

International Student Workshop on Materials Science and Engineering 2022 (ISWMSE 2022)



Kyushu Institute of
Technology

National Taiwan University
of Science and Technology

Changwon National
University

Sepuluh Nopember
Institute of Technology

December 7-8, 2022
Virtual

Aim

We hold this joint workshop on materials science and engineering. The purpose of this workshop is offering an opportunity of sharing scientific and technological knowledges, education of students, and international collaboration between participating professors and students.

Materials science and engineering has opened new scientific fields in fundamental researches, and also has significant roles in technologies. Innovation in materials promises to advance the science and technologies. Each university and institution is performing active researches on materials science and engineering, and has strong research areas. Our understanding of materials will be deepened by sharing these knowledges. This workshop may also offer an opportunity to start a new co-research.

There are many international conferences on materials science and engineering. It may be difficult for some students to participate in such conferences, and the workshop for educating students are limited. In this workshop, many students present their results, and some of the students join the workshop organization.

International collaboration of professors and international interaction between students are required. International collaboration partners on the department level are very important for the international activity, and the joint workshop deepens the partnership between the departments as well as individual professors and students.

We expect active discussions and interaction between participating students and professors. In future, we expect not only to keep this international collaboration platform but also to expand the collaboration partner to other universities and institutions.

Topics

Material Processing, Material Function, Material Property, Material Structure, Material Characterization, Material Application, Material Physics, Material Chemistry, Material Design, Energy Material, Electronic Material, Bio Material, Nanomaterial, Structural Material, Advanced Material and Novel Material, Any Other Topics on Materials Science and Engineering

Time schedule

Indonesia	Taiwan	Korea Japan	Session	
			Meeting Room 1	Meeting Room 2
7, December				
9:00 - 9:10	10:00 - 10:10	11:00 - 11:10	Opening Ceremony	
9:10 - 10:50	10:10 - 11:50	11:10 - 12:50	Professor Session	
10:50 - 12:20	11:50 - 13:20	12:50 - 14:20	Lunch	
12:20 - 14:45	13:20 - 15:45	14:20 - 16:45	Student Session IA	Student Session IB
8, December				
9:00 - 11:10	10:00 - 12:10	11:00 - 13:10	Student Session IIA	Student Session IIB
11:10 - 12:35	12:10 - 13:35	13:10 - 14:35	Lunch	
12:35 - 14:45	13:35 - 15:45	14:35 - 16:45	Student Session IIIA	Student Session IIIB
14:45 - 15:00	15:45 - 16:00	16:45 - 17:00	Closing Ceremony	

Professor Session

Professor session (7, December)

Meeting Room A

9:10-10:50 (Indonesia), 10:10-11:50 (Taiwan), 11:10-12:50 (Korea, Japan)

Chair: Jun-Seob Lee (Changwon National University), Yu-Sheng Hsiao (National Taiwan University of Science and Technology)

9:10-9:35 (Indonesia), 10:10-10:35 (Taiwan), 11:10-11:35 (Korea, Japan)

Associate Professor Mas Irfan Purbawanto Hidayat (Sepuluh Nopember Institute of Technology)

“Peridynamics: A Robust Non-local Formulation for Solving Problems in Materials Science and Engineering”

9:35-10:00 (Indonesia), 10:35-11:00 (Taiwan), 11:35-12:00 (Korea, Japan)

Professor Shao-Ju Shih, chairman of Department of Materials Science and Engineering (National Taiwan University of Science and Technology)

“Design for functional ceramic particles”

10:00-10:25 (Indonesia), 11:00-11:25 (Taiwan), 12:00-12:25 (Korea, Japan)

Associate Professor Jun-Seob Lee (Changwon National University)

“The Introduction for Changwon National University”

10:25-10:50 (Indonesia), 11:25-11:50 (Taiwan), 12:25-12:50 (Korea, Japan)

Associate Professor Takanori Kitamura (Kyushu Institute of Technology)

