

ISGMA 2012

International Symposium on Green Manufacturing and Applications

August 27 (Mon)-29 (Wed), 2012
Ramada Plaza Jeju Hotel, Jeju Island, Korea

The Korean Society for Precision Engineering (KSPE)
Institute of Advanced Machinery and Design (IAMD), Seoul National University (SNU)
Korea Engineering Plant Technology Center (KEPC), Korea Institute of Industrial Technology (KITECH)
Manufacturing Institute for Research on Advanced Initiatives (Pan-Pacific MIRAI)



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Welcome Address

Dear Colleagues,

On behalf of the organizing committee and all other contributors involved in the preparation of the International Symposium on Green Manufacturing and Applications (ISGMA 2012), it is a great honor to welcome all participants of ISGMA 2012 to Jeju Island.

In ISGMA 2012, we expect to host 350 participants representing nationals from 19 countries. This year, 40 plenary/keynote/invited speakers from leading institutes of international repute will aim to present the latest advances and research activities and related issues. In order to foster effective discussions in various fields of green manufacturing and applications related to energy saving, pollution and waste reduction, eco-friendly materials, renewable energy systems, and environment management in factory, robot, and process, more than 290 technical papers will be presented in four parallel sessions and poster sessions.

I would like to express my appreciation to all the sponsors for their generous support to this year's event. In addition, I would like to convey my sincere gratitude to the advisory and organizing committee members for their valuable support.

We wish you all an interesting and informative stay in Jeju and look forward to an exciting experience at ISGMA 2012.

Sincerely,



Prof. Chong Nam Chu
Chairman of ISGMA 2012



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Program at a Glance

Oral Session - August 27 (Mon.)

	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C	Grand Ballroom D
8:30~9:00	Registration (Main Lobby)			
9:00~10:30	Poster Presentation I (Main Lobby) (Chairs : Suk-Won Cha, Won-Shik Chu, Tongxiang Fan, Gyu Man Kim, Young Beom Kim, Ramesh Maskey, Sangkee Min, Simon S. Park, Won Hyoung Ryu, Byeng Dong Youn)			
10:30~10:40	Coffee Break			
10:40~10:50	Opening Remark : Chong Nam Chu (Grand Ballroom A)			
10:50~11:40	Plenary Presentation I (Grand Ballroom A) Title : Production Technologies to Meet Challenges of the Future Presenter : Fritz Klocke, Germany (Chair : Jong-Won Kim)			
11:40~12:40	Keynote Speech A (Grand Ballroom A) (Chairs : Hitoshi Ohmori, Gyu-Bong Lee)	Keynote Speech B (Grand Ballroom B) (Chairs : Di Zhang, Byung Sun Kim)		
	Title : Nano Imprint Technology and Applications Speaker : Eung-Sug Lee (Korea)	Title : Bio-inspired, Smart, Multiscale Interfacial Materials Speaker : Lei Jiang (China)		
	Title : Smart Grid – Opportunities and Challenges in the Creation of the 21st Century Power Grid Speaker : Rajit Gadh (United States)	Title : Development of Environment-friendly Multi-functional Green Composites Speaker : Hitoshi Takagi (Japan)		
12:40~14:00	KICOX Luncheon			
14:00~15:20	Session A-1 (Grand Ballroom A)	Session B-1 (Grand Ballroom B)	Session C-1 (Grand Ballroom C)	Session D-1 (Grand Ballroom D)
	Machining and Grinding I (Chairs : Dong-Yoon Lee, Shih-Ming Wang)	Design/Manufacturing for Sustainable Product (Chairs : Hon-Zong Choi, Chih-Hsing Chu)	Metal Matrix Composite (Chairs : Di Zhang, Honghua Wang)	Energy Harvesting (Chairs : Byeng Dong Youn, Hak-Sung Kim)
	Invited Talk Title : Micro/Nano Mechanical Machining and Injection Molding Speaker : Simon S. Park (Canada)	Invited Talk Title : Recent Manufacturing Drive in USA Speaker : Sangkee Min (United States)	Invited Talk Title : Current Research on Metal Matrix Composites in State Key Lab of Metal Matrix Composites in Shanghai Jiaotong University Speaker : Di Zhang (China)	Invited Talk Title : Harvesting Strategy of Photosynthetic Electrons from Plant Cells Speaker : Won Hyoung Ryu (Korea)
	A Parametric Analysis on Micro-drilling Process with Nanofluid Minimum Quantity Lubrication (Jung Soo Nam, Korea)	Sustainable Product Design to Improve Efficiency and Sustainability of Green Supply Chain (Ming-Chuan Chiu, Taiwan)	The Effect of Prestress on Fatigue Life of Al2O3f/Al Composites (Wenlong Zhang, China)	Negative Stiffness Structure for High-performance Vibration Energy Harvesting (Gi-Woo Kim, Korea)
	Green Grinding with Innovative Wheel Topography (Taghi Tawakoli, Germany)	Integrated Modeling and Simulation of Automotive Recycling Shops for Assessment of Manufacturing Sustainability (Yang Ho Park, Korea)	Thermal Conductivity and Interface Characterization of Diamond/Aluminum Composites Fabricated by Vacuum Hot Pressing (Zhanqiu Tan, China)	Investigation of Energy Harvesting Map for Smart Plants (Chulmin Cho, Korea)
	Fabrication of Micro-patterned Surfaces for Injection Molded Polymeric Components (Chaneel Park, Canada)	Interface Thermal Resistance Modeling of the Silicon-argon Interface (Bohung Kim, Korea)	Study of Hot Deformation Behaviors and Processing Maps for SiC Particle Reinforced Aluminum Matrix Composites (Qiubao Ouyang, China)	Stochastic Energy Harvesting Analysis Under Wideband Vibration (Heonjun Yoon, Korea)
	Study of the On-machine Volumetric-error Measurement and Compensation Methods for Micro Machine Tools (Shih-Ming Wang, Taiwan)	Simulation and Experimental Study of Ultrasonic Cleaning Based on Multiphysics Field Coupling (Fangyi Li, China)	Design, Fabrication and Mechanical Properties of In Situ Synthesized Titanium Matrix Composites (Weijie Lu, China)	

Program at a Glance

Oral Session - August 27 (Mon.)

	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C
15:20~15:30	Coffee Break		
15:30~16:30	Keynote Speech C (Grand Ballroom A) (Chairs : Hon-Zong Choi, Young Choi)	Keynote Speech D (Grand Ballroom B) (Chairs : Zhongde Shan, Eung-Sug Lee)	
	Title : The Electrolytic Oxyhydrogen Technology: A Step Toward Green Manufacturing Speaker : Thomas Hahn (United States)	Title : A Quantitative Approach to Sustainable Product Portfolio Planning for CO2 Emission Reduction Speaker : Chih-Hsing Chu (Taiwan)	
	Title : The Transformation of Hawaii's Foreign Oil Based Energy Needs to a Green Energy Based Sustainable Future Speaker : Song K. Choi (United States)	Title : Natural Material Based Grinding Wheels for ELID and Energy Saving Effect on ELID System Speaker : Hitoshi Ohmori (Japan)	
16:30~17:40	Session A-2 (Grand Ballroom A)	Session B-2 (Grand Ballroom B)	Session C-2 (Grand Ballroom C)
	Wind Energy (Chairs : Pingfeng Wang, Byeng Dong Youn)	Novel/Non-traditional Process I (Chairs : Bo Hyun Kim, Hyeong-Joon Ahn)	Electric Vehicle and Safety (Chairs : Myung-Whan Bae, Jay I. Jeong)
	Invited Talk Title : Technical Issues and Visions for Offshore Wind Turbines Speaker : Byeng Dong Youn (Korea)	Saw-tooth Chip Formation and Its Effect on Cutting Force Fluctuation in Turning of Inconel 718 (Song Zhang, China)	Study of Vehicle Hood Design for Reduction of Head Injury in Pedestrian Protection (Hun Hee Kim, Korea)
	Prognosis Informed Wind Farm Operation and Maintenance for Concurrent Economic and Environmental Benefits (Pingfeng Wang, United States)	Application Research on Digital Rapid Manufacturing of Engine Parts (Zhongde Shan, China)	Development of Speed Limit Safety Wheel (Dong-Keun Lee, Korea)
	Investigation About Aerodynamic Performance of a S809 Wind Turbine Airfoil (Tae-Jin Kang, Korea)	Quality Improvement and Energy Saving Through Conformal Cooling System Design in Injection Molding (Chao-Tsai Huang, Taiwan)	Evaluation of Roof Crashworthiness and Passenger Safety Under Rollover (Kyung-Tae Lee, Korea)
	Fault Diagnostics and Prognostics in Offshore Wind Turbines: Review and Vision (Seung Hyuk Choi, Korea)	Material Saving and Product Quality Improvement with the Visualization of Hot Runner Design in Injection Molding (Chao-Tsai Huang, Taiwan)	
18:00~19:00	Beer Party (Main Lobby) M.C. : Bo Hyun Kim		

Program at a Glance

Oral Session - August 28 (Tue.)

