Video Forum

- 1 **Title:** *Pumped Hydro, Solution or Pariah - The Case of Snowy 2.0.*
Dr. Glen Currie, Lecturer, University of Melbourne, Australia
- 2 **Title:** *The Vanadium Redox Flow Battery Operating with Overloaded Electrolytes in Order to Enhance the Stored Energy Density*
Dr. Theo Tzedakis, Professor, Universite Toulouse III - Paul Sabatier, France
- 3 **Title:** *Stability Oriented Optimal Energy Management of Multi-Microgrid Integration with Powergrid and Its Impacts*
Dr. K. S. Saritha, Associate Professor, Sree Narayana Gurukulam College of Engineering, India
- 4 **Title:** *Performance of Biogas Digester to Produce Biogas Implementing Biomass*
Mr. Nirmal Halder, Assistant Professor, Aerospace Engineerig, Sandip University, India
- 5 **Title:** *Energy Storage in Poland: Legal Status, Market Development Potential*
Ms. Katarzyna Wypychewicz, Board Advisor, Polish Energy Storage Association, Poland

Posters & Papers

- AnalytiX 01 **Title:** *Application of Nanomaterials in (Bio) Sensors*
Dr. Elzbieta Malinowska, Professor, Faculty of Chemistry, Warsaw University of Technology, Poland
- AnalytiX 02 **Title:** *Nucleic Acids Based Approach in Electrochemical Detection of Metal Ions*
Dr. Elabieta Malinowska, Professor, Faculty of Chemistry, Warsaw University of Technology, Poland
- AnalytiX 03 **Title:** *Chemical Changes of Oak Wood Polysaccharides during Thermal Degradation*
Dr. Frantisek Kacik, Professor, Technical University in Zvolen, Slovakia
- AnalytiX 04 **Title:** *Metal-Tag Labeling Coupled with Inductively Coupled Plasma Mass Spectrometry for Quantitation of Graphene Oxide in Biological Tissues*
Dr. Yu-Cing Li, Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan
- AnalytiX 05 **Title:** *Use of Fluorescence Spectroscopy as Analytical Methodology to Determine Gramicidin in Corn Steep Water*
Dr. Xanel Vecino Bello, Postdoc Researcher, University of Vigo, Spain
- AnalytiX 06 **Title:** *Single Crystal X-ray Diffraction Studies on Alkali Metal Thallides*
Dr. Stefanie Gartner, Head of Department X-ray Structure Analysis, Faculty of Chemistry and Pharmacy, University of Regensburg, Germany
- AnalytiX 07 **Title:** *Strongly Absorbing Materials: How Far Can Structure Determination by X-rays Go?*
Dr. Stefanie Gartner, Head of Department X-ray Structure Analysis, Faculty of Chemistry and Pharmacy, University of Regensburg, Germany

Posters & Papers

- AnalytiX 08 **Title:** *New Modified Carbon-Graphite Electrode and Their Application for Voltammetric Determination of Biologically Active Substances*
Dr. Dmitry Markielovich Aronbaev, Associate Professor, Samarkand State University, Uzbekistan
- AnalytiX 09 **Title:** *Determination of Numerical Values of Wave Parameters of the Gravitational Field*
Dr. Valentyn Nastasenko, Professor, Kherson State Maritime Academy, Ukraine
- AnalytiX 10 **Title:** *Fiber-Optic Raman Spectrum Sensor for Fast Diagnosis of Esophageal Cancer*
Dr. Jianhua Dai, Medicine Doctor, Institute of Digestive Disease, Southwest Hospital, Army Medical University, China
- AnalytiX 11 **Title:** *Variable Temperature, Pressure Operando MAS NMR for Catalysis and Energy Storage Sciences*
Dr. Jianzhi Hu, Senior Scientist, Pacific Northwest National Laboratory, USA
- AnalytiX 12 **Title:** *Physical Theory of Useful Strength of Metallic Crystals*
Dr. Vladimir G. Tkachenko, Head of Department, Frantsevich Institute for Problem of Materials Science, Ukraine
- AnalytiX 13 **Title:** *Arithmetic Progression Way in Calibration STD Curve*
Hisham Hassan Ahmed Mohammedkhair, Faculty of Medical Laboratory Sciences, University of Khartoum, Sudan
- AnalytiX 14 **Title:** *Dietary Exposure Assessment of the Spanish Population to Cyclo-di-BADGE through the Consumption of Canned Fish*
Dr. Leticia Barbosa-Pereira, Associate Researcher, University of Santiago de Compostela, Spain
- NANO 15 **Title:** *A Phosphorus-Nitrogen-Functionalized Graphene Oxide for Improving the Fire Safety of Epoxy Resin*
Dr. Zhengping Fang, Professor, Ningbotech University, China
- NANO 16 **Title:** *Natural Nanoporous Zeolites as Advanced Functional Materials*
Dr. Venceslav Kaucic, Professor, National Institute of Chemistry, Slovenia
- NANO 17 **Title:** *Annealing-free Hole Transport Layers for Highly-Efficient and Stable Organic Solar Cells*
Nurul Kusuma Wardani, Surface Technology Division, Korea Institute of Materials and Science (KIMS), South Korea
- SDS 18 **Title:** *The Use of Bamboo as a Sustainable Alternative in Interior and Furniture Design*
Ms. Taina Nicolau de Campos, Interior Designer, Brazil
- SDS 19 **Title:** *Preliminary Testing of Polymer Dispersed Liquid Crystals of 50% Polymer and 50% Liquid Crystals Content as Slab Waveguide Cladding Material*
Dr. Ghada Nabil Hassanein, Assistant Professor, Taibah University, Saudi Arabia
- WEC 20 **Title:** *Characterization and Cu²⁺ Adsorption of Ecological Hydroxyapatite Synthesized from Limestone Sludge*
Dr. Kae-Long Lin, Professor, National of ILan University, Taiwan

Posters & Papers

- IWCC 21 *Title: Hierarchical Porous Electrode Impedance Model based on Diffusion Dynamics and Electrode Morphology and Prediction of Electric Double Layer Structure*
Dr. Yanfang Gao, Director, Inner Mongolia University of Technology, China
- IWCC 22 *Title: Stable Mo/IT-MoS₂ Monolith Catalyst with a Metallic Interface for Large Current Water Splitting*
Dr. Zhiwei-Wang, Inner Mongolia University of Technology, China
- IWCC 23 *Title: Rare Earth Metal-Triazine-Based Porous Organic Polymer Catalyzed Oxygen Reduction Reaction*
Dr. Xiaoqi Zhao, Inner Mongolia University of Technology, China
- IWCC 24 *Title: In Situ Synthesis of VNQD@rGO/NC Composites for High-Performance Lithium-Ion Battery Anode Materials*
Dong Wang, Inner Mongolia University of Technology, China
- IWCC 25 *Title: Preparation of Manganese Dioxide and ZIF-67 Derived Porous Carbon Composite Material and Its Application in Supercapacitors*
Dr. Ju-Yin Liu, Inner Mongolia University of Technology, China

Exhibitor

NEWARE

Neware Technology Limited

Company Name: Neware Technology Limited

Brief introduction: Neware was founded in 1998, Neware has been committed to providing reliable battery testing systems. Thus far, Neware has provided flexible, high accuracy battery testing equipment to more than 48,000 customers worldwide ranging from battery manufacturers to R&D institutes. Customers state they love the stable, cost-effective battery testing equipment, along with the great service of Neware.

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