“Introduction of the Department of Materials Science & Engineering, Kyushu Institute of Technology”

Student Session

Chair: Minsuk Lee (CWNU), Classi Permata Segitayiram (ITS)

Time		Speaker	Title
12:20-12:35 13:20-13:35 14:20-14:35	IA1	Kojiro Murayama (Kyutech)	Effects of pre-straining on hydrogen embrittlement behavior of Inconel X-750
12:35-12:50 13:35-13:50 14:35-14:50	IA2	Muhammad Naufal Phaseolansyah (ITS)	Development of Chitosan - PMMA - Hydroxyapatite Scaffold-Based Bone Graft Composite to Properties
12:50-13:05 13:50-14:05 14:50-15:05	IA3	Chih-Hao Chen (NTUST)	Triangular gold nanoplates/two-dimensional nano mica platelets synthesis for SERS bacteria detection
13:05-13:20 14:05-14:20 15:05-15:20	IA4	Cheng-You Tsai (NTUST)	Development of Flexible, Stretchable, and Self-Healable Organic Electrochemical Transistors Based on the Chicken Egg Tumor Model Applications
13:20-13:35 14:20-14:35 15:20-15:35	IA5	Masaharu Yamamoto (Kyutech)	Change in Crack Propagation Behavior due to Aging of Hydrogen-Absorbed Ta/Zr Explosion Joint Material
Coffee break: 10 min			
13:45-14:00 14:45-15:00 15:45-16:00	IA6	Mohamed Tarek Ahmed (NTUST)	Highly Efficient Photocatalytic H ₂ O ₂ Generation over Dysprosium oxide-Integrated g-C ₃ N ₄ Nanosheets with Nitrogen Deficiency
14:00-14:15 15:00-15:15 16:00-16:15	IA7	Eui-Seok Ko (CWNU)	Characterization of Low-Cycle Fatigue Deformation Behavior at RT/200 °C of FeMnAlC Lightweight Steel for Low-Pressure Turbine Blade
14:15-14:30 15:15-15:30 16:15-16:30	IA8	Ryotaro Taguchi (Kyutech)	Delayed Fracture Behavior of Resistance Spot Welded Joints of Ultra High Strength Steel Sheet
14:30-14:45 15:30-15:45 16:30-16:45	IA9	Seo-Young Rho (CWNU)	The Effect of Hydrogen Charging on the Passivation Behavior of Ni-Ti

Chair: Makoto Hamamoto (Kyutech), Cheng-You Tsai (NTUST)

Time		Speaker	Title
12:20-12:35 13:20-13:35 14:20-14:35	IB1	Syunpei Fujita (Kyutech)	Effect of process control agent on crystallographic texture of ball milled iron particle
12:35-12:50 13:35-13:50 14:35-14:50	IB2	Ying-Ying Chen (NTUST)	Surface Engineering for High-Performance and Stable Self-Powered Sweat Sensors
12:50-13:05 13:50-14:05 14:50-15:05	IB3	Aldiansyah Wahfiyuddin (ITS)	A Facile Method of Synthesizing Superparamagnetic Iron Oxide Nanoparticles with Homogenous Size and High Magnetic Saturation from Natural Iron Sand
13:05-13:20 14:05-14:20 15:05-15:20	IB4	Bohye Jeon (CWNU)	Application of elasto-visco-plastic polycrystal model to pure titanium in cryogenic temperatures
13:20-13:35 14:20-14:35 15:20-15:35	IB5	Kota Yamaguchi (Kyutech)	Thermoelectric Property of Sn(Te,Se) Film Fabricated Using Pulsed Laser Deposition
Coffee break: 10 min			
13:45-14:00 14:45-15:00 15:45-16:00	IB6	Makoto Hamamoto (Kyutech)	Structural optimization for diamagnetic signal in a lanthanide metal
14:00-14:15 15:00-15:15 16:00-16:15	IB7	Minsuk Lee (CWNU)	Effects of Process Parameters on the Surface Scale Color of the Water Atomized Shots for Shot Peening of High Carbon Steel
14:15-14:30 15:15-15:30 16:15-16:30	IB8	Chih-Yu Fang (NTUST)	Flexible Semi-Transparent All-Polymer Triboelectric Nanogenerator with High Output Performance and Good Stability

