

The 15th International Student Conference on Advanced Science and Technology (ICAST) 2020 Online

December 3-4, 2020

Organized by
Graduate School of Science and Technology (GSST), Kumamoto University, Japan

Research Session:

1. Mathematics
2. Physics
3. Chemistry
4. Earth and Environments
5. Biological Sciences
6. Applied Chemistry
7. Materials Science and Engineering
8. Mechanical System Engineering
9. Applied Mathematics
10. Computer Science
11. Electrical Engineering
12. Civil and Environmental Engineering
13. Architecture
14. Multidisciplinary

General Session:

Energy, environment, and other issues in society related to science and technology

Program Outline

JST	DAY 1 (Dec 3, Thu)				DAY 2 (Dec 4, Fri)				JST			
9:30	Opening Session				III. Research and General Sessions				9:30			
					Room A	Room B	Room C	Room D				
					8-1	6-17	13-1	G-16				
					8-2	6-18	13-2	G-17				
					8-3	6-19	13-3	G-18				
					8-4	6-20	13-4	G-19				
					8-5	6-21	13-5	G-20				
					8-6	6-22	13-6	G-21				
					8-7	6-23	13-7	G-22				
11:30	Lunch Break				Lunch Break				11:45			
13:00	I. Research and General Sessions				IV. Research Sessions				13:00			
	Room A	Room B	Room C	Room D	Room A	Room B	Room C	Room D				
	2-1	4-1	6-1	G-1	8-9	12-10	13-8	11-1				
	2-2	4-2	6-2	G-2	8-10	12-11	13-9	11-2				
	2-3	5-1	6-3	G-3	8-11	12-12	13-10	11-3				
	2-4	5-2	6-4	G-4	7-1	12-13	13-11	11-4				
	2-5	5-3	6-5	G-5	7-2	12-14	14-1	11-5				
	2-6	5-4	6-6	G-6	7-3	12-15	14-2	11-6				
	2-7	5-5	6-7	G-7	7-4	12-16	14-3	11-7				
15:00	Break				Break				15:15			
15:30	II. Research and General Sessions				V. Research Sessions				15:30			
	Room A	Room B	Room C	Room D	Room A	Room B	Room C					
	3-1	12-1	6-9	G-8	7-5	12-19	9-1					
	3-2	12-2	6-10	G-9	7-6	12-20	10-1					
	3-3	12-3	6-11	G-10	7-7	12-21	10-2					
	3-4	12-4	6-12	G-11	7-8	12-22	10-3					
	3-5	12-5	6-13	G-12	7-9	12-23	10-4					
	3-6	12-6	6-14	G-13	7-10	12-24	10-5					
	3-7	12-7	6-15	G-14		12-25						
	3-8	12-8	6-16	G-15		12-26						
17:45	Break				Break				17:30			
	Closing ceremony & student awards								18:00			
									18:30			

Notes: Please refer to page 5 to 23 for your number and confirm when and where you will give a presentation.

- i. Research and General sessions are simultaneously held at different 4 rooms.
- ii. Presenters are advised to enter the assigned room at least 10 min before the session starts.
- iii. Presenters have 12 min to talk followed by 3 min Q&A.
- iv. All scheduled times are subject to change due to previous sessions.

DAY 1: December 3, 2020 (Thursday)

9:30 – 9:50	Opening Address Jun Otani (Vice President of Kumamoto University) Welcome Address Sadahiro Tsurekawa (Dean of GSST, Kumamoto University)
9:50 – 10:50	Keynote Lecture Cheryl Lewis Ames (Associate Professor of Applied Marine Biology, Graduate School of Agricultural Science, Tohoku University) “Tackling the Old with the New: International Collaborations that Advance Science and Technology in 2020”
10:50 – 11:30	Report on International Experiences by GSST students Yutaro Kurokawa (Department of Civil and Environmental Engineering and Architecture, GSST, Kumamoto University) “Once-in-a-life-time kind of opportunity” Nurlatifah (Department of Science, GSST, Kumamoto University) “International exposure: see the world through different lenses” Kohei Unoki (Department of Science, GSST, Kumamoto University) “My life in Myanmar”
11:30 – 13:00	Lunch Break
13:00 – 15:00	Session I -Room A - C (Research), Room D (General)
15:00 – 15:30	Break
15:30 – 17:45	Session II -Room A - C (Research), Room D (General)