	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C	Grand Ballroom D
8:30~9:00	Registration (Main Lobby)			
9:00~10:30	Poster Presentation II (Main Lobby) (Chairs : Hyeong-Joon Ahn, Kinji Asaka, Kyu-Jin Cho, Doo-Man Chun, Bohung Kim, Beom-Keun Kim, Naohiro Nishikawa, Young-Bin Park, Jitendra K. Pandey, Kentaro Takagi)			
10:30~10:40	Coffee Break			
10:40~11:30	Plenary Presentation II (Grand Ballroom A) Title : A Vision for Connecting the Dots between Manufacturing and Sustainability Presenter: Jung-Hoon Chun, United States (Chair : Sung-Hoon Ahn)			
11:30~12:30	Keynote Speech E (Grand Ballroom A) (Chairs : David W. Rosen, Chih-Hsing Chu)	Keynote Speech F (Grand Ballroom B) (Charis : David Bourell, Pei-Chen Su)		
	Title : Small Features for Large Savings Speaker : Jian Cao (United States)	Title : Sustainable Polymers and Biomanufacturing Speaker : Paulo J. S. Bartolo (Portugal)		
	Title : A New Approach to Understanding Tool Wear in Machining Speaker : Patrick Kwon (United States)	Title : Hydrogen Energy : The Recent Advances Using Nanomaterials for Enhancing Production and Storage Speaker : O. N. Srivastava (India)		
12:30~14:00	Lunch (Not Provided by ISGMA)			
14:00~15:40	Session A-3 (Grand Ballroom A)	Session B-3 (Grand Ballroom B)	Session C-3 (Grand Ballroom C)	Session D-3 (Grand Ballroom D)
	Smart Material and Structure I (Chairs : Jae Hwan Kim, Jinsong Leng)	Machining and Grinding II (Chairs : Simon S. Park, Gyu Man Kim)	Green Composite I (Chairs : Dani Jagadeesh, Jitendra K. Pandey)	Novel/Non-traditional Process II (Chairs : Caroline S. Lee, Min Soo Park)
	Invited Talk Title : Electrochemical Impedance Modeling of Bucky-gel Actuators Speaker : Kinji Asaka (Japan)	Invited Talk Title : Development of Electric Rust Preventive Machining Method System - Safe Water Using for Machinig-fluid: Complete Removal of Bacteria (enterobacter aerogenes) - Speaker : Naohiro Nishikawa (Japan)	Invited Talk Title : Thermodynamics and Kinetics in Metal Matrix Composites Speaker : Tongxiang Fan (China)	Optimization of Laser Treatment Condition for TiO2 Electrodes on a Flexible Substrate Using LaNPDS(Laser-assisted Nano Particle Deposition System) for the Application of DSSC (Caroline S. Lee, Korea)
	A Basic Study on Electromechanical Behavior of Poly(vinylidene fluoride-trifluoroethylene) Based Electroactive Polymers (Ji-Hun Bae, Korea)	Failure Mechanisms of a Graded Ceramic Tool in Ultra High Speed Dry Milling of Inconel 718 (Jun Zhao, China)	Bio-inspired Reinforcement of Natural Fiber Matrix by Surface Modified Nano-cellulose (Jitendra K. Pandey, Japan)	Heuristic Optimization Method for Cellular Structure Design of Light-weight Components (David W. Rosen, United States)
	Development of Statistic Framework to Optimize the Resistivity Property of Buckypaper (Jack C. P. Su, Taiwan)	Exemplary Analysis of the Energy Consumption of Machine Tools (Johannes Triebes, Germany)	Evaluation of Basic Property and Cure Monitoring of Polymer Concretes for the Eco-friendly Maintenance of a Runway (Kyung-Chae Jung, Korea)	Minimum Lubrication for Friction Reduction of Metal (Shin-Sung Yoo, Korea)
	Controller-free Electro-active Paper Actuator by Modulated Microwaves (Sang Yeol Yang, Korea)	Characterizatoin and Recognition of Particles for Improving Cleanability in Automotive Production (Phan Quoc Bao, Korea)	Physical and Mechanical Properties of Borassus Fruit Fiber/PP Composites and Comparison with Other Natural Fiber Reinforced Composites (Posa Sudhakara, Korea)	Electrolytic Infiltration as a Low Energy Alternative to Conventional Methods (Abhimanyu Bhat, United States)
	Invited Talk Title : Driving Ionic Polymer Actuators by Switching Amplifiers Speaker : Kentaro Takagi (Japan)	Power Consumption and Tool Wear Assessment for Machinig Titanium Alloys (Basil Darras, UAE)	Water Absorption and Tensile Properties of Corn Husk Flour/PLA Bio-composites (Dani Jagadeesh, Korea)	Modification and Characteristics of Biodegradable Polymer Suitable for Selective Laser Sintering (Pil-Ho Lee, Korea)
		Study of a High-efficiency Chatter Monitoring and Control System for Precision Milling Process (Po-Cheng Tsai, Taiwan)	Electromechanical Properties of Graphene Nanosheet-carbon Nanotube Hybrid Composite Sheets (Young-Bin Park, Korea)	

Program at a Glance

Oral Session - August 28 (Tue.)

	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C	Grand Ballroom D
15:40 ~ 16:00	Coffee Break			
16:00 ~ 17:50	Session A-4 (Grand Ballroom A)	Session B-4 (Grand Ballroom B)	Session C-4 (Grand Ballroom C)	Session D-4 (Grand Ballroom D)
	Appropriate Technology and Energy Management (Chairs : Kee-Won Kwon, Doo-Man Chun)	Bio Energy (Chairs : Sanghwa Jeong, Dong-Gyu Ahn)	PCB Manufacturing Process (Chairs : Gyu-Bong Lee, Suk-Keun Cha)	Forming (Chairs : Zhongde Shan, Bassil Darras)
	Invited Talk Title : Small Hydropower Plants Based Mini-grid for Sustainable Rural Electrification in Nepal - Appropriate Technology Speaker : Ramesh Kumar Maskey (Nepal)	Design and Fabrication of Light Guiding Plate as Illumination System for Flat-panel Type Photobioreactor (Hun Kim, Korea)	Analysis of Energy Efficiency and Productivity in Dry Process in PCB Manufacturing (You-Jin Park, Korea)	Invited Talk Title : Application Research on Hot Stamping Technology and Equipment of Automobile Ultra-high Strength Steel Speaker : Zhongde Shan (China)
	Providing Electricity: Sustainable Electrification in Remote Villages of Nepal (Binayak Bhandari, Korea)	Investigation of Biomass Production and Total Lipid Content of Fresh Water Four Green Microalgae on Three Cultivation Conditions (Geun Ho Gim, Korea)	Analysis of Energy Efficiency in Water Cleaning Process After Drilling PCB (Gyu-Bong Lee, Korea)	Highly Accurate Bending Process for Extruded Square Tubes (Kunito Nakajima, Japan)
	A Support System for Energy Efficient Product Assembly in SME (Patrick Schneider, Germany)	Application of Rapid Prototyping Technology to Rapid Development of Flat Panel (FP) Photobioreactor Case for Microalgae (Dong-Gyu Ahn, Korea)	Stage-scanner Hybrid Method for FPCB Continuous and High Speed Routing (Kyunghan Kim, Korea)	Saving of Energy Consumption by Reducing Raw Material and Process Optimizing of an Industrial Forged Crankshaft (Jan Henjes, Germany)
	The Study of Green Supplier's Risk Management (Tsai Chi Kuo, Taiwan)	Transesterification of Microalgal Oil by Chemical and Enzymatic Methods (Hyun-Jae Shin, Korea)	Simulation-based Eco-friendly Manufacturing System Design: Application to Printed Circuit Board Process (Yong Ju Cho, Korea)	Reducing Production Losses by Prolonging Service Life of Rolling Mill Shear Pins with Ultrasonic Nanocrystal Surface Modification Technology (Ravil Kayumov, Korea)
	Exhaust Air Energy Recovery System for Electrical Power Generation in Future Green Cities (Wen Tong Chong, Malaysia)	Adsorption Characteristics of Micro Algae on Surface-modified PBR System (Young Bin Kim, Korea)	Middleware and Application Technology Applying Complex Sensor for Real-time Energy Monitoring (Suk-Keun Cha, Korea)	
	Unsteady SST Transition Wake Analysis for Tidal Current Power Device (Jun-Ho Lee, Korea)	A Study on Behavior Characteristics of Biofuel by Simultaneously Using Experimental and Numerical Analysis (Hyung Soo Ha, Korea)		
	Data Acquisition and Control System for 50kW Wave Energy Converter (Shin-Yeol Park, Korea)	A Novel Angiotensin I-converting Enzyme (ACE) Inhibitory Peptide from Biodiesel Byproducts of Marine Alga Nannochloropsis Oculata (Tinh Van Nguyen, Korea)		
18:30 ~ 20:00	Banquet (Main Lobby) M.C. : Suk Won Cha			

