

The 17th International Student Conference on Advanced Science and Technology (ICAST) 2022 (Online)

December 1 - 2, 2022

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:

Presentations mainly by undergraduate and high school students on projects, opinions, and ideas on issues related to science and engineering, and topics on SDGs in the field of science and engineering.

SCHEDULE 17th ICAST 2022

Day 1, Thursday 1st December, 2022							Day 2, Friday 2nd December, 2022					
Time (JST)							Time (JST)	Session III				
09:30 11:30	Opening Session						A	B	C	D	E	
Lunch/Networking Break							Lunch/Networking Break					
	Session I							Session IV				
	A	B	C	D	E	F	A	B	C	D	E	
13:00	3-1	7-1	12-1	10-1	11-1	G-1	13:00	5-1	7-10	8-8	11-9	G-6
13:15	3-2	7-2	12-2	10-2	11-2	G-2	13:15	5-2	7-11	8-9	11-10	G-35
13:30	3-3	7-3	12-3	10-3	11-3	G-3	13:30	6-8	7-12	8-6	11-11	G-36
13:45	3-4	7-4	12-4	10-4	11-4	G-4	13:45	6-9	7-13	8-11	11-12	G-37
14:00	3-5	7-5	12-5	10-5	11-5	G-5	14:00	6-10	7-14	8-12	11-13	G-38
14:15	3-6	7-6	12-6	10-6	11-6	G-34	14:15	6-11	7-15	8-13	11-14	G-39
14:30	3-7	7-7	12-7		11-7	G-7	14:30	6-12	7-16	8-7	11-15	G-40
14:45	3-8	7-8			11-8	G-8	14:45	6-13	7-17		11-16	G-42
15:00	3-9	7-9					15:00					
Networking Break							Networking Break					
	Session II							Cultural Exchange				
	A	B	C	D	E	F						
15:45	3-10	6-1	12-8	14-1	G-9	G-17						
16:00	3-11	6-2	12-9	14-2	G-10	G-18						
16:15	3-12	6-3	12-10	14-3	G-11	G-19						
16:30	3-13	6-4	12-11	14-4	G-12	G-20						
16:45	3-14	6-5	12-12	14-5	G-13	G-21						
17:00	3-15	6-6	12-13	14-6	G-14	G-22						
17:15	3-16	6-7	12-14	14-7	G-15	G-23						
17:30	3-17	2-2		14-8	G-16	G-24						
17:45							16:15 16:45	Closing Ceremony				

Notes: Please refer to page 5 to 26 for your number and confirm when and where you will give a presentation.

- i. Research and General sessions are simultaneously held at different 6 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.
- v. During the break you may stay in the main room to interact with other participants. Student organizing committee will be there for facilitation.

DAY 1: December 1, 2022 (Thursday)

9:30 – 9:50	Opening Address Hisao OGAWA (President of Kumamoto University) Welcome Address Hitoshi FUJIMOTO (Dean of GSST, Kumamoto University) Introduction of Kumamoto and Kumamoto University Student Organizing Committee
9:50 – 10:40	Keynote Lecture Tomoko SOGA (Associate Professor, Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia) “A Mysterious Spice Connects Me and Science: A Message to the Young Future Scientist”
10:40 – 11:25	Report on International Experiences by students Rochmad Agung WIDODO (Technology Management Doctoral Program, Interdisciplinary School of Technology Management, Institut Teknologi Sepuluh Nopember (ITS)) “How to Quickly Cope Culture Shock in Studying Abroad” Tomoya NAGAYAMA (Department of Civil and Environmental Engineering and Architecture, GSST, Kumamoto University) “Study abroad experience in Grenoble, France” Takeshi SHINKAI (Department of Advanced Industrial Science, GSST, Kumamoto University) “Research Internship in Germany and Italy”
11:25 – 11:30	Group photo
11:30 – 13:00	Lunch/Networking Break
13:00 – 15:15	Session I -Room A – F
15:15 – 15:45	Networking Break
15:45 – 17:45	Session II -Room A – F

DAY 2: December 2, 2022 (Friday)

9:30 – 11:45	Session III -Room A - E
11:45 – 13:00	Lunch/Networking Break
13:00 – 15:15	Session IV -Room A - E
15:15 – 15:45	Networking Break
15:45 – 16:15	Cultural Exchange
16:15 – 16:45	Closing Ceremony