DAY 2: December 4, 2020 (Friday)

9:30 – 12:00	Session III -Room A - C (Research), Room D (General)
12:00 – 13:00	Lunch Break
13:00 – 15:15	Session IV -Room A - D (Research)
15:15 – 15:30	Break
15:30 – 17:30	Session V -Room A - C (Research)
17:30 – 18:00	Break
18:00 – 18:30	Closing ceremony & student awards

List of Papers in Sessions

December 3, Thursday 13:00 – 15:00

● Room A

Research Session on **Physics**

2-1	Concentration Dependence of Melting Point of Na-Rb Mixtures using First-principles-based Thermodynamic Integration <i>Ayu Irie, Kumamoto University</i>
2-2	Size Dependence of Melting Temperature of Rubidium Using Thermodynamic Integration Based on First-Principles Molecular-Dynamics Simulations <i>Shogo Fukushima, Kumamoto University</i>
2-3	First-principles Molecular Dynamics Simulation of Silver Chalcogenides under Shear Stress <i>Hinata Hokyo, Kumamoto University</i>
2-4	Electron-and Energy- Transfer Dynamics between Cationic Species Codoped in Ionic Nanospheres <i>Hayata Yamamoto, Kumamoto University</i>
2-5	NR Cam: A shallow contact binary with a magnetic cycle <i>Qiqi Xia, Shandong University</i>
2-6	Density functional theory studies of hydrogen bonding vibrations in sI gas hydrates <i>Hao-Cheng Wang, Shandong University</i>
2-7	Chromaticity Manipulation of Indoor Photovoltaic Cells <i>Zhihao Chen, Shandong University</i>
2-8	Enhanced Long-lived acoustic plasmons in hole-doped metal diborides <i>Han Gao, Shandong University</i>

December 3, Thursday 13:00 – 15:00

● Room B

Research Session on Earth and Environments/Biological Sciences

4-1	Elastic waveform inversion based on multi-task learning <i>Yuxiao Ren, Shandong University</i>
4-2	Detection of chemical additives in deep-sea plastic debris collected from Western North Pacific Ocean <i>Nurlatifah, Kumamoto University</i>
5-1	Delivery of an Anti-inflammatory Bacterial Toxin to Macrophages Using Biodegradable PLGA-Nanoparticles <i>Ayaka Harada, Kumamoto University</i>
5-2	Photoregulation of PPI by anthracene-modified RNA aptamers <i>Yusuke Fuchigami, Kumamoto University</i>
5-3	Highly sensitive detection of microRNA in living cells by a novel type of riboswitch <i>Sho Yoshida, Kumamoto University</i>
5-4	Investigation of the function of RNA G-quadruplex structure in p27 Kip1 <i>Yoshiki Osawatsu, Kumamoto University</i>
5-5	Development of Erb2-targeting Liposomes for Enhancing Delivery to ErbB2-positive Breast cancer <i>Sho Ueno, Kumamoto University</i>
5-6	Analysis of attractant for plant parasitic nematode, <i>Meloidogyne incognita</i>. <i>Syuuto Toyoda, Kumamoto University</i>

December 3, Thursday 13:00 – 15:00

- Room C

Research Session on **Applied Chemistry**

6-1	Highly sensitive detection of acetone and ethanol under humid conditions using well-aligned ZnO nanorod films <i>Takeshi Shinkai, Kumamoto University</i>
6-2	Efficient fluorescence ON/OFF switching of CsPbBr₃ quantum dots hybridized with photochromic diarylethene via Click reaction <i>Manami Shimoyoshi, Kumamoto University</i>
6-3	Synthesis of CsPbBr₃ quantum dots coated with phosphonic acid-based ligands by click reaction <i>Shimpei Kawashima, Kumamoto University</i>
6-4	In-situ Transesterification of Microalgal Biomass using Carbon-Based Catalyst with Microwave Irradiation <i>Yik Lam Kam, Kumamoto University</i>
6-5	Reversible Photoluminescence Switching of CsPbBr₃ Quantum Dots Hybridized with a Diarylethene Photoswitch <i>Ashkan Mokhtar, Kumamoto University</i>
6-6	Hydrogen Separation Using Graphene Oxide Membrane with Mixed Proton-Electron Conductivity <i>Shota Kitamura, Kumamoto University</i>
6-7	Conversion of Fructose into Useful Products by Carbon-Based Catalysts Activated by Microwave <i>Miyu Nakamura, Kumamoto University</i>
6-8	Electrochemical CO₂ reduction using a metal oxide/N-doped carbon composite Electrode <i>Yuki Ishii, Kumamoto University</i>