Program at a Glance

Oral Session - August 29 (Wed.)

	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C
9:00~9:20	Registration (Main Lobby)		
9:20~10:40	Session A-5 (Grand Ballroom A)	Session B-5 (Grand Ballroom B)	Session C-5 (Grand Ballroom C)
	Green Composite II (Chairs : Byung Sun Kim, Blessie A. Basilia)	Cost Effective Manufacturing Techniques of Green Energy Device (Chairs : Sang Kyu Choi, Hyuneui Lim)	Assembly and Joining (Chairs : Yongil Kim, Won-Shik Chu)
	Manufacture of Continuous Glass Fiber/Polylactic Acid (PLA) Composite and Its Mechanical Properties (Jeong U Roh, Korea)	A Study on Dispensing Head Driven by Piezoelectric Actuator for Jetting a High Viscosity Droplet (Young-Bog Ham, Korea)	The Extended Application of Friction Stir Welding to Join Different Kind of Materials: Metal-ceramic Systems (Yongil Kim, Korea)
	Effect of Alkali Treatment on the Mechanical Properties of Woven Abaca Fabric/Unsaturated Polyester Composites (Blessie A. Basilia, Philippines)	Ultrashort Pulse Laser Dicing Process of Sapphire Wafer for LED I Multibeam Laser Dicing Process using a Diffractive Optical Element (Dongsig Shin, Korea)	Effect of B4C Particles on the Microstructure and Mechanical Properties of Friction Stir Welded Al 5083 Joint (Jaeha Kim, Korea)
	Effect of Nanosilica and Colorant to Thermal Stability of Natural Fiber Reinforced Polyolefin Composite (Kuan Yong Goh, Malaysia)	Nano/Micro Patterning Technology for Enhancing Optical Efficiency (Eung-Sug Lee, Korea)	Material Properties of Graphite/Aluminum Metal Matrix Composite Joints Fabricated by Friction Stir Spot Welding (Md. Tariqul Hasan, Korea)
	Basalt Fiber Reinforced Plastics - Multi-functional Applications, Easy Disposal and Recycling (Boris Mislavsky, Russia)	Nature-inspired Antireflection Structures: Facile Fabrication and Characterization of Optical Properties (Hyuneui Lim, Korea)	Microstructures and Mechanical Property of Cu/B4C Composite Using Friction Stir Welding (Byungwook Ahn, Korea)
	Economical Recovery of CaO and CaCO ₃ from Fly and Bottom Ash (Byeong-Kyu Lee, Korea)		
10:40~10:50	Coffee Break		
10:50~12:00	Session A-6 (Grand Ballroom A)	Session B-6 (Grand Ballroom B)	Session C-6 (Grand Ballroom C)
	Smart Material and Structure II (Chairs : Dong-Jun Lee, Jack C. P. Su)	Fuel Cell (Chairs : Suk-Won Cha, O. N. Srivastava)	3D Printing and R2R (Chairs : Khairudin Mohamed, Seung Mo Kim)
	Invited Talk Title : Multi-functional Soft Active Polymer and Applications Speaker : Jinsong Leng (China)	Invited Talk Title : Oxygen Activation Over Engineered Surface Grains on YDC/YSZ Interlayered Composite Electrolyte for LT-SOFC Speaker : Young Beom Kim (Korea)	R2R Multilayer Additive Printing Process (Byung-Oh Choi, Korea)
	Invited Talk Title : Effective Storage and Release of Mechanical Energy by Mimicking Flea's Jumping Mechanism Speaker : Kyu-Jin Cho (Korea)	Invited Talk Title : Nanothin Film Solid Oxide Fuel Cells Speaker : Pei-Chen Su (Singapore)	Patterning on 8-inch Flexible Substrate Using Roll-to-roll Nanoimprint Lithography (Khairudin Mohamed, Malaysia)
	Invited Talk Title : Underwater Robot Speaker : Song K. Choi (United States)	Electrical Properties of Mo-doped Vanadium Oxide Thin Films on 446M Ferritic Stainless Steel Bipolar Plates for Fuel Cell Applications (Hye-Mi Jung, Korea)	<i>In-situ</i> Monitoring of Flash Light Sintering Process of Silver Nano-ink for Flexible Electronics (Wan-Ho Chung, Korea)
		Preparation of Anode for SOFC via Physical Vapor Deposition (Gu Young Cho, Korea)	
12:00~12:30	Award (Best Paper Award and Best Poster Award) & Closing : Chong Nam Chu, Gyu-Bong Lee (Grand Ballroom A)		
13:30~15:30	Technical and Local Tours : Jong-Won Kim, Bo Hyun Kim		

Program at a Glance

Poster Session I (Main Lobby) - 9:00~10:30, August 27 (Mon.)