List of Papers in Sessions

December 1, Thursday 13:00 – 15:15

● Room A

Research Session on **Chemistry**

3-1	One step hydrothermal synthesis ultra-fine Cu₂NiSnS₄ nanoparticles deposited on conductive carbon black for electromagnetic wave absorber <i>Cai Ze, Kumamoto University</i>
3-2	Membrane reactors based on proton-conducting graphene oxide <i>Taiga Kodama, Kumamoto University</i>
3-3	Production of two dimensional metal organic framework from two dimensional metal hydroxide <i>Agamoni Pathak, Kumamoto University</i>
3-4	Development of gas barrier membrane using graphene oxide <i>Tatsuki Tsugawa, Kumamoto University</i>
3-5	Enhanced salt removal by selective electro dialysis process using ion imprinted membrane <i>Ganjar Fadillah, Kumamoto University</i>
3-6	Combination of asymmetric crystals and SnO₂ gas sensor for detection of chiral gases <i>Masaru Iwai, Kumamoto University</i>
3-7	Improving the Stability of CsPbBr₃ Quantum Dots by Polymer Modification <i>Yu Nagata, Kumamoto University</i>
3-8	Elucidating the EtOH Sensing Mechanism of Pt-doped SnO₂ by <i>in-situ</i> DRIFTS Measurement <i>Keigo Masumoto, Kumamoto University</i>
3-9	Treatment of Lignocellulosic Biomass by Co-Solvent for High Yield of Saccharification: Investigation of Structural Changes in Biomass Using FTIR Analysis <i>Sanaz Samadi Zenouz, Ege University</i>

December 1, Thursday 13:00 – 15:15

● **Room B**

Research Session on Materials Science and Engineering

7-1	An Influence of Mould Geometries on Mechanical Properties of Solidified Aluminium Alloy – A Simulation Study <i>Chiranth HS, Alva's Institute of Engineering and Technology</i>
7-2	The Study on Fractal Dimension Change of FGHAZ Grain Boundary due to Creep Damage <i>Hirotooshi Nakano, Kumamoto University</i>
7-3	Synthesis and characterization of graphene oxide-iron oxide bilayer hollow spheres <i>Ryuta Tagawa, Kumamoto University</i>
7-4	Formation of SnO Thin Films by Mist-Chemical Vapor Deposition <i>Tousei Sai, Kumamoto University</i>
7-5	Estimation of Void Growth Rate and Initiation Rate in Type IV Damage of Mod.9Cr-1Mo Steel Using Image Analysis Software <i>Yuki Kobayashi, Kumamoto University</i>
7-6	Crystal Orientation Dependence of Tensile Deformation Behavior in Pure Magnesium Single Crystals <i>Masato Sakai, Kumamoto University</i>
7-7	Effects of zinc addition on mechanical properties and slip systems in rolled magnesium sheets <i>Ryusuke Masunaga, Kumamoto University</i>
7-8	Crystal orientation dependence of pure magnesium single crystals evaluated using instrumented micro hardness testing <i>Ryu Okubo, Kumamoto University</i>
7-9	Sulfonated 3D Graphene Oxide as electrolyte for Proton Exchange Membranes <i>Mohammad Atiqur Rahman, Kumamoto University</i>

December 1, Thursday 13:00 – 14:45

● **Room C**

Research Session on Civil and Environmental Engineering

12-1 Exploring the Travel Characteristics of Elderly in Kumamoto Metropolitan Area

Zhiwei Zhang, Kumamoto University

12-2 Composting management by local officials at the landfill site

Isni Arliyani, Insitut Teknologi Sepuluh Nopember

12-3 A Numerical Model of Overland Flow Hydrodynamics and Pressures for an Idealized Coastal Environment Protected by Flooding Mitigation Measures

Hai Van Dang, Hanyang University

12-4 Study of Alkali-Activated Coal Ash for Improving Soft Soil Subgrade

Salma Rosita, Insitut Teknologi Sepuluh Nopember

12-5 Estimating Parking Demand Using GPS Data and Analyzing Parking Prices in Downtown Areas

Tomoki Nakayama, Kumamoto University

12-6 Validation of the Nationwide Person Trip Survey using the Survey on Time Use and Leisure Activities (Questionnaire B)