December 3, Thursday 13:00 – 14:45

● Room D

General Session

G-1	Development of a water purification agent utilizing Aso Odo <i>Iori Shiraishi, Takamori High School</i>
G-2	Consideration Concerning Fish Fauna in the Jyoudouji River Designated as an Important Area of Kumamoto City Biodiversity Strategy <i>Masato Ooi, Kumamoto Gakuen University Fuzoku High School</i>
G-3	Investigation of the distribution of the red pigment, betalain and analysis of the PPO activity in four o'clock (<i>Mirabilis jalapa</i>) <i>Seina Wakayama, Kumamoto Gakuen University Fuzoku High School</i>
G-4	Considering the environment of Ezu Lake from herons fishing <i>Naho Okaguchi, Shinwa High School</i>
G-5	The Power of Cloud Ear Fungus <i>Satsuki Sakamoto, Kumamoto High School</i>
G-6	Shiranuhi Phenomenon <i>Norihiro Iwasaki, Uto Junior and Senior High School</i>
G-7	Floating island phenomenon <i>Kazushi Nakashima, Uto Junior and Senior High School</i>

December 3, Thursday 15:30 – 17:45

● Room A

Research Session on Chemistry

3-1	Structures and three-way catalysis properties of multicomponent 3d transition-metal nanoparticles <i>Taiki Hirakawa, Kumamoto University</i>
3-2	In Situ Diffuse-Reflectance Spectroscopy Analysis of Pd on CeO₂-ZrO₂ during Oxygen Storage/Release Cycles <i>Ayumi Fujiwara, Kumamoto University</i>
3-3	Preparation and evaluation of polymer-grafted functionalized silica hydrophilic columns <i>Yongxing Hu, Kumamoto University</i>
3-4	Fabrication of Hetero-Network Hydrogels Cross-linked with Silica Nanoparticles for Strategic Control of Thermal Responsive Property <i>Mst Maria Rahman, Kumamoto University</i>
3-5	Phytodiamines and their amide derivatives in the forest atmosphere <i>Kentaro Saeki, Kumamoto University</i>
3-6	Molecule-based Magnetic Multifunctionality in 1-D Cobalt(II) Compound <i>Hikaru Zenno, Kumamoto University</i>
3-7	Syntheses and structures of Ni(II) complexes by using multidentate ligand including amino acid moiety <i>Akihiro Tanaka, Kumamoto University</i>
3-8	Drug Delivery System Using Mesoporous Silica Encapsulated Antimalarial Drug <i>Haruka Hirayama, Kumamoto University</i>
3-9	Tuning elasticity in a molecular crystal of metal-bonded one-dimensional complex <i>Akira Sugimoto, Kumamoto University</i>

December 3, Thursday 15:30 – 17:45

● Room B

Research Session on **Civil and Environmental Engineering**

12-1	The mechanism and merit of pulsed power crushing technique to produce recycled sand from waste concrete <i>Rahimullah Habibzai, Kumamoto University</i>
12-2	Natural Disasters in Bangladesh and Introduction of ECO-DRR using Pandanus Forest in Saint Martin Island, Bangladesh <i>Shakila Kayum, Kumamoto University</i>
12-3	Estimation of appropriate parking capacity based on actual conditions of moving and parking of vehicles <i>Hayato Koga, Kumamoto University</i>
12-4	Inter-country Comparison of Households with Every Member Out-of-Home (HEMO) using JICA Person Trip Survey: An Initial Result <i>Tomoki Nakayama, Kumamoto University</i>
12-5	Analysis of The Possibility of Introducing Ride-sharing Taxi as Public Transportation in Rural Areas <i>Ryoma Yae, Kumamoto University</i>
12-6	Analysis on Users' Preference for Kumamoto City Tram using Smart-card Big Data with State-Space Model <i>Kazuki Miyazaki, Kumamoto University</i>
12-7	Flood Flow Estimation by Means of Deep Learning Methods <i>Takeyoshi Nagasato, Kumamoto University</i>
12-8	Field Survey of Landslide Disaster Areas Due to Heavy Rainfall and Estimation of Landslide Damage Risk in Steep Slope Area -The Case of Mon State, Myanmar- <i>Junki Kawazoe, Kumamoto University</i>
12-9	A Study on Learning Process of Deep Learning Method Using Rainfall-Runoff Modeling <i>Kazuki Yokoo, Kumamoto University</i>