Chair: Yi-Ping Fan (NTUST), Tatsuuro Aikawa (Kyutech)

Time		Speaker	Title
09:00-09:15 10:00-10:15 11:00-11:15	IIA1	Andromeda Dwi Laksono (NTUST)	Study on Interfacial Reactions and Tensile Properties in the Sn/C1990 HP Systems
09:15-09:30 10:15-10:30 11:15-11:30	IIA2	Masato Nakamoto (Kyutech)	Thermodynamic calculation and experimental investigation of phase equilibria in the (Ge,Pb)-(Se,Te) pseudo-quaternary system
09:30-09:45 10:30-10:45 11:30-11:45	IIA3	Tae-Hun Kim (CWNU)	A study on the Low-Temperature Impact Toughness of ERW X70 Steel Pipes According to Post Seam Annealing Temperature
09:45-10:00 10:45-11:00 11:45-12:00	IIA4	Harits Muhammad Daniswara (ITS)	Effect of Solid to Liquid Ratio on The Leaching Process of Ferronickel from Mini Blast Furnace for Nickel Sulfate Synthesis
Coffee break: 10 min			
10:10-10:25 11:10-11:25 12:10-12:25	IIA5	Kaito Shimonishi (Kyutech)	Fabrication of β FeSe and β FeTe single phases by mechanical alloying method
10:25-10:40 11:25-11:40 12:25-12:40	IIA6	Dao Lam Gia Hao (NTUST)	Flexible and Stable Organic-Inorganic Hybrid Perovskite /Cellulose Nanocrystal Photodetectors
10:40-10:55 11:40-11:55 12:40-12:55	IIA7	Daichi Matsumoto (Kyutech)	Effect of heating temperature on precipitation behavior in a high purity ferritic stainless steel
10:55-11:10 11:55-12:10 12:55-13:10	IIA8	Yoon-Hwa Lee (CWNU)	Effect of Heat Treatment on Localized Corrosion Resistance of Inconel 718

Chair: Sanghyun Park(CWNU), Rifky Hari Pradana (ITS)

Time		Speaker	Title
09:00-09:15 10:00-10:15 11:00-11:15	IIB1	Jaeseong Lee (CWNU)	Mechanical behavior of Mg-10Gd magnesium alloy predicted by elasto-visco-plastic polycrystalline finite element method
09:15-09:30 10:15-10:30 11:15-11:30	IIB2	Tomoya Yanagawa (Kyutech)	Effect of heat treatment on SPCC/A6016 clad material prepared by vacuum rolling bonding
09:30-09:45 10:30-10:45 11:30-11:45	IIB3	Alfreda Krisna Altama (NTUST)	The metallic nanotube arrays (MeNTAs) development and modification for the SERS application
09:45-10:00 10:45-11:00 11:45-12:00	IIB4	Hiro SASAKI (Kyutech)	Effect of Initial Temperature of Steel Plate on Nugget Diameter for Resistance Spot Welding
Coffee break: 10 min			
10:10-10:25 11:10-11:25 12:10-12:25	IIB5	Farhan Aryo Hutomo (ITS)	Enhanced Cu ₂ O antibacterial performance through heterojunction formation with TiO ₂
10:25-10:40 11:25-11:40 12:25-12:40	IIB6	Tzai-Wei Chen (NTUST)	Optoelectrical properties of tin disulfide nanoflakes
10:40-10:55 11:40-11:55 12:40-12:55	IIB7	Ting-Hsiang Chang (NTUST)	Fabrication and electrical properties of Cu-Ge alloy nanowires
10:55-11:10 11:55-12:10 12:55-13:10	IIB8	Kai Syutaro (Kyutech)	Electrode Wear of W-Alloy Electrodes in Resistance Spot Welding of Al Plates