Shunsuke Arao, Kumamoto University

12-7 Analyzing Temporal Profiles of Individual Out-of-home Rates using GPS Data

Ryotaro Tominaga, Kumamoto University

December 1, Thursday 13:00 – 14:30

- **Room D**

Research Session on Computer Science

10-1	Classification of Product Review Quality Based on Semantic and Structural Features using Support Vector Machine <i>Ilham Akhyar Firdaus, Sunan Ampel State Islamic University Surabaya</i>
10-2	Comparison of Rainfall Prediction Result With LSTM and GRU Methods: Case Study Surabaya, Indonesia <i>Ravi Vendra Rishika, Institut Teknologi Sepuluh Nopember</i>
10-3	Research on development of abdominal cancer detection system using fluorescent markers <i>Masato Sawatari, Kumamoto University</i>
10-4	A Model-driven of COVID-19 Prediction to Determine School Reopening Safely during Pandemic <i>Feby Artvodini Muqtadiroh, Institut Teknologi Sepuluh Nopember</i>
10-5	3D LiDAR Point Cloud Ground Plane Elimination based on Normal Vector Direction Histogram <i>Nova Eka Budiyanta, Institut Teknologi Sepuluh Nopember</i>
10-6	Toward low cost smart agriculture monitoring system using IoT and remote sensing <i>Elisha Elikem Kofi Senoo, Kumamoto University</i>

December 1, Thursday 13:00 – 15:00

● **Room E**

Research Session on Electrical Engineering

11-1	3-D Modeling of MEMS based Micro-cantilever Vibration Sensor (Micro-cantilever Vibration Sensor) <i>Jeevan C.M, Alva's Institute of Engineering and Technology</i>
11-2	Analysis of the effect of the electrical conditions of nanosecond pulsed electric fields on neutrophil extracellular traps formation <i>Koki Mochizuki, Kumamoto University</i>
11-3	Time history of reduced electric field and gas temperature of a nanosecond pulsed discharge near the high-voltage electrode <i>Kazuto Yamamoto, Kumamoto University</i>
11-4	TDMA AIS Protocol from Satellite Perspective <i>Unggun Dahana, Institut Teknologi Sepuluh Nopember</i>
11-5	Early Warning System of Hospital Medical Gas Pressure in Indonesia <i>Almira Budiyo, Kumamoto University/ Universitas Islam Indonesia</i>
11-6	Investigation of Ozone Generation Characteristics in Nanosecond Pulsed Discharge Method Ozonizer <i>Naoya Sumi, Kumamoto University</i>
11-7	Investigation of The Cause of Poling Temperature Change by Sol-gel Solution of Bi₄Ti₃O₁₂-based Transducer <i>Naoki Kambayashi, Kumamoto University</i>
11-8	Quantitative performance evaluation experiment of flexible bone-conduction microphone <i>Naoki Inokuchi, Kumamoto University</i>

December 1, Thursday 13:00 – 15:00

- Room F

General Session

G-1	Relationship between fatty acids and soap properties. <i>Ayaka Matsumoto, Uto Junior and Senior High School</i>
G-2	Isolating, Extracting, and Analyzing mt-DNA D-loop from Raccoons in Kumamoto <i>Miu Yamamoto, Uto Junior and Senior High School</i>
G-3	Measuring the level of soil fertility based on the value of soil conductivity <i>Taufik Hidayat, Universitas Islam Indonesia</i>
G-4	Detection of microplastics contained in sand and organisms <i>Rin Kikukawa, Kumamoto Gakuen University Fuzoku High School</i>
G-5	5G Spectrum Monitoring and Direction Finding Using Software Defined Radio <i>Ishananta Alfian Widanarko, Universitas Islam Indonesia</i>
G-34	Amine functionalized GO for CO₂ adsorption <i>Yoshiharu Hidaka, Kumamoto University</i>
G-7	Existence and function of enzymes in the betalain biosynthetic pathway <i>Haru Matsuki, Kumamoto Gakuen University Fuzoku High School</i>
G-8	Relationship between building layout conditions and building wind speed <i>Tatsunosuke Sakai, Kumamoto Gakuen University Fuzoku High School</i>

December 1, Thursday 15:45 – 17:45

● **Room A**

Research Session on **Chemistry**

3-10 Light Energy Storage Using Photoinduced Electron Transfer between Perovskite Quantum Dots and Polyoxometalates

Gimpei Yoshimura, Kumamoto University

3-11 Hydrogen Separation Using Mixed Conductive Graphene Oxide membrane

Takeru Nakahara, Kumamoto University

3-12 Study on Structural and Magnetic Properties of Cyano-bridged Hexanuclear [Co₂Fe₄] Complexes

