



2nd International Conference on
**Materials Science
& Engineering**
(Virtual)

November 05-07, 2020



UNITED Scientific
Group
A non-profit organization

Japan (GMT+9)	Local Time	
13:30- 13:50	01:30 PM	Join the meeting (AV Check)
13:50-14:00	01:50 PM	Introduction
Session 1	Surface and Interface Engineering of Materials Electronic and Magnetic Materials: Characterization, Properties and Theoretical Studies Materials: Synthesis, Processing, and Designing	
	Chair:	Ping Wu , Singapore University of Technology and Design, Singapore
14:00-14:20	02:00 PM	Surface nanocones control the heat transport in silicon membrane Xin Huang , The University of Tokyo, Japan
14:20-14:40	01:20 PM	Effect of low-temperature aging on thermally-induced phase transformation of NiTi wire with a wide range of grain sizes Zhihao Zhao , Tongji University, China
14:40-15:00	01:40 PM	Non-destructive stress sensing of NiTi (SMA) thin films from surface wetting – Theory and Testing Ping Wu , Singapore University of Technology and Design, Singapore
15:00-15:20	07:00 AM	Preparation of graphene oxide-hydroxyapatite nanocomposites using in situ synthesis method Giulia Fioravanti , University of L'Aquila, Italy
Poster Presentations		
15:20-15:25	03:20 PM	Temperature dependence of magnetic quantum number specific magnetic hysteresis curves for CoFeB/MgO and CoFeB/Ta multilayered films Hiroshi Sakurai , Gunma University, Japan
15:25-15:30	01:25 PM	Calculation of morse potential parameters due to thermal disorder in EXAFS. Application for diamond structure crystal Nguyen Ba Duc , Tan Trao University, Vietnam
15:30-15:35	09:30 AM	Investigation of water swelling characteristics of polymer nanofibers using magnetoelastic sensors Seda Kolak , Inonu University, Turkey
15:35-15:40	08:35 AM	Corrosion of AC polarized high-silicon cast irons Iosif Lingvay , Research-Development Institute for Environmental Protection Technologies and Equipment, Romania
15:40-15:45	08:40 AM	Noncontact method of conducting elements “writing” on insulating Ge–Sb–Te matrix using a laser beam Victor Shelukhin , Tel Aviv University, Israel
15:45-15:50	08:45 AM	Detection of the periodic layers appeared on the clean surfaces during temperature treatment Victor Shelukhin , Tel Aviv University, Israel
15:50-16:00	Session Break (10 Minutes)	
Session 2	Materials for Energy Storage, Production & Harvesting Applications Materials for Energy Generation, Storage, and Utilization	
	Chair:	Klara Hernadi , University of Szeged, Hungary
16:00-16:20	04:00 PM	Fabrication of transparent p-type potassium-doped ZnO thin films by molten-salt treatment in KNO₃ Sujun Guan , Tokyo University of Science, Japan
16:20-16:40	08:20 AM	Raman spectroscopy used for beryllium and tungsten based materials characterization processed by plasma-wall interactions in tokamaks Cedric Pardanaud , Aix Marseille University, France

16:40-17:00	08:40 AM	Photocatalytic materials and hollow structures Klara Hernadi , University of Szeged, Hungary
17:00-17:20	10:00 AM	Turbomachinery sealing solutions Galina Ilieva , Technical University of Varna, Bulgaria

17:20-17:25 **Session Break (5 Minutes)**

Session 3 **Materials: Synthesis, Processing, and Designing**

	Chair:	Yangcheng Lu , Tsinghua University, China
17:25-17:45	05:25 PM	Effect of residual aluminum thickness on microstructure and strength of friction stir spot welded aluminum alloy/copper lap joint Mitsuhiro Watanabe , Nihon University, Japan
17:45-18:05	05:45 PM	Catalytic properties of calcium phosphate under a relatively high-temperature and its application to a promotor for ammonia decomposition Takuya Ehiro , Osaka Research Institute of Industrial Science and Technology, Japan
18:05-18:25	05:05 PM	Amorphous FePO₄/carbon nanotubes cathode preparation via in situ nanoprecipitation and coagulation in microreactor Yangcheng Lu , Tsinghua University, China

Poster Presentations

18:25-18:30	06:25 PM	Influence of applied voltage and electrode distance in anodic oxidation on growth of TiO₂ nanotube arrays Yun LU , Chiba University, Japan
18:30-18:35	11:30 AM	Printed layers of ZnO-based diluted magnetic semiconductors with ferromagnetic properties Grygoriy S. Pekar , V. Lashkaryov Institute of Semiconductor Physics, Ukraine

18:35-18:55 **Break (20 Minutes)**

Session 4 **Ceramics, Polymers and Composite Materials | Materials in Construction and Civil Engineering**

	Chair:	Abdulaziz Bagabas , King Abdulaziz City for Science and Technology, Saudi Arabia
18:55-19:15	05:55 PM	Optimization of asphalt molecular model and simulation study of self-healing behavior of asphalt Jianyong Zhu , Chongqing Jiaotong University, China
19:15-19:35	01:15 PM	The effect of mechanical pressure on ZnO recrystallization in aqueous medium Andrey Smirnov , MIREA - Russian Technological University, Russia
19:35-19:55	02:05 PM	Cost-benefit analysis of using sulfur concrete and conventional concrete in sewage treatment systems, considering corrosion and operation lifetime Niloufar Gharoon , K.N. Toosi University of Technology, Iran
19:55-20:15	11:55 AM	Experimental technic to evaluate the strain-rate sensitivity of ceramic spall strength using shockless plate-impact Marielle Dargaud , Grenoble Alpes University, France
20:15-20:35	12:15 PM	Colored road pavements for pedestrian crossings safety Monica Meocci , University of Florence, Italy
20:35-20:55	11:35 AM	Rotational-moulded building blocks for the circular economy Sibele Cestari , Queen's University Belfast, United Kingdom
20:55-21:15	06:55 AM	Hydraulic behavior of belite clinkers produced through flame spray pyrolysis method Natalia Betancur-Granados , UNIMINUTO, Colombia
21:15-21:35	03:15 PM	Preparation and characterization of polystyrene/neodymium hydroxide nano-composites Abdulaziz Bagabas , King Abdulaziz City for Science and Technology, Saudi Arabia