	Poster Session A	Poster Session B	Poster Session C	Poster Session D	Poster Session E
	Manufacturing Process I	Manufacturing Process II	Machinery/Product I	Material I	Energy Device I
1	An Analytical Evaluation of the Laser-assisted Machining System with Tilting Axis (Dong Hyeon Kim, Korea)	Numerical Studies on Welding Temperature Distribution and Residual Stress in Thick-welded Plate at Different Time of Cooling (Reenal Ritesh Chand, Korea)	A Study on Analytical Prediction of Transmission Error and Load Distribution for a Plugin HEV (Yeong Sik Jeong, Korea)	Study on High Temperature Processing of Ti-10Ta-10Nb Alloys (Jaesam Ban, Korea)	A Study on Efficiency of PV Module According to Solder Compositions in Highly Stressed Conditions (Jin Sik Kim, Korea)
2	Trend of Environment Friendly Machining Technology of Difficult-to-cut Materials (Kwang Sun Kim, Korea)	Investigation of Cutting Depth on Surface Roughness in High-speed Machining of Al Alloy 7075 (Hyeong-Yeol Park, Korea)	Handling Gripper for Automotive Parts of Pre-coated Steel Plate (Doo Hyung Kim, Korea)	Friction and Wear Properties of α -Al ₂ O ₃ -coated SiC Particle Reinforced Nickel Matrix Composites (Zhong Wu, China)	Dynamic Response Simulation of an Offshore Wind Turbine Suspended by a Floating Crane (Seong-Ho Seo, Korea)
3	Study on MQL Machining with Nano-particle in Micro Cutting of Nickel Plated Roll Die (Kyung-Hee Park, Korea)	Application Of Laser Direct Structuring Technique for Fabrication of Fine Pitch Conductive Patterns (Jae Hoon Lee, Korea)	The Performance Characteristics of Integrated Cylinder Lubricator System with an Accumulated Distribution by the Electronic Control in a Large Two-stroke Diesel Engine (Myung-Whan Bae, Korea)	Nacre-mimetic Nanolaminated Al ₂ O ₃ /Al Composites Fabricated by Flake Powder Metallurgy (Honghua Wang, China)	Synthesis of Long TiO ₂ Nanorod (~18 μ m) Arrays on FTO Glass for Photovoltaic Devices (Lochin Yusupov, Korea)
4	New Measurement Method of Lateral Force for Difficult to Grinding Shape with a Wheel Plate (Young-Sam Ham, Korea)	Development of Laser Systems for Large-area Multi-cutting (Kwangho Yoon, Korea)	Structural Design of the Head Restraint Module for Reducing the Neck Injury (Yunsik Yang, Korea)	Surface Hardening of Titanium Using a Gas Nitriding (Masashi Yoshida, Japan)	QD Co-Sensitized Solar Cells Using TiO ₂ Nanorods on FTO Glass (Ji Yeong Kim, Korea)
5	Comparative Analysis of Sustainable Cooling Systems in the Intermittent Turning of Magnesium Pieces (Diego Carou, Spain)	Energy Saving in Line Patterning Using Pulse Laser by Reducing Overlapping Rate with Rectangular Beam Shape (Doo-Man Chun, Korea)	Green Gear Analysis for Multi-axle Differential with Spiral Bevel Gears (Sung Gill Han, Korea)	Microstructure and Hardness of AlN Layer Obtained by Gas Nitriding of Al alloys (Zhou Tao, Japan)	Influence of Laser Sintering Treatment on Flexible Dye-sensitized Solar Cell Fabricate by Nano Particle Deposition System (Jung-Oh Choi, Korea)
6	Non-pneumatic Tire Development Using Casting Process (Seok-Ju Choi, Korea)	Replication of the Fresnel Lens for the Solar Cells by Nano Imprint Lithography (Sooyeon Park, Korea)	Shape Optimization for Green Gears (Kwang Wook Park, Korea)	Chemical Recycling of Polyurethane Elastomers Containing Graphene Oxide (Chorong Oh, Korea)	Numerical and Experimental Investigation of Superposed Heat Flux in MOCVD Reactor (Youbong Lim, Korea)
7	Accelerated Life Test of Micro Drill Bit for Printed Circuit Board (PCB) Machining (Jong-Cheon Lee, Korea)	Low Temperature Laser Sintering of Silver Nano Ink on Polymer Substrate for Roll-to-roll Printing Process (Seung-Hyun Lee, Korea)	Software to Estimate the Characteristics of SMA Tool Clamping System (Sungcheul Lee, Korea)	Microstructure Related Thermoelectric Properties of Te Based Alloys (Seungmin Hyun, Korea)	A Fully Self-biased Solar Energy Harvesting System for Wireless Sensor Node Applications (Ji-Eun Jeong, Korea)
8	Experimental Study of the Dry Facing of Magnesium Pieces Based on the Surface Roughness (Adolfo Saá, Spain)	Nano Particle Deposition System Simulation on the Graphics Processing Unit (Hyunseo Park, Korea)	Identification of Cross-sectional Shape of the Glass Edge Melting Zone According to The Process Parameters Using Multiple Regression Method (Youngshin Kim, Korea)	Effect of Low-melting Glass Addition on the Thermal Properties of the Anorthite/Spinel Composites (Jiwhan Won, Korea)	A Startup-free Solar Energy Harvesting System with Impedance Adjustment Techniques for MPPT (Jun-Han Bae, Korea)
9	Development of Bolt Cold Forging Using of Multi Former Die Set (Chul Woo Park, Korea)	Localized Surface Polishing Process Using Nanomechanical Tools (Hyun-Taek Lee, Korea)	Force-velocity Properties of Rat Esophageal Striated Muscle (Jung Joon Suh, Korea)	Crystallization Behavior of CaO-MgO-SiO ₂ Glass-ceramic System of Varying MgO/CaO Ratio Fabricated by 2-stage Heat Treatment (Yongsung Kim, Korea)	An Experimental Study on Temperature Characteristics of Korean Traditional Ondol System in Varying Gorae Geometry: Application of Goguryeo Style Jjok Gudeul (Gee-Hoon Park, Korea)
10	Friction Bit Joining of Aluminum and Cast Iron (Yong-Ha Jeong, Korea)	Preparation of Monodisperse Drug-loaded PLGA Microparticles Using a Microfluidic Flow-focusing Device (Gyu Man Kim, Korea)	Design of Air-cell Pillow for Cervical Stability Using Design of Experiment (D.O.E.) (Hyuk Joo Lim, Korea)	Fabrication of Cordierite/Al ₂ O ₃ Composites and Characterization of Their Thermal Properties for a Low-temperature Cofired Ceramic Application (Sinae Jo, Korea)	Metal-glass Hybrid Electrolyte Using Proton-conducting Zirconium Phosphate Glass Thin Film (Jongeon Kim, Korea)

Program at a Glance

Poster Session I (Main Lobby) - 9:00~10:30, August 27 (Mon.)

	Poster Session A	Poster Session B	Poster Session C	Poster Session D	Poster Session E
	Manufacturing Process I	Manufacturing Process II	Machinery/Product I	Material I	Energy Device I
11	Alternative Manufacturing Process of Die Carring Hook for Reducing Material Loss (Sang-Kon Lee, Korea)	Analysis of Polymer Processing in Embossing/Demolding Stage During Thermal Nanoimprint Lithography (Seung Mo Kim, Korea)	A Strength Analysis According to the Distance of Array Pattern of Pillar for Supporting Vacuum Glazing Gap Using Ring on Ring Test (Jaekyung Kim, Korea)	Actuation Test of Nitinol Shape Memory Alloy According to Manufacturing Methods (Haan Kim, Korea)	Proton Conducting Hybrid Membranes Doped with Zirconium (Jae Sik Cho, Korea)
12	Simulation Study for Permeation from Inside and Outside (Weixiao Du, China)	Micro Patterns on the Roll Surface for Printed Electronics Using Laser Ablation Processing (Jiwhan Noh, Korea)	Structural Analysis of Bellows Used Expansion Valve (So-nam Yun, Korea)	Investigation of Shrinkage Control of Ni/Al ₂ O ₃ Composite Through Empirical Modeling (Seungkyu Yang, Korea)	A Study on the Heat Losses Reduction for the In-line Induction Heating System (Hong-Seok Park, Korea)
13	Research on Modeling Technology for 3D Weaving Composit Preforms Based Digital Guide Template (Haibo Chen, China)	Lithium-doped Nickel Oxide Thin Films Fabricated by Inkjet Printing Process (Chun-Chih Huang, Taiwan)	A Maglev Linear Motion Stage with Low Energy Magnetic Actuators (Seung-Kook Ro, Korea)	Low Emissivity Property of Amorphous Oxide and Metal Multifunctional Transparent Thin Films (Sang Yeol Lee, Korea)	A Study on Cu ₂ -xSe Thin Films Synthesized by a Solution-based Method for Solar Cells (Seon Young Park, Korea)
14	Application of Ionic Liquid as Novel Lubricant in Micro Milling (Minh-Quan Pham, Korea)	Precision Gravure Printing of Conductive Lines for Printed Electronics (Deokkyun Yoon, Korea)	Smart Railway Axle Box Embedded with FBG Sensor to Monitor Axle Temperature (Hyuk-lin Yoon, Korea)	Fabrication of Graphene Aluminum-composite by Friction Stir Processing (Chi-Hoon Jeon, Korea)	Coupled with Graphene to Improve Silicon Solar Cell Research of the Charge Collection (Sang Yeop Kim, Korea)
15	Green Manufacturing Process for a Helical Pinion Gear Using Cold Extrusion Process (Myeong-Sik Jeong, Korea)	Electrode Fabrication by Using AFM-based PCD Tool and Its Application to Electrochemical Imprinting Using DC Pulses (Sun Ho Kim, Korea)	Influence of Recycling Method on the Physical Properties of Recycled Polyethylene Terephthalate (PET) Yarn (Sun Young Lee, Korea)	T-Ray Nondestructive Evaluation of FRP Composites (Kwang-Hee Im, Korea)	
16	Machining Property of Axis Asymmetric BK7 Lens by ELID Grinding Technology (Tae-Soo Kwak, Korea)	Fabrication of Roll Patterning Machine Using Electron Beams (Gyungho Khim, Korea)	Thermal Properties of Polyurethane Foams Prepared from Depolymerization Products of Waste Printed Circuit Boards (Sera Shin, Korea)		
17	Size, Weight and Cost Reduction of Ti-6Al-4V ELI Rod Diameter of Spinal Fixation System Through Application of UNSM (Ultrasonic Nanocrystal Surface Modification) Technology (Young Sik Pyoun, Korea)	Green Synthesis of Self-assembled Graphene Nanoparticles by Ionic Liquid (Chung-Soo Kim, Korea)	Design of Optical Body Tube Based on Blood Diagnostic Lab-on-a-chip for Efficiently Detection of Fluorescence (Insup Kim, Korea)		
18	Analysis and Optimization on the Preformation of the C-type Stringer Fabricated in the Prepreg Pultrusion Process (Yuequan Wang, China)	Direct Pattern Writing of Tin Particles Using Nano Particle Deposition System (NPDS) (Gil-Yong Lee, Korea)	The Fatigue Life Evaluation and Load History Measurement of Motor Block Bracket Unit for KTX-Sancheon Trains (Chan Woo Lee, Korea)		
19	A Kinect-based Measurement System for Roof Deformation Caused by Vehicle Rollvoer (Hae-Sung Yoon, Korea)	Silicon Nanoparticles Produced by Laser Ablation in Various Solutions (Min Shin, Korea)	Fatigue Crack Life Evaluation in High Cr Alloys (Si-Yeon Bae, Korea)		