Yutaka Hirai, Kumamoto University

3-13 Synthesize and Dielectric Property of Valence Tautomeric Complexes

Rikuto Nakamura, Kumamoto University

3-14 Effect of Antiscalant on Membrane Scaling during Reverse Osmosis Treatment of Geothermal Water

Mustafa Burak Doğanay, Ege University

3-15 Desalination of geothermal reinjection water by reverse osmosis and nanofiltration membranes for agricultural irrigation

Ahmet Bolat, Ege University

3-16 Synthesis of Cation Exchange Membranes for Energy Harvesting by Reverse Electrodialysis

Eda Nur Dönmezler, Ege University

3-17 Syntheses of new structure type Cs₁₉Ln₁₉Mn₁₀Te₄₈ (Ln = Pr and Gd) and rare-earth based new quaternary Ba₂Ln_{1-x}Mn₂Te₅ (Ln = Pr, Gd, and Yb; x = Ln vacancy) chalcogenides and its properties analysis.

Gopabandhu Panigrahi, Indian Institute of Technology Hyderabad

December 1, Thursday 15:45 – 17:45

● **Room B**

Research Session on Applied Chemistry

6-1	Effect of antiscalant use for elimination of scaling during membrane treatment of geothermal water-Laboratory tests <i>Aseel Zaid, Ege University</i>
6-2	Preparation of Pore Filling Anion Exchange Membranes for Salinity Gradient Energy Production by Reverse Electrodialysis Method <i>Mine Eti, Ege University</i>
6-3	Separation of Arsenic from Reverse Osmosis Concentrate of Geothermal Water before Lithium Recovery by Adsorption-Membrane Filtration Hybrid Method <i>Başak Sever, Ege University</i>
6-4	Subcritical Water Treatment of Sake Lees and Rice Bran for New Vinegar Production: Product Distribution and Reaction Pathways <i>Shoji Hirayama, Kumamoto University</i>
6-5	Catalytic conversion of galactose to 5-HMF using microwave hydrothermal method <i>Sumire Ichimaru, Kumamoto University</i>
6-6	Modified Graphene Oxide Membrane for Ultra-selective Hydrogen Purification <i>Ghina Kifayah Putri, Kumamoto University</i>
6-7	Development of Electrochemical Gas Sensors Using a Proton-Conducting Graphene Oxide Membrane <i>Maria Drira Wea Siga, Kumamoto University</i>
2-2	Investigation of Phase Diagram of Rb-Na Alloy by Ab-initio-based Thermodynamic Integration <i>Ayu Irie, Kumamoto University</i>

December 1, Thursday 15:45 – 17:30

● **Room C**

Research Session on Civil and Environmental Engineering

12-8 **Equitable Risk Sharing of Public-Private Partnership: A Systematic Literature Review**

Griselda Junianda Velantika, Institut Teknologi Sepuluh Nopember

12-9 **Experimental investigation on canopy interception performance of typical slope protection grasses**

Xu-guang Gao, Shandong University

12-10 **Study on root-soil interaction based on X-ray computed tomography**

Jun-feng Sha, Shandong University

12-11 **A Study on Sea Level Oscillation in the Tsunami Frequency Band Observed in the East Coast of Korea**

Eunju Lee, Hanyang University

12-12 **A Framework of Compound Flood Simulation for Wave Overtopping/runup and Sewer Reverse Flow: A Case Study of Typhoon Jebi (2018) Induced Flood at Kansai Airport in Japan**

Junbeom Jo, Kumamoto University

12-13 **Accuracy comparison of rainfall runoff modeling using ensemble learning for CNN**

Daiju Sakaguchi, Kumamoto University

12-14 **Evaluation of Cohesive Fracture Response in Recycled Aggregate Concrete**