Poster Presentations

21:35-21:40	02:35 PM	Fatigue cracks propagation in hybrid sucker rods Bogdan Kopei , Ivano-Frankivsk National Technical University of Oil and Gas, Ukraine
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Baltimore (GMT-4)	Local Time	
07:00-07:20	07:00 AM	Join the meeting (AV Check)
07:20-07:30	07:20 AM	Introduction

Keynote Presentation

07:30-08:00	07:30 AM	Tailoring the CO₂ permeability and selectivity of organic membranes from the ground-up Richard J. Spontak , North Carolina State University, USA
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Session 1 Nanoscience and Technology | Soft Materials and Biomaterials

08:00-08:20	10:00 AM	Incorporation of multidimensional graphene oxide sheets (GOMS) in thin film composite reverse osmosis (TFC-RO) membranes Bárbara Rodríguez , Universidad de Chile, Chile
08:20-08:40	07:20 AM	Photoluminescence and charge transport characteristics of nano-columnar TiO₂ films prepared by RF sputtering on nanoporous Al₂O₃ Elaheh Kheirandish , University of Wisconsin-Milwaukee, USA
08:40-09:00	10:40 AM	Acid hybrid urethanesils as antimicrobial platforms Ubirajara Pereira Rodrigues-Filho , University of Sao Paulo, Brazil
09:00-09:20	07:00 AM	Designing materials with specific molecular recognition and photonic properties Neal Woodbury , Arizona State University, USA

Poster Presentations

09:20-09:25	04:20 PM	Mechanical, structural and barrier properties of hydroxypropyl methylcellulose edible films containing grape seed oil Gabor Zsivanovits , Institute of Food Preservation and Quality, Bulgaria
09:25-09:30	02:25 PM	Ionic conductivity through transmembrane-electropores in human aquaporin 4: calcium effects from non-equilibrium molecular-dynamics study Niall English , University College Dublin, Ireland
09:30-09:40		Session Break (10 Minutes)

Session 2 Materials: Computational and Theoretical Studies | Materials: Synthesis, Processing, and Designing | Structural and Functional Materials

Chair: **Seongwoo Woo**, Addis Ababa Science & Technology University, Ethiopia

09:40-10:00	05:40 PM	Reliability design of mechanical systems subject to repetitive stresses Seongwoo woo , Addis Ababa Science & Technology University, Ethiopia
10:00-10:20	10:00 AM	Lead base anodes for copper electrowinning with improved mechanical and anticorrosion properties Yasmin Maril , Georgia Institute of Technology, USA
10:20-10:40	04:20 PM	New process of dry particle coating to prepare support of catalysis Hua Liu , Unité de Catalyse et Chimie du Solide, France
10:40-11:00	03:40 PM	Multi-material composition optimization vs soft-ware based single-material topology optimization of a rectangular sample under flexural load for fused deposition modeling process Vahid Hassani , University of Sunderland, United Kingdom

11:00-11:20

Session Discussion

Poster Presentations

- 11:20-11:25 11:20 AM **Modeling of spatial distribution of catalyst penetration in inkjet printed gas diffusion electrodes for polymer electrolyte membrane fuel cells**
L. Jay Deiner, City University of New York, USA
- 11:25-11:30 11:25 AM **Design of a resistive thermoplastic polymer with configurable electrical properties**
Stefano Colafranceschi, Eastern Mennonite University, USA
- 11:30-11:35 01:30 PM **Mechanical and microstructural characterization of dual phase steel - DP980**
Antonio dos Reis de Faria Neto, Sao Paulo State University, Brazil
- 11:35-11:40 07:35 PM **Synthesis and study of rare-earth elements uranates**
Olga Tumaeva, Lobachevsky State University of Nizhny Novgorod, Russia

11:40-11:50

Session Break (10 Minutes)

Session 3 Electronic and Magnetic Materials: Characterization, Properties and Theoretical Studies | Materials for Energy Generation, Storage, and Utilization

Chair: **Michael Waltl**, TU Wien/Institute for Microelectronics, Austria

- 11:50-12:10 05:50 PM **Spectroscopy of single defects in semiconductor transistors**
Michael Waltl, TU Wien/Institute for Microelectronics, Austria
- 12:10-12:30 09:10 AM **TCAD modeling of hydrogen-terminated diamond FET for RF Applications**
Hiu Yung Wong, San Jose State University, USA
- 12:30-12:50 09:30 AM **Chiral spin textures in amorphous films**
Robert Streubel, University of Nebraska-Lincoln, USA
- 12:50-13:10 12:50 PM **Wettable carbon felt framework for high loading Li-metal composite anode**
Zulipiya Shadike, Brookhaven National Laboratory, USA
- 13:10-13:30 10:10 AM **Optimally distributed transport properties for improved multi-stage thermoelectric performance in a single-stage device**
Doug Crane, DTP Thermoelectrics, USA
- 13:30-13:50 01:30 PM **Degradation analysis and modeling of Li-ion batteries**
Wei Lu, University of Michigan, USA

Poster Presentations

- 13:50-13:55 07:50 PM **Durability test of ER fluid working as working fluid in hydraulic clutch**
Ireneusz Musiałek, Jan Kochanowski University, Poland

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