December 3, Thursday **15:30 – 17:30**

● Room C

Research Session on **Applied Chemistry**

6-9	Photoreversible ON/OFF Luminescence Switching of CsPbX₃ Nanocrystals Using Photochromic Diarylethene Derivatives <i>Yuji Akaishi, Kumamoto University</i>
6-10	Separation of single-stranded DNA using hydroxyapatite <i>Yuya Uenosono, Kumamoto University</i>
6-11	Coordination-driven enhancement of supramolecular chirality and fluorescence of self-assembled molecular gels <i>Nahid Sultana, Kumamoto University</i>
6-12	<i>In-Situ</i> Fatty Acid Ethyl Ester Production from Wet Mahogany (<i>Swietenia Macrophylla</i>) Seed using Supercritical Carbon Dioxide and Azeotropic Ethanol <i>Juoyneil ECHON CARTEL, De La Salle University</i>
6-13	Production of Salinity Gradient Energy by Reverse Electrodialysis (RED)-Effect of Membrane Cell Pair Number <i>Esra Altıok, Ege University</i>
6-14	Synthesis of Novel Anion Exchange Membranes for Salinity Gradient Energy Production by Reverse Electrodialysis (RED) Method <i>Mine ETİ, Ege University</i>
6-15	Lithium Recovery from Brine by Electrodialysis Having Heterogeneous Bipolar Ion Exchange Membranes <i>Tuğçe Zeynep Kaya, Ege University</i>
6-16	Recovery of Lithium from Reverse Osmosis Concentrate of Geothermal Water By λ-MnO₂ <i>Başak Sever, Ege University</i>

December 3, Thursday 15:30 – 17:30

● Room D

General Session

G-8	The alloy that is molten by boiling water <i>Masahiro Inishi, Uto Junior and Senior High School</i>
G-9	The way of sustaining Supercooling <i>Nanami Shikai, Uto Junior and Senior High School</i>
G-10	Coating agent that can be made at school <i>Masato Koga, Uto Junior and Senior High School</i>
G-11	Experiment on Exposure to Mercury of Killifish Eggs <i>Rei Misumi, Kumamoto Gakuen University Fuzoku High School</i>
G-12	Research of the wave-dissipating blocks <i>Kota Ihara, Amakusa High School</i>
G-13	Protecting Amakusa from <i>Pomacea canaliculata</i> <i>Azumi Kinugawa, Amakusa High School</i>
G-14	Study of Brackish Water Area in Machiyamaguchi River <i>Sawa Mori, Amakusa High School</i>
G-15	How to move in a disaster ~ Find a route with minimum ~ <i>Shodai Tanaka, Amakusa High School</i>

December 4, Friday 9:30 – 11:30

● **Room A**

Research Session on **Mechanical System Engineering**

8-1	Saturated Pool Boiling Heat Transfer Enhancement with Diamond Particles Coated Heating Surface <i>Yuma Nakamura, Kumamoto University</i>
8-2	Development of an Inexpensive Hand-held 3D Scanning System <i>Hiroki Aoki, Kumamoto University</i>
8-3	Creation of VR teaching materials using 360-degree video and its UI design <i>Ryo Yasukawa, Kumamoto University</i>
8-4	Preliminary Development of EBSD Parameters by MTEX <i>Yujie Xu, Kumamoto University</i>
8-5	Structural Modeling for Reproduction and Deformation Behavior of Japanese Folding Fan <i>Shoji Watasaki, Kumamoto University</i>
8-6	A Numerical Study on Effects of Inlet-pipe Location on the Air Flow and Collection Performance of Particulates in a Hemispheric-Head Cyclone Separator <i>Keisuke Terada, Kumamoto University</i>
8-7	Development of Wheelchair with Assist Function for Elderly People using CFRP characteristics <i>Kosuke Kawasaki, Kumamoto University</i>
8-8	New product design of outdoor wheelchairs for the elderly <i>Koya Suzaki, Kumamoto University</i>