Sourav Chakraborty, Indian Institute of Technology Hyderabad

December 1, Thursday 15:45 – 17:45

● **Room D**

Research Session on **Multidisciplinary**

14-1	A STUDY ON IMPACT OF COST AND PERCEIVED BENEFITS ON DEMAND FOR ELECTRIC VEHICLES <i>Punith KJ, Visvesvaraya Technological University</i>
14-2	AIRCFAT MAINTENANCE COST ANALYSIS BY USING OEM AND PMA PARTS WITH LIFE CYCLE COST METHOD <i>Rimbo Gano, Institut Teknologi Sepuluh Nopember</i>
14-3	Implementing ISO 37301:2021 on Compliance Management System (CMS) Effectively to Improve Product Quality for Customer Satisfaction <i>Rochmad Agung Widodo, Institut Teknologi Sepuluh Nopember</i>
14-4	Green Supply Chain Management (GSCM) Practices and Their Effect on SMI Performance <i>Clora Widya Brilliana, Institut Teknologi Sepuluh Nopember</i>
14-5	Study on human-computer interaction of upper limb rehabilitation robot <i>Xiangguo Yin, Shandong University</i>
14-6	Using Temporally Explicit Resource Depletion Potential in Evaluating Decarbonization Portfolios <i>Maria Victoria Migo-Sumagang, De La Salle University</i>
14-7	Influence of sustainable oil palm empty fruit bunch biochar and irrigation on eggplant fruit yield, radiation interception, and water productivity in Africa <i>John Bright Amoah Nyasapoh, University of Ghana</i>
14-8	Effect of Pre-treatment Times on the Quality Characteristics of Orange Fleshed Sweet Potato (OFSP) Flour <i>Mawuli Akpey, University of Ghana</i>

December 1, Thursday 15:45 – 17:45

- **Room E**

General Session

G-9	Manipulation of molecular orientation in metallomesogens by using electrospinning <i>Ryosuke Nakao, Kumamoto University</i>
G-10	Image-assisted Self-propelled Arm for Mobile Machining <i>Zheng Zhe-Xin, National Kaohsiung University of Science and Technology</i>
G-11	Automatic floating garbage collection boat <i>Huang Jhih-Bin, National Kaohsiung University of Science and Technology</i>
G-12	Connect to Nature through Technology with ALAM (Alluring Nature's Meliorism) <i>Wifaqwudd Az-Zahra Rifti, Sunan Ampel State Islamic University Surabaya</i>
G-13	Contribution to the Achievement of the SDGs by the Field of Organic Semiconductors <i>Saeko Kitamine, Kumamoto University</i>
G-14	Utilizing Carbon Storage in Indonesia Non-Active Petroleum Field to Achieve Net Zero Emission 2060 <i>Muhammad Rafi, Institut Teknologi Sepuluh Nopember</i>
G-15	Design of a modified tampon to prevent sticking to the vaginal walls <i>Emmanuel Ohene Kyei McKeown, University of Ghana</i>
G-16	WASTEWATER QUALITY IMPROVEMENT FOR IRRIGATION: THE USE OF COCONUT COIR & ITS BIOCHAR <i>Nora Senanu, University of Ghana</i>

December 1, Thursday 15:45 – 17:45

● **Room F**

General Session

G-17 Bioethanol revolution starting from Amakusa!

Rui Morita, Amakusa High School

G-18 Peculiarities of Amakusa *Luciola cruciata* Considered from the Luminous Cycle

Remi Kurata, Amakusa High school

G-19 Contributing to Amakusa through Jellyfish

Noa Yoneda, Amakusa High school

G-20 Let's make lotion with "Amakusa's specialty" citrus fruits

Mayu Nojima, Amakusa High school

G-21 Levitating in the air with magnets!

Sakura Ookubo, Amakusa High School

G-22 A Pilot Testing of a Biochar Filter for improving surface water quality for irrigation

Perpetual Napoga Nin-yenle, University of Ghana

G-23 Prediction of Anti-inflammatory Compounds for the Treatment of the COVID-19-Induced Cytokine Storm Using In-silico Methods

Lucindah Fry-Nartey, University of Ghana

G-24 Detection and Classification of Cardiac Arrhythmia Using Machine Learning

Mawunyo Korku Avornyo, University of Ghana

December 2, Friday 09:30 – 11:15

● **Room A**

Research Session on **Chemistry / Physics**

3-18	3d Transition Metal Nanostructures: Substitute for Precious Metals in Three-Way Catalysts for Automobiles <i>Zannatul Mumtarin Moushummy, Kumamoto University</i>
3-19	Synthesis and Property of Chiral SCO Complexes <i>Ayumu Suzuhigashi, Kumamoto University</i>
3-20	Development of proton transfer ferroelectrics composed of DABCO and phthalic acid derivatives <i>Ryuya Tokunaga, Kumamoto University</i>
3-21	Synthesis and Physical Properties of Novel Cyanide Bridged CoFe Dinuclear Complexes <i>Riku Fukushima, Kumamoto University</i>
2-1	N Qubits Quantum Controlled Teleportation with One Classical Bit <i>Muhammad Taufiqi, Institut Teknologi Sepuluh Nopember</i>
2-3	Calculation of Helmholtz Free Energy of Alkali Metal Using Interatomic Potentials Based on Artificial Neural Network <i>Shogo Fukushima, Kumamoto University</i>
2-4	Effect of Noise-like pulse from opposite cavity dispersion on Supercontinuum generation <i>Amala Jose, Indian Institute of Technology Hyderabad</i>