Chair: Naura Diefya Rivandi (ITS), Jaemin Jung (CWNU)

Time		Speaker	Title
12:35-12:50 13:35-13:50 14:35-14:50	IIIA1	Ryo Kiyofuji (Kyutech)	Cole-Cole Plots of Au_CNT/Zr Structure
12:50-13:05 13:50-14:05 14:50-15:05	IIIA2	Sota Fujimoto (Kyutech)	AC Characteristics of Au_CNT/Zr Structure
13:05-13:20 14:05-14:20 15:05-15:20	IIIA3	Raghavendrakumar Rangappa (NTUST)	Fabrication of microcellular thermoplastic polyurethanes foams by supercritical CO ₂ and N ₂
13:20-13:35 14:20-14:35 15:20-15:35	IIIA4	Tse-Han Chiu (NTUST)	High Solubility poly(benzimidazole) with Flexible ether and bulky Trifluoromethyl group in the High-Temperature Proton Exchange Membranes
Coffee break: 10 min			
13:45-14:00 14:45-15:00 15:45-16:00	IIIA5	Kuang-Hao Cheng (NTUST)	Solution-Processable Naphthalene Diimide-Based Conjugated Polymers as Organocatalysts for high performance Photocatalytic CO ₂ Reaction
14:00-14:15 15:00-15:15 16:00-16:15	IIIA6	SangHyun Park (CWNU)	Effect of alloying elements on castability on DS superalloy
14:15-14:30 15:15-15:30 16:15-16:30	IIIA7	Mahiro Kotani (Kyutech)	Measurement of Surface Conductivity by SAW Device
14:30-14:45 15:30-15:45 16:30-16:45	IIIA8	Muh Syafri Zainuddin (ITS)	The Effect of Nitrogen on the Capacitive Properties of N-doped rGO/CuCr2O4 Composites as Materials for Supercapacitors

Chair: Huan-Jia Zhang (NTUST), Tomoya Yanagawa (Kyutech)

Time		Speaker	Title
12:35-12:50 13:35-13:50 14:35-14:50	IIIB1	Keito TAKASE (Kyutech)	Formation of ferroelectric phase by crystallization of amorphous $\text{Hf}_{1-x}\text{Zr}_x\text{O}_2/\text{Si}(001)$
12:50-13:05 13:50-14:05 14:50-15:05	IIIB2	Jaemin Jeong (CWNU)	Classification of Crystal Structures by Computer Vision
13:05-13:20 14:05-14:20 15:05-15:20	IIIB3	Tatsuro Aikawa (Kyutech)	Ab initio analysis for $\text{LaAlO}_3/\text{SrTiO}_3$ interface
13:20-13:35 14:20-14:35 15:20-15:35	IIIB4	Takahiro IZUMI (Kyutech)	Inert gas ion irradiation-induced structural changes in $\text{Sc}_2\text{O}_3\text{-HfO}_2$ fluorite derivative structures
Coffee break: 10 min			
13:45-14:00 14:45-15:00 15:45-16:00	IIIB5	Chao-Li Lee (NTUST)	Structure and bioactivity correlation for 58S bioactive glass particles
14:00-14:15 15:00-15:15 16:00-16:15	IIIB6	Chihiro TAHARA (Kyutech)	Large-scale molecular dynamics study on explosive crystallization of amorphous germanium
14:15-14:30 15:15-15:30 16:15-16:30	IIIB7	Putri Safa Ailsa Nugroho (ITS)	Effects of Glutamic Acid Surfactant Concentration on Magnetite Nanoparticles Fluid Characteristics: Study of Hyperthermia Therapy
14:30-14:45 15:30-15:45 16:30-16:45	IIIB8	Tzu-Jui Peng (NTUST)	Preparation and characterization of collagen and metal-doped beta-tricalcium phosphate composite scaffolds for alveolar bone regeneration