Program at a Glance

Poster Session II (Main Lobby) - 9:00~10:30, August 28 (Tue.)

	Poster Session F	Poster Session G	Poster Session H	Poster Session I	Poster Session J
	Design and Manufacturing Process	Composite and Smart Structure	Energy Device II	Material II	Machinery/Product II
1	Analysis of Grid-pattern on Metal Sheet By Micro Roll Texturing Process (Bui Quang Thanh, Korea)	Aerobic Biodegradability of Polyester/Polylactic Acid Composites for Automotive NVH Parts (Sun Kyoung Jeoung, Korea)	Fabrication of a Miniature Flexible Fuel Cell (Ikwhang Chang, Korea)	Cu Nanoparticles in Ionic Liquid: An alternative Catalytic System for Click Chemistry (Balaji Mohan, Korea)	Vibration Analysis of Cassette Handling Robot in the Solar-cell Manufacturing (Dong Il Park, Korea)
2	Development of Apparatus in Low Bandwidth for Surface Texturing Technology (Rendi Kurniawan, Indonesia)	Effect of Plasma Polymerization on the Cellulose Fabric Composite Containing Functional Fillers (Hae-Jun Park, Korea)	Characterizations of Y-doped BaZrO ₃ via Pulsed Laser Deposition (Jun Yeol Paek, Korea)	Dynamic Characterizations of a Light-weight GFRP Composite Bogie Frame (Jung Seok Kim, Korea)	Toward Smart & Green Manufacturing with Robot (Taeyong Choi, Korea)
3	Fabrication of Micro Patterns Using Poly Crystalline Diamond Shaping Tools (Bo Hyun Kim, Korea)	Effect of Monomer on the Plasma Polymerization of Basalt Fiber/PLA (Jong Rok Ha, Korea)	Patterning Design of Thin Film Solid Oxide Fuel Cell with Extended Active Area (Yoon Ho Lee, Korea)	Fabrication of In-Situ CNTs/Al Composites by Catalytic Pyrolysis of Polyethylene Glycol (Genlian Fan, China)	Dual-arm Robot for Green Manufacturing (Hyun Min Do, Korea)
4	Research on Relation among Inlet/outlet Pressure, Pressure Loss and Inlet Velocity of a Complex Resistance Muffler (Jianhua Fang, China)	Performance Test Study and Preparation of Biomass Cushion Packaging Material (Li Gang, China)	Modeling Gas Distribution in Channels of Molten Carbonate Fuel Cells (Joonho Park, Korea)	Copper Composites Reinforced by Two-Dimensional Dispersed Carbon Nanotubes (Cuiping Guo, China)	Improvement of Enzymatic Treatment System for Decolorization Process of Dyestuff Wastewater in Textile Industry (Jaehoon Cho, Korea)
5	Assessment and Improvement of Environmental Impact of Water Cleaning Process After Drilling PCB (Minjae Ko, Korea)	Research on Design Method of Active Disassembly Structure Triggered by Temperature-pressure Coupling (Yifei Zhan, China)	Electrochemical Impedance Variation of Single-channel Proton Exchange Membrane Fuel Cell Under Various Clamping Pressures (Taehyun Park, Korea)	Simple and High Efficiency Blue Organic Light-emitting Diodes with the Structure of DNTPD/TAPC/ET-137 (Hyunjin Ji, Korea)	Aerostatic Bearing Rotary Table Performance Simulation Platform for Saving Design Costs (Jongyoup Shim, Korea)
6	Research on Cooling Spd and Quenching Uniformity of Hot Stamping Parts (Yongsheng Ye, China)	Locomotion of Eel-like Fish Robot Using Smart Soft Composite (Kyung-tae Lee, Korea)	Characterization of the Bi-layered Electrolyte of Atomic Layer Deposited YSZ with Bulk GDC (Youngseok Jee, Korea)	UV Irradiation Grafting of MA/SiO ₂ on PE Separators for Lithium-ion Batteries (Hezhou Liu, China)	Poly(L-lactic acid)/Starch Blend with Added α -tocopherol and Resveratrol: Optical, Physical, Thermal and Mechanical Properties (Sung Wook Hwang, Korea)
7	Effect of Micro-drilling Sequence on PCB Manufacturability (Jong-seol Moon, Korea)	Development of Woven Type Smart Soft Composite (SSC) Structure (Min Woo Han, Korea)	The Development of a Cylindrical Proton Exchange Membrane Fuel Cell (PEMFC) with an Integrated Metal-hydride Container (Min Soo Park, Korea)	Characteristics of Fe ₃ O ₄ Nano Particles Coated with the SiO ₂ Nano-film by Atomic Layer Deposition (Hyung Jong Kim, Korea)	Development and Applications of Eco – Friendly Materials (Hock Hai Seah, Singapore)
8	Construction of Energy Cost Model for PCB Drilling (Hae-Sung Yoon, Korea)	Electrochemical Actuator Based on Tunable Reduced Graphene Oxide Bucky Papers (Jin-Han Jeon, Korea)	Design and Performance Evaluation of Flexible Graphite-based Current Collector for Proton Exchange Membrane Fuel Cells (Sanghoon Ji, Korea)	Ultrasound-assisted Green Synthesis of Hybrid Nanostructures Using RAFT Polymerization from the Surface of Quantum Dots (Long Giang Bach, Korea)	Structural Optimization of Automotive Swash Plate Using Polynomial Surrogate Models (Dong Seop Han, Korea)
9	A Green Early-warning Model for Machining System Based on GA-BP Neural Network and Its Application (Zhang Hua, China)	Development and Motion of Bio-inspired Underwater Vehicle: a Ray Robot (Won-Shik Chu, Korea)	Quantum Dots Sensitized TiO ₂ Nanorods on FTO Glass: Nanorods Length Effect on Photoelectrochemical Hydrogen Generation (Ulugbek Shaislamov, Korea)	Synthesis and Characterization of a Water Soluble Conjugated Polymer in Supercritical Carbon Dioxide (Lingappan Niranjanmurthi, Korea)	Recycling of Pig Bone to the Preparation of Hydroxyapatite Bioceramics (Nan Hee Lee, Korea)
10	Design and Optimization of Hot Stamping Die Cooling System (Zhang Mi-lan, China)	A Weight-reduction Design Method for a Box-type Hybrid Bodyshell with Cut-outs for Rolling Stock Using Lightweight Material Substitutions (Jeonggil Cho, Korea)	Performance Change of the LSCF Cathode in SOFC due to Ar / ArO ₂ during Sputtering (Jongwoo Choi, Korea)	Fabrication and Characterization of Graphene/Aluminium Laminated Nanocomposite (Jingyue Wang, China)	Green and Lean Production Tools (Ivica Veza, Croatia)

Program at a Glance

Poster Session II (Main Lobby) - 9:00~10:30, August 28 (Tue.)