December 2, Friday 09:30 – 11:45

● **Room B**

Research Session on Earth and Environments

4-1	2016 Kumamoto Earthquake effects on groundwater spring discharge around Lake Ezu, Kumamoto City <i>Irfan Tsany Rahmawan, Kumamoto University</i>
4-2	Seasonal Variation of Stable Isotope Ratios in Precipitation at Fairbanks, Alaska <i>Kento Takakura, Kumamoto University</i>
4-3	Precipitation analysis in Bandung using backwards trajectory and stable isotopes <i>Ilyas Nurfadhil Basuki, Kumamoto University</i>
4-4	A diffusion blocking effect of hexaaluminate in inhibiting thermal deactivation of supported Rh catalyst <i>Shundai Iwashita, Kumamoto University</i>
4-5	Historical Rainfall Reconstruction using Statistical Downscaling Method from 1900 to 2010 in Indonesia (Java Island) <i>Trinah Wati, Institut Teknologi Bandung</i>
4-6	Heterogeneous reaction of SO₂ on CaCO₃ particles: Different impacts of NO₂ and acetic acid on the sulfite and sulfate formation <i>Ruixue Wang, Shandong University</i>
4-7	Enrichment of short-chain organic acids transferred to submicron sea spray aerosols <i>Yaru Song, Shandong University</i>
4-8	CHITIN PRESERVED IN ARTHROPODS 500 MILLION YEARS AGO <i>Ayari Yanagihara, Kumamoto University</i>
4-9	Water Self-Purification with Zero-External Consumption by Livestock Manure Resource Utilization <i>Wenrui Cao, Shandong University</i>

December 2, Friday 09:30 – 11:15

● **Room C**

Research Session on Mechanical System Engineering

8-1	Fabrication and evaluation of a CFRP outdoor wheelchair <i>Ryotaro Yoshiji, Kumamoto University</i>
8-2	A Proposal of Effective Learning in Mechanical Engineering Education Using 3-D Visual Experience <i>Ryota Kawahara, Kumamoto University</i>
8-3	Design of Evaluation Procedure of Sit-to-Stand Assist Mechanism Using Three-Dimensional Motion Analysis and EMG Signal Measurement <i>Ryotaro Tomura, Kumamoto University</i>
8-4	Study of Bullet Behavior in Oblique Collision and Protection Board Structure to Prevent Ricochet <i>Natsumori Wakasugi, Kumamoto University</i>
8-5	Grinding Surface Generation based on Abrasive Grain Cutting Model with wearing Process. <i>Takahiro Yanai, Kumamoto University</i>
8-14	Development of a tactile Shogi game for the students of the visually impaired schools <i>Satoshi Suyama, Kumamoto University</i>
8-10	Experimental Study on the Effect of Particle Shape on Heat Transfer Performance Enhancement <i>Aima Shibata, Kumamoto University</i>

December 2, Friday 09:30 – 11:15

● **Room D**

Research Session on Civil and Environmental Engineering / Architecture

12-15	Parameter setting of Crop model at Kumamoto region by literature survey <i>Yuta Hamaguchi, Kumamoto University</i>
12-16	Detailed Analysis of Stream Flow Complementation by Means of Deep Learning <i>Takeyoshi Nagasato, Kumamoto University</i>
13-1	The Effect of Branding Increasing Property Values to Selling Potential for Green Building Apartments <i>Nabila Ramanindhita, Institut Teknologi Sepuluh Nopember</i>
13-2	Individuals' perception of walking ability through virtual video: A case study of Hangzhou, China <i>Tianfu Qiu, Kumamoto University</i>
13-3	Based on the walking characteristics of the aged to calculate the elderly Walk Score in Kumamoto, Japan <i>Renying Gu, Kumamoto University</i>
13-4	Effects of sound absorption and screen on reading aloud books to preschool children <i>Moeko Yamaguchi, Kumamoto University</i>
13-5	Design of Rectification and Contraction Devices for Inlet Flow of Dome-shaped Wind Tunnel <i>Yota Miyamoto, Kumamoto University</i>