December 4, Friday 9:30 – 11:30

● **Room B**

Research Session on **Applied Chemistry**

6-17	Effect of Some Parameters on The Conversion of Ala-DKP to Linear Oligopeptides Using Pulsed Discharge <i>Koki Nonaka, Kumamoto University</i>
6-18	Deamination Process Using Supercritical Carbon Dioxide and Carbon-Based Catalyst <i>Shunsuke Kimura, Kumamoto University</i>
6-19	Hydrolysis of Rutin using solid acid catalyst under hydrothermal conditions <i>Ramma Kamogawa, Kumamoto University</i>
6-20	Cellulose conversion to glucose by microwave irradiation using Nanodiamond-immobilized enzyme as catalyst <i>Kisara Tsuruta, Kumamoto University</i>
6-21	Supercritical Carbon Dioxide-Ethanol System for Production of Third Generation Biodiesel from Microalgae <i>Daiki Fukushima, Kumamoto University</i>
6-22	Decomposition of Bisphenol A Using Gas-liquid Interface Pulsed Discharge Plasma <i>Ryohei Mori, Kumamoto University</i>
6-23	Elution Behavior of Aromatic Components from Oak Surface Treated by Pulsed Arc Discharge <i>Ippei Yamashina, Kumamoto University</i>
6-24	Transparent high refractive index polymer hybrids with heteropoly acid <i>Jannat Al Foisal, Kumamoto University</i>

December 4, Friday 9:30 – 11:15

● **Room C**

Research Session on Architecture

13-1	The Fundamental Concepts for Designing of Affordable Housing in Urban Poor Areas of Kabul city, Afghanistan <i>Sayed Farhad Alavi, Kumamoto University</i>
13-2	Investigation of Main Causes for the Residential Damage Caused by Typhoon Faxai (T1915) <i>Takumi Akatsuka, Kumamoto University</i>
13-3	Research on Commercial Spatial Pattern Based on Point of Interest Data: A Case Study of main districts of Hangzhou <i>Qiaohui Zhou, Kumamoto University</i>
13-4	Architectural Survey and Analysis of the Palace at Pella, building I <i>Yasufumi Nakashima, Kumamoto University</i>
13-5	An architectural study of <i>Bouleuteria</i> and <i>Odea</i> in Greek and Roman world <i>Yukiko Ozeki, Kumamoto University</i>
13-6	Landscape planning for historic building conservation area in Yangon city <i>Kanako Taniguchi, Kumamoto University</i>
13-7	Effect of Natural Period of Building on Deviation of Base-sliding Device for SDOF and MDOF System <i>Hiroyuki Miyamoto, Kumamoto University</i>

December 4, Friday 9:30 – 11:45

● **Room D**

General Session

G-16	Feasibility Study of Solar Air Conditioning System for Afghanistan’s Climate <i>Mohammad Azim Rasuli, Kumamoto University</i>
G-17	Development and Design of Outdoor Wheelchairs for Elderly People <i>Ruru Nagatomo, Kumamoto University</i>
G-18	Development of New Protection Board for Gun Bullet <i>Kodai Okazaki, Kumamoto University</i>
G-19	Optimization of Power Assistance Chair for Elder by Using Movement Analysis and Myoelectric Signal in the Standing-up Motion <i>Keisuke Nakamura, Kumamoto University</i>
G-20	Implementation of HAZOP Study and SIL in Methanol Storage Facility Project <i>Wiwit Ria Rahayu, Institut Teknologi Sepuluh Nopember</i>
G-21	Oscillating Water Column as a Solution for Electricity Generation in Remote Islands in Indonesia <i>Muhammad Luthfi Rusdinur, Institut Teknologi Sepuluh Nopember</i>
G-22	Deep Learning Analysis For Thorax Disease Classification <i>Sofi Nida Aulia, Institut Teknologi Sepuluh Nopember</i>
G-23	A booklet to learn people’s birthplace to realize sustainable community in the Aso area <i>Ayano Yamanaka, Kumamoto University</i>
G-24	Multi-objective optimization of an energy system and its reliability <i>Charlette Cabral, De La Salle University</i>

December 4, Friday 13:00 – 14:45

● **Room A**

Research Session on **Mechanical System Engineering/Materials Science and Engineering**