	Poster Session F	Poster Session G	Poster Session H	Poster Session I
	Design and Manufacturing Process	Composite and Smart Structure	Energy Device II	Material II
11	Study of Structural and Dielectric Properties of BaTiO ₃ Capacitor Fabricated by Nano Particle Deposition System (NPDS) (Caroline Sunyong Lee, Korea)	Study on Vibration Suppression of Beam Type Solar Cell Substrate Transportation Robot (Cheol Hoon Park, Korea)	Acquisition System of Process Information Based on Automatic Data Logger (Seung Woo Lee, Korea)	A Study on the Compressive Strength of Composite Structures with Hole Notch (Sang Soo Ahn, Korea)
12	Ultrashort Pulse Laser Dicing Process of Sapphire Wafer for LED II Micro-Raman Analysis of Laser-induced Internal Stress in Sapphire (Jiyeon Choi, Korea)	Biomimetic Turtle-like Swimming Robot (Sung-hyuk Song, Korea)	Study on Recycling Process for EOL Liquid Crystal Display Panel (Kai Zhao, China)	Measurement of the Soundproof Effect and Mechanical Properties of PP/MGPs/CNTs (Myung-Sub Kim, Korea)
13	Study on Reliability Assessment of Industrial Air Booster Valve (Baek Ju Sung, Korea)	Development of an Energy Efficient Lightweight Gripper Inspired by the Flytrap (Seung-won Kim, Korea)	Evaluation of Electric Energy in CMP for Environmental Sustainability (Hyunseop Lee, Korea)	The Surface Characteristics of Hydroxyapatite Gel-sel Coating on Nanotubular TiO ₂ Surface (Junghwa Kim, Korea)
14	A Study on Pressure Level Sensor Using Change of Contact Resistance (Jung-Ho Park, Korea)	Analysis of an Energy Efficient Variable Stiffness Structure Inspired by a Vertebral Column (Yong-Jai Park, Korea)	Determination of Optimal Principal Dimensions of the Hatch Cover for Lightening of a Bulk Carrier (Tae-sub Um, Korea)	Soundproof Effect of PP/Clay/CNTs Composite (Jun Yan, Korea)
15	Numerical Analysis of Multipath Vacuum Insulator Panel Supports (Shin Woo Jang, Korea)	A Study on the Improvement of Electro-mechanical Properties of Cellulose Composite (Chulho Yang, Korea)	A Method for Determining a Ship Economic Route for Fuel Saving (Se-Yong Jeong, Korea)	Optimization of Hybrid LED Package System for Energy Saving Based on Micro Machining Technology and Taguchi Method (Eun-Chae Jeon, Korea)
16	Performance Optimal Design of a Quasi-zero Stiffness Isolator Using Flexure (Kyoung-Rock Kim, Korea)	Efficiency Improvement of Three Wheeled Omni-directional Robot by Wheel Rearrangement (Sang Jae Shin, Korea)	Development of the Energy Consumption Monitoring System for Semiconductor Equipments (Sungwoo Bae, Korea)	Biodegradable/Layered Silicate Nanocomposites (Blessie A. Basilia, Philippines)
17	Nonlinear Control of Active QZS Isolator Based on Lyapunov Function (Van Trung Pham, Korea)	Development of Surface Adaptive Moving Mechanism for Wind Turbine Blade Maintenance Robot (Byunggon Kim, Korea)	Web-based Value-chain to Support Effective Recycling and Material Circulation (Sang-jae Song, Japan)	Characterization of Nano-sized Iron Oxide Using Pulsed Laser Ablation in Different Surfactant Solutions (Ki Chan Lee, Korea)
18	Stiffness Analysis for a 5-axis Stage with a Dynamically Equivalent Finite Element Model for Linear Motion Guide Bearings (JongKyu Jeong, Korea)	Characterization Study on Polyactides Based Film Reinforced with Nanofiller (Chen Ching Yun, Malaysia)	The Portable Solar Powered Medical System in Gambia (Min Roh, United States)	Fabrication of Biodegradable Nanoporous Silica Nanorods Using AAO Template (Youngho Joo, Korea)
19	Optimization Simulation the Reuse Member of Steel Structure for Environmental Load Reduction (Hyun Soo Kim, Korea)	Preparation and Properties of Polyarylate/PET Nanofiber Composite Using a Sheath-core Fiber (Dakyung Yong, Korea)	Effect of Coupling Agent on the Interfacial Adhesion Between Polyketone Fiber and Silicone Rubber (Jong Sung Won, Korea)	Preparation and Characteristics of Thin Ni-based Alloy Film for Hydrogen Separation (Sung Bum Park, Korea)
20	A Study on the Fiber Orientation Control Method of Glass Fiber Reinforced Plastic Gear Using CAE Analysis (Gun-hee Kim, Korea)	The Addition of Alkaline Earth Metals into Geopolymer to Improve the Physical and Chemical Properties Made of Bottom Ash Discharged from Thermal Power Plant (Hyeontaek Hong, Korea)	The Effects of Cellulose Powder on the Properties of PAN-based Carbon Fibers for the Thermal Barrier Applications (Jee Woo Yang, Korea)	Characteristics of the Quantum Dot with Oxidation (Nu Si A Eom, Korea)
21		Effects of a Novel Marine Microalga P. Lutheri Peptide on Human Osteoblastic Differentiation Through Alkaline Phosphatase and MAPK/NF- κ B Activation (Zhong-Ji Qian, Korea)	Design and Manufacturing of Miniaturized Illumination Optics for Road Lighting (Jae Young Joo, Korea)	Synthesis and Luminescence Characteristic of Red-emitting (Gd,Eu) ₂ WO ₄ Phosphors (Gil Jae Lee, Korea)