December 2, Friday 09:30 – 11:45

● **Room E**

General Session

G-25	Explore an Optimum Music for Inducing-Sleep and Taking a Nap <i>Yuri Chikuma, Uto Junior and Senior High School</i>
G-26	The Science of the Shiranui Phenomenon <i>Ryota Tokumaru, Uto Junior and Senior High School</i>
G-27	Activity of Polyvinyl Alcohol Chitosan Composite Modified by Secang Wood Core Extract (<i>Caesalpinea sappan</i>) as Antibacterial Agent in Food Packaging Support <i>Paundra Rizky Pratama, Institut Teknologi Sepuluh Nopember</i>
G-28	Crystal structure and magnetic properties of cobalt(II) complexes with π-conjugated substituents <i>Keita Soejima, Kumamoto University</i>
G-29	Structure and Property of Two-Step Spin Crossover Iron(III) Compound <i>Yuto Nakashima, Kumamoto University</i>
G-30	Structural Evaluation and Optimization of Product with Manual Operation by Motion Analysis. <i>Daisuke Okamoto, Kumamoto University</i>
G-31	Design and Making of Electric Racing Vehicle using Dry-cell battery <i>Keiichi Wakata, Kumamoto University</i>
G-32	Development of Learning Material of Introductory Mechanical Engineering Course targeting Design of Electric Vehicle for Competition <i>Gaku Hashimoto, Kumamoto University</i>
G-33	Stability Analysis of Lusi Mud Volcano Embankment Due to Stage Construction <i>Dewa Ngakan Putu Ananda Parwita, Institut Teknologi Sepuluh Nopember</i>

December 2, Friday 13:00 – 15:00

● **Room A**

Research Session on **Biological Sciences / Applied Chemistry**

5-1	Isolation and characterization of fission yeast <i>Schizosaccharomyces japonicus</i> mutants producing high ginjoka: Their application to shochu brewing <i>Masayoshi Takeichi, Kumamoto University</i>
5-2	Cellulose conversion catalytic reaction with Graphene Oxide-Metal composite <i>Sayo Kamei, Kumamoto University</i>
6-8	Study on catalysts for selective NO_x reduction by hydrogen <i>Koshi Nishiyama, Kumamoto University</i>
6-9	OH conduction of alkaline 3D graphene oxide <i>Nonoka Goto, Kumamoto University</i>
6-10	Characterization of Pt-Loaded SnO₂ <i>Muhammad Fadil, Kumamoto University</i>
6-11	Utilization of Custom-Made Interpolymer Based Ion Exchange Membranes for Salinity Gradient Energy Production by Reverse Electrodialysis <i>Yağmur Dalkıran, Ege University</i>
6-12	Removal of Boron from Spent Geothermal Water by Integrated Membrane and Ion Exchange Process <i>Islam Rashad Ahmed Senan, Ege university</i>
6-13	Effect of co-existing ions on salinity gradient power generation by reverse electrodialysis using homogeneous ion exchange membranes <i>Tugce Kaya, Ege University</i>

December 2 Friday 13:00 – 15:00

● **Room B**

Research Session on Materials Science and Engineering

7-10	Synthetization of g-C₃N₄ from mixed urea and melamine: enhanced photocatalytic performance <i>Kokona Okabe, National Institute of Technology (KOSEN), Niihama College</i>
7-11	Microstructure and mechanical properties of ARBed pure Zinc and Zinc alloys. <i>Yuki Ohira, Kumamoto University</i>
7-12	CP-AFM study on electrical properties of grain boundaries in copper <i>Renya Sakaki, Kumamoto University</i>
7-13	Development of Oxygen Evolution Reaction Catalysts Using Layered Double Hydroxide <i>Sora Wakamatsu, Kumamoto University</i>
7-14	STUDY OF THERMAL RESISTANCE ON INTERFACE MATERIALS <i>Akshar N, Alva's Institute of Engineering and Technology</i>
7-15	Synthetization of g-C₃N₄ with metal ions for enhanced adsorbance and photocatalytic performance <i>Yugo Imai, National Institute of Technology (KOSEN), Niihama College</i>
7-16	Shape stabilized phase change materials for thermal energy storage <i>Maciej Mateusz Skorupski, AGH University of Science and Technology</i>
7-17	Optimization of the Josephson Al/Al₂O₃/Al nano-junction preparation process <i>Marcelina Zofia Stasik, AGH University of Science and Technology</i>