8-9	Development of Outdoor Wheelchair for Elder people using Carbon Fiber Reinforced Plastics <i>Yusaku Takasugi, Kumamoto University</i>
8-10	Study on the Vertically Upward of Spray Combustion with Ethanol Blended Biodiesel <i>Yushin Wada, Kumamoto University</i>
8-11	Development of Prediction Model for Design Optimization of Power Semiconductors Considering Thermal Loads <i>Niño Rigo Emil Lim, De La Salle University</i>
7-1	Phase Transition from Graphene Oxide Nanosheets to Diamond by High Temperature and High Pressure Method <i>Masahiro Fukuda, Kumamoto university</i>
7-2	Influences of crystal orientation and yttrium addition on bending deformation behavior of magnesium single crystals <i>Kenta Oka, Kumamoto university</i>
7-3	Influence of Heat Treatment with Sub-Zero Quenching of Ti6Al4V Towards Hardness and Metallography <i>Tantya Giranita, Institut Teknologi Sepuluh Nopember</i>
7-4	Evaluation of grain boundary elastic modulus using ab-initio calculations <i>Jin Shirasaka, Kumamoto University</i>

December 4, Friday 13:00 – 15:15

● **Room B**

Research Session on Civil and Environmental Engineering

12-10	Strength and Acoustic Emission Behavior Investigation of Concrete Using Paper Sludge Ash and Silica fume <i>Mohammad Idris Rasuli, Kumamoto University</i>
12-11	Flood Hazard Analysis Using SWMM on Flood Prone Area <i>Yang Ratri Savitri, Kumamoto University</i>
12-12	The b-value Analysis of AE Signal for Classification of Failure in Post-installed Anchor Systems <i>Fahim MUMAND, Kumamoto University</i>
12-13	Impacts of COVID-19 and Emergency Declaration on Human Mobility patterns in Kumamoto: A Preliminary Report <i>Kengo Fukushima, Kumamoto University</i>
12-14	Interrupted Time Series Analysis of Traffic Accidents following the 2016 Kumamoto Earthquake <i>Ryotaro Tominaga, Kumamoto University</i>
12-15	Verification Analysis of Temporal Transferability of Visitors' Excursion Behavior Modelling <i>Maki Murakami, Kumamoto University</i>
12-16	Effects of Submerged Weir with an Opening on River Bed Configuration <i>Kazuki Kuranaga, Kumamoto University</i>
12-17	Transforming diffusive TEM field to fictitious wavefield for accurate groundwater mapping during tunneling <i>Kerui Fan, ShanDong University</i>
12-18	The Microscopic Three Phase Morphology of Unsaturated Sand in Triaxial Compression under micro-CT <i>Ji-Yuan Luan, ShanDong University</i>

December 4, Friday 13:00 – 15:00

● **Room C**

Research Session on **Architecture/Multidisciplinary**

13-8	A laboratory experiment on disturbance of conversing in Multi-group conversation space <i>Naoya Maruyama, Kumamoto University</i>
13-9	Visualization of Evacuation Time in Flood Damage Using GIS <i>Zhiqiu Xie, Kumamoto University</i>
13-10	Study on flood risk assessment and safe evacuation for flood-prone areas of Shirakawa <i>Wang Yisu, Kumamoto University</i>
13-11	Analysis of Flood Damage via Remote Sensing in Developing Countries: A Case Study of Hinthada, Ayeyarwady, Myanmar <i>Yutaro Kurokawa, Kumamoto University</i>
14-1	Interpretation of stewardship research-New thought on sustainable development of rural landscape <i>Guang yao Wang, Kumamoto University</i>
14-2	GIS Based Accessibility Assessment in Yeouido Area <i>Madiha Bencekri, University of Seoul</i>
14-3	Post-departure aircraft rerouting problem in a collaborative environment <i>Miriam F.Bongo, De La Salle University</i>
14-4	Blockchain potential in the Philippines: a policy study <i>Emmanuel Arriola, De La Salle University</i>