Venue Layout

Registration/Information Desk

- Registration
- General Information

Main Lobby

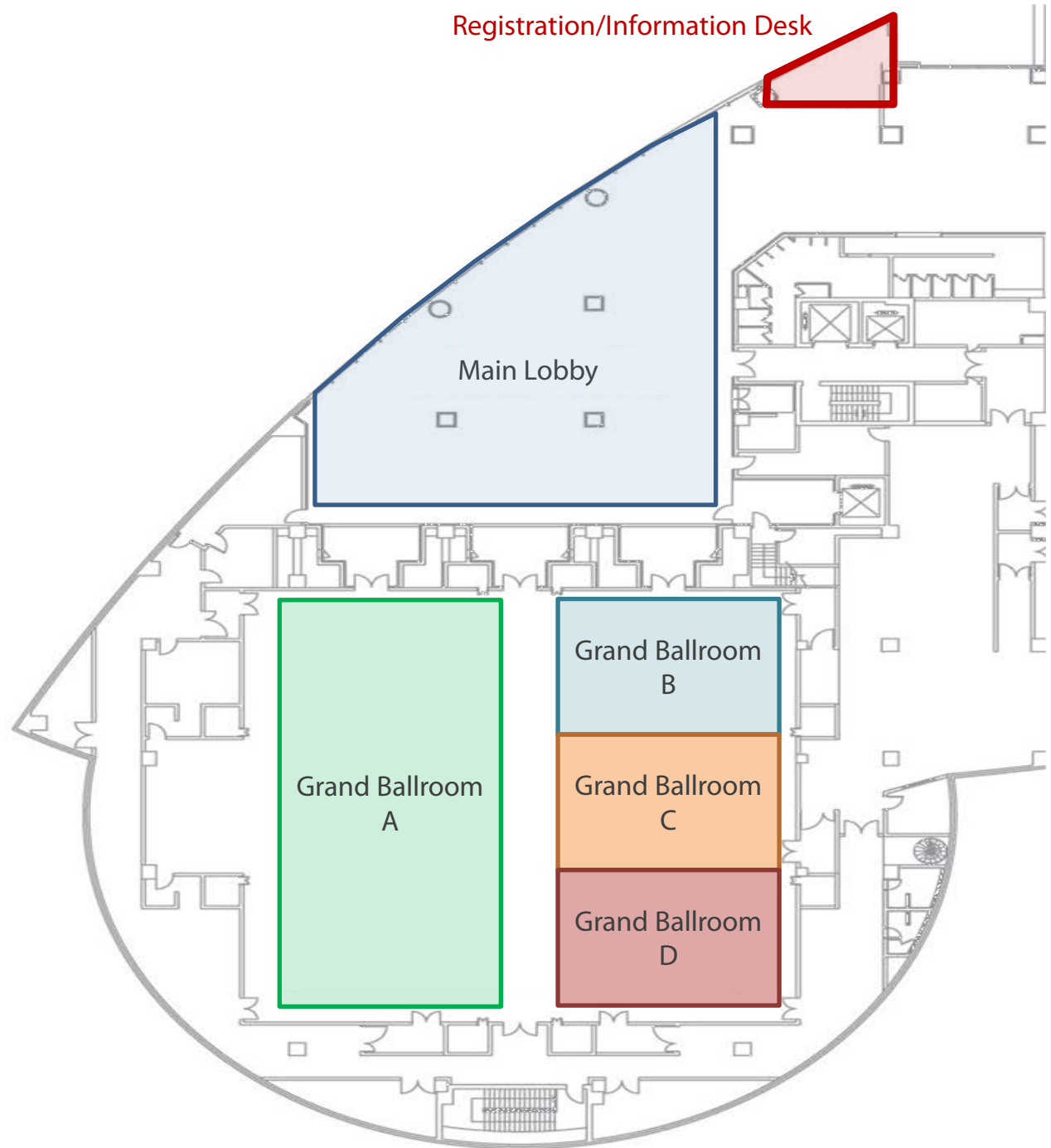
- Beer Party
- Banquet
- Poster Session I and II

Grand Ballroom A

- Plenary Presentation
- Keynote Speech
- Invited Talk
- Normal Session
- Opening and Closing

Grand Ballroom B, C, and D

- Keynote Speech
- Invited Talk
- Normal Session



Conference Information

Registration

Registration desk will be located at the entrance of Main Lobby (2F).

Category	On-Site Registration
Regular (including banquet)	500 USD / KRW 570,000
Student	300 USD / KRW 340,000
Banquet (optional to student or accompanying people)	35 USD / KRW 40,000

* Banquet is an option for student registrations or accompanying people.

Awards

Best Paper Award, Best Poster Award, and Young Researcher Award will be presented.

Journal Publication

Selected paper will be published in Journals below after review



- International Journal of Precision Engineering and manufacturing (SCIE, IF 1.141, special issue is scheduled on May 2013)
- Journal of Biobased Materials and Bioenergy (SCIE, IF 1.037 special issue is scheduled on Dec. 2012)
- Journal of Composite Materials (SCI, IF 1.068)

Conference Information

Poster Presentation

Poster will be displayed in the Main Lobby. Posters should be posted by 9:00 and dismantled after 10:30 on August 27 and 28. All poster presenters are encouraged to be at their poster panels for discussion with participants during the poster presentation time.

Poster Session	Date / Time
A ~ E	August 27 / 9:00 ~ 10:30
F ~ J	August 28 / 9:00 ~ 10:30

Beer Party

Beer party will be held at the main lobby at 18:00 on August 27.

KICOX Luncheon

KICOX Luncheon will be provided at the main lobby at 12:40~14:00 on August 27.

Banquet

Date and Time	Place
August 28, 18:30 ~ 20:00	Main Lobby

Banquet will be offered to regular registrants and student/accompanying people who purchased banquet option. At raffle, free one night Sheraton Waikiki hotel ticket will be provided during banquet. Please bring your raffle ticket to the banquet.

Coffee Break

Coffee will be served on the conference floor during the coffee break time.

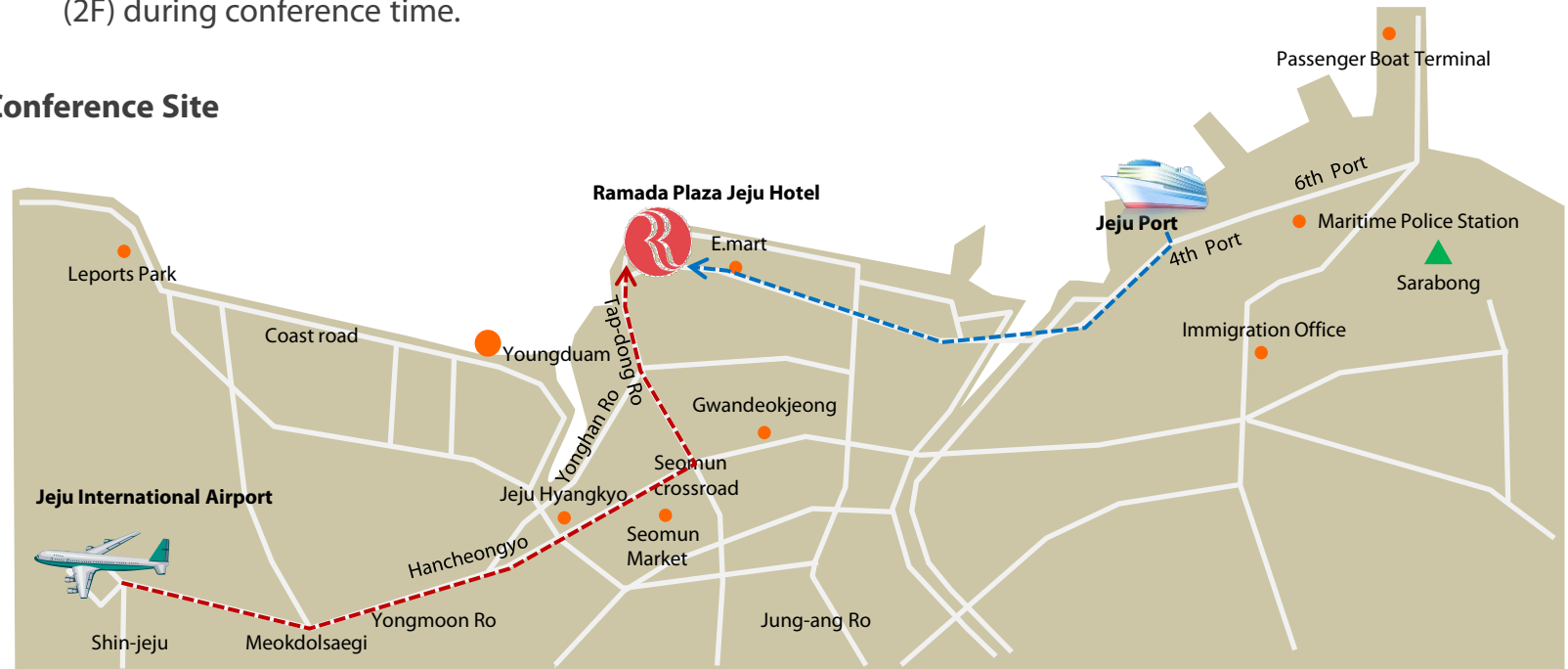


Conference Information

Information Desk

General information of the conference will be available at the information desk located in the registration desk (2F) during conference time.