December 2 Friday 13:00 – 14:45

● **Room C**

Research Session on Mechanical System Engineering

8-8	Assessment of Thermal Contact Resistance for low melting Alloys <i>Kumar Swamy M C, Alva's Institute of Engineering and Technology</i>
8-9	Experimental study of the relationship between gas-liquid two-phase flow in a rectangular microchannel and wall wettability <i>Takumi Yokoo, Kumamoto University</i>
8-6	Evaluation and Optimization of Assistance Chair for Elderly Standing-Up Movement <i>Keisuke Nakamura, Kumamoto University</i>
8-11	An experimental and numerical study of turbulent heat transfer enhancement for graphene nanofluids produced by pulsed discharge <i>Kotaro Fujimoto, Kumamoto University</i>
8-12	Development of an Effective Solder-Underfill layer in Flip-Chip Packaging using Space-Filling Design of Experiment <i>Niño Rigo Emil Lim, De La Salle University</i>
8-13	Study on bubble behavior of non-Newtonian two-phase flow through a sudden expansion <i>Yuki Yamahata, Kumamoto University</i>
8-7	Combined Plate Frame Structure of Outdoor Wheelchair with Suspension Function <i>Ruru Nagatomo, Kumamoto University</i>

December 2, Friday 13:00 – 15:00

● **Room D**

Research Session on Electrical Engineering

11-9	Optimization of Load Flow Metaheuristic Algorithm for reliability-based DG planning in Loop Distribution Networks <i>Sahabuddin Rifai, Universitas Hasanuddin</i>
11-10	Modelling and simulation of biogas backup system on a PV/wind hybrid microgrid at the Slaughterhouse <i>Asminar, Universitas Hasanuddin</i>
11-11	Increased AES 128 Security to AES 256 for Long-Range Communication System Reliability <i>Ismindari, Universitas Hasanuddin</i>
11-12	Rapid recovery of bacterial membrane following exposure to pulsed electric fields <i>Atsushi Tanaka, Kumamoto University</i>
11-13	Dielectric analysis of Gram-positive and -negative bacteria subjected to pulsed electric fields <i>Hirota Nuki, Kumamoto University</i>
11-14	Analysis of temperature distribution dependent on viscosity and wall surface roughness subjected to repetitive high-power electrical pulses <i>Kenshi Kajiwara, Kumamoto University</i>
11-15	Denaturation of albumin subjected to 1 ns long MV/cm electrical pulse. <i>Shin Goto, Kumamoto University</i>
11-16	High Temperature Performance of LiNbO₃/Aluminum Oxide Ultrasonic Transducer with Pt Sputtering Electrode <i>Naoki Zaito, Kumamoto University</i>

December 2, Friday 13:00 – 15:00

- Room E

General Session

G-6	Changes in the river environment and analysis of the factors in the Kuma River <i>Ayaka Hashiki, Kumamoto University</i>
G-35	Depolymerization of lignin by catalytic reaction <i>Natsuna Hirata, Kumamoto University</i>
G-36	Pressure effects in graphene oxide layers <i>Masahiro Fukuzaki, Kumamoto University</i>
G-37	COMPREHENSIVE STUDY ON COASTAL AQUIFERS IN KUNDAPURA, UDUPI DISTRICT <i>Ameer Hussain, Visvesvaraya Technological University</i>
G-38	COMPARATIVE STUDIES ON THE MARSHALL PROPERTIES OF PLAIN AND CRUMB RUBBER MODIFIED BITUMINOUS MIX ON DBM GRADE- I <i>Vinaykumar R Kalappanavar, Visvesvaraya Technological University</i>
G-39	Synthesis of 2,4,6-trihydroxy-1,3,5-benzenetricarboxylic acid <i>Kenta Hirakawa, Kumamoto University</i>
G-40	GAZICON : Scrolling System Based On Eye Gaze <i>Faradina Meliannesa Dewi, Universitas Islam Indonesia</i>
G-42	About thermal conductivity of asphalt ~ Preventing the heat island phenomenon ~ <i>Kosuke Hayashida, Kumamoto Daini High School</i>