December 4, Friday 13:00 – 15:15

● **Room D**

Research Session on Electrical Engineering

11-1	Relationship between High Temperature Durability and Applied Voltage of PbTiO₃/ Pb(Zr,Ti)O₃ <i>Kohei Hirakawa, Kumamoto University</i>
11-2	High Temperature Characteristics of Bi₄Ti₃O₁₂/Al₂O₃ Sol-Gel Composite Transducer in Positive and Negative Polarization <i>Hiroaki Akatsuka, Kumamoto University</i>
11-3	Effect of feeding gas composition on ozone generation using nanosecond pulse generator with tube-to-cylinder electrode <i>Hideaki Fukuoka, Kumamoto University</i>
11-4	Effect of discharge parameters on zinc oxide nanoparticles synthesis using pulsed arc discharge <i>Katsushi Suenaga, Kumamoto University</i>
11-5	Improving accuracy of laser Thomson scattering diagnostics for pulsed streamer discharge plasma <i>Kyohei Eguchi, Kumamoto University</i>
11-6	Deep Learning Methods for System Identification of UAV <i>Brilian Putra Amiruddin, Institut Teknologi Sepuluh Nopember</i>
11-7	Curie Temperature Shift and Heat Resistance of Pb(Zr,Ti)O₃/Pb(Zr,Ti)O₃ <i>Makie Hidaka, Kumamoto University</i>
11-8	Comparison of Various Ladder Diagram Design Methods for Crude Palm Oil Processes <i>Denisse Rochmad Romdhony, Institut Teknologi Sepuluh Nopember</i>
11-9	Optimized 2D CA-CFAR for Drone-Mounted Radar Signal Processing Using Integral Image Algorithm <i>Budiman Putra Asmaur Rohman, Kumamoto University</i>

December 4, Friday 15:30 – 17:00

● **Room A**

Research Session on Materials Science and Engineering

7-5	Enhancement of creep resistance of austenitic stainless steel by grain boundary engineering <i>Ryota Tanaka, Kumamoto University</i>
7-6	Critical resolved shear stress for dislocation nucleation in NiAl <i>Kei Eto, Kumamoto University</i>
7-7	Super Proton Conductivity of Three-dimensional Graphene Oxide <i>Junya Yagyu, Kumamoto University</i>
7-8	Effects of yttrium on pyramidal $\langle c+a \rangle$ slip in magnesium <i>Tomohiro Hanada, Kumamoto University</i>
7-9	Effective behavior of the wood cell wall: Numerical and analytical comparison <i>PHAN Nhat-Tung, Université Clermont Auvergne</i>
7-10	Negative permittivity response in the low frequency of silver nanowire/polypyrrole nanocomposites <i>Zaixin Wei, Shandong University</i>

December 4, Friday 15:30 – 17:30

● **Room B**

Research Session on Civil and Environmental Engineering

12-19	Behavioral Choice Modeling for Road Pricing Scenario in Kumamoto using PP-SP Data <i>Shunsuke Arao, Kumamoto University</i>
12-20	Fracture Energy and Crack Healing Properties of Concrete Using Granulated Blast-Furnace Slag Sand <i>Ryota Hashimoto, Kumamoto University</i>
12-21	Effects of Weir with an Opening on River Bed Configuration and Flow Pattern under Live-bed Conditions <i>Hiroataka Une, Kumamoto University</i>
12-22	Defect segmentation: Mapping tunnel lining internal defects with ground penetrating radar data using a convolutional neural network <i>Senlin Yang, Shandong University</i>
12-23	Environmental Impact Analysis for Utilization of Geothermal Waters in Agricultural Irrigation After Treatment with Membrane Processes <i>Yakubu Abdullahi Jarma, Ege University</i>
12-24	Evaluation of the impact of debris flows on a pillar using discrete numerical modeling <i>Rime Chehade, Université Clermont Auvergne</i>
12-25	Experimental study on partially dried silver fir wood <i>Arthur Bontemps, Université Clermont Auvergne</i>
12-26	Seismic reinforcement of two-bolt T-stubs adding an external row of bolts <i>Hichem SEBBAGH, Université Clermont Auvergne</i>

December 4, Friday 15:30 – 17:00

● Room C

Research Session on **Applied Mathematics/Computer Science**

9-1	Generalization of Kung's bound to codes over rings <i>Koji Imamura, Kumamoto University</i>
10-1	A Novel Single Image Super Resolution for SST data <i>Tomoki Izumi, Kumamoto University</i>
10-2	A conceptual framework for effective deployment of learning analytics in higher education - A case in Afghanistan <i>Hamidullah Sokout, Kumamoto University</i>
10-3	2D precipitation nowcasting by deep learning using atmospheric data <i>Takanori Ito, Kumamoto University</i>
10-4	A wearable impulsive force display by a string and a brake system <i>Naoto Ikeda, Kumamoto University</i>
10-5	Study on the use of acoustic information to realize estimation of bottom sediment in water that is robust against secular change <i>Shota Takaki, Kumamoto University</i>