Conference Site



From Jeju International Airport

Toward Yongmoon Rotary → Hanchon Bridge → Seomun Market →
Turn left at the Market Intersection → Go straight toward Tapdong-ro
* Distance: 3.8 km / Taxi fare: About 3,500 won / About 10 minutes' ride

Shuttle Bus

- From Airport (Parking Lot B1/B2): 8:30, 9:30, 10:30 am (Mon./Tue.)
- From Hotel: 18:00, 19:00 (Mon./Tue.), 12:40 (Wed.)
- Tour Bus: Hotel → Tour Site → Airport

From Jeju Port

Turn left at Imhang-ro → Drive toward Yongduam / Tapdong
* Distance: 2.2 km / Taxi fare: About 2,500 won / About 6 minutes' ride

PLENARY LECTURE

>> PLENARY LECTURE

Time		August 27 (Monday)
		Plenary Lecture 1 (Grand Ballroom A)
10:50 - 11:40	PL-1	Fritz Klocke (RWTH Aachen University) Production Technologies to Meet Challenges of the Future Chair : Jong-Won Kim (Seoul National University)

Time		August 28 (Tuesday)
		Plenary Lecture 2 (Grand Ballroom A)
10:40 - 11:30	PL-2	Jung-Hoon Chun (MIT) A Vision for Connecting the Dots between Manufacturing and Sustainability Chair : Sung-Hoon Ahn (Seoul National University)

KEYNOTE SPEECH - August 27 (Monday)

>>KEYNOTE SPEECH

Time	August 27 (Monday)	
11:40 - 12:40	Keynote Speech A (Grand Ballroom A) Chairs : Hitoshi Ohmori (RIKEN) and Gyu-Bong Lee (KITECH)	
	K-A-1	Eung-Sug Lee (KIMM) Nano Imprint Technology and Applications
	K-A-2	Rajit Gadh (UCLA) Smart Grid - Opportunities and Challenges in the Creation of the 21st Century Power Grid
	Keynote Speech B (Grand Ballroom B) Chairs : Di Zhang (Shanghai Jiao Tong University) and Byung Sun Kim (KIMS)	
	K-B-1	Lei Jiang (Chinese Academy of Sciences) Bio-inspired, Smart, Multiscale Interfacial Materials
	K-B-2	Hitoshi Takagi (The University of Tokushima) Development of Environment-friendly Multi-functional Green Composites
15:30 - 16:30	Keynote Speech C (Grand Ballroom A) Chairs : Hon-Zong Choi (KITECH) and Young Choi (Chung-Ang University)	
	K-C-1	Thomas Hahn (UCLA/SNU) The Electrolytic Oxyhydrogen Technology: A Step Toward Green Manufacturing
	K-C-2	Song K. Choi (University of Hawaii at Manoa) The Transformation of Hawaii's Foreign Oil Based Energy Needs to a Green Energy Based Sustainable Future
	Keynote Speech D (Grand Ballroom B) Chairs : Zhongde Shan (China Academy of Machinery Science & Technology) and Eung-Sug Lee (KIMM)	
	K-D-1	Chih-Hsing Chu (National Tsing Hua University) A Quantitative Approach to Sustainable Product Portfolio Planning for CO2 Emission Reduction
	K-D-2	Hitoshi Ohmori (RIKEN) Natural Material Based Grinding Wheels for ELID and Energy Saving Effect on ELID System

KEYNOTE SPEECH - August 28 (Tuesday)

>>KEYNOTE SPEECH

Time	August 28 (Tuesday)	
11:30 - 12:30	Keynote Speech E (Grand Ballroom A)	
	Chairs : David W. Rosen (Georgia Institute of Technology) and Chih-Hsing Chu (National TsingHua University)	
	K-E-1	Jian Cao (Northwestern University) Small Features for Large Savings
	K-E-2	Patrick Kwon (Michigan State University) A New Approach to Understanding Tool Wear in Machining
	Keynote Speech F (Grand Ballroom B)	
	Chairs : David Bourell (University of Texas at Austin) and Pei-Chen Su (Nanyang Technological University)	
	K-F-1	Paulo J. S. Bartolo (IPL) Sustainable Polymers and Biomanufacturing
	K-F-2	O. N. Srivastava (Banaras Hindu University) Hydrogen Energy: The Recent Advances Using Nanomaterials for Enhancing Production and Storage

ORAL PRESENTATION - August 27 (Monday)

Session A-1 - Machining and Grinding I

Chairs : Dong-Yoon Lee (KITECH) and Shih-Ming Wang (Chung Yuan Christian University)

Monday, August 27, 14:00 - 14:20, Room : Grand Ballroom A

Invited Talk : **Micro/Nano Mechanical Machining and Injection Molding**
Simon S. Park (University of Calgary)

Monday, August 27, 14:20 - 15:20, Room : Grand Ballroom A

- A-1-1 A Parametric Analysis on Micro-drilling Process with Nanofluid Minimum Quantity Lubrication**
Jung Soo Nam, Pil-Ho Lee, Dae Hoon Kim, Sang Won Lee (Sungkyunkwan University)
- A-1-2 Green Grinding with Innovative Wheel Topography**
Taghi Tawakoli, Dal Ho Lee, Amir Daneshi (Hochschule Furtwangen University)
- A-1-3 Fabrication of Micro-patterned Surfaces for Injection Molded Polymeric Components**
Eldon Graham, Chaneel Park, Simon S. Park (University of Calgary)
- A-1-4 Study of the On-machine Volumetric-error Measurement and Compensation Methods for Micro Machine Tools**
Shih-Ming Wang, Ji-Jun Lin (Chung Yuan Christian University)

Session B-1 - Design/Manufacturing for Sustainable Product

Chairs : Hon-Zong Choi (KITECH) and Chih-Hsing Chu (National Tsing Hua University)

Monday, August 27, 14:00 - 14:20, Room : Grand Ballroom B

Invited Talk : **Recent Manufacturing Drive in USA**
Sangkee Min (Pan-Pacific MIRAI)

Monday, August 27, 14:20 - 15:20, Room : Grand Ballroom B

- B-1-1 Sustainable Product Design to Improve Efficiency and Sustainability of Green Supply Chain**
Li-Wei Teng, Ming-Chuan Chiu (National Tsing Hua University)
- B-1-2 Integrated Modeling and Simulation of Automotive Recycling Shops for Assessment of Manufacturing Sustainability**
Yang Ho Park, Hye-Yun Lee, Chan-Mo Jun (Sungkyunkwan University), Jae Soo Gwon, Sung Joon Hong, Byeong Kwon Hong (Hyundai Motor Group), Sang Do Noh (Sungkyunkwan University)
- B-1-3 Interface Thermal Resistance Modeling of the Silicon-argon Interface**
Bohung Kim (University of Ulsan)
- B-1-4 Simulation and Experimental Study of Ultrasonic Cleaning Based on Multiphysics Field Coupling**
Fangyi Li, Shunshun Qin, Qingdong Hao, Shunxin Ge (Shandong University)

Session C-1 - Metal Matrix Composite

Chairs : Di Zhang (Shanghai Jiao Tong University) and Honghua Wang (Shanghai Jiao Tong University)

Monday, August 27, 14:00 - 14:20, Room : Grand Ballroom C

Invited Talk : **Current Research on Metal Matrix Composites in State Key Lab of Metal Matrix Composites in Shanghai Jiaotong University**
Di Zhang, Zhiqiang Li, Tongxiang Fan, Qiubao Ouyang, Wujie Lu, Genlian Fan, Guoding Zhang (Shanghai Jiao Tong University)

Monday, August 27, 14:20 - 15:20, Room : Grand Ballroom C

- C-1-1 The Effect of Prestress on Fatigue Life of Al₂O₃f/Al Composites**
Wenlong Zhang, Xiaoya Dai, Zhiqiang Li, Di Zhang (Shanghai Jiao Tong University)
- C-1-2 Thermal Conductivity and Interface Characterization of Diamond/Aluminum Composites Fabricated by Vacuum Hot Pressing**
Zhanqiu Tan, Genlian Fan, Zhiqiang Li (Shanghai Jiao Tong University), Gang Ji (Université Lille 1), Lanting Zhang, Di Zhang (Shanghai Jiao Tong University)

C-1-3 Study of Hot Deformation Behaviors and Processing Maps for SiC Particle Reinforced Aluminum Matrix Composites

Qiubao Ouyang, Fang-jie Jin, Di Zhang (Shanghai Jiao Tong University), Ruixiang Li, Hong Yu (Shanghai Key Laboratory of Spacecraft Mechanism)

C-1-4 Design, Fabrication and Mechanical Properties of *In Situ* Synthesized Titanium Matrix Composites

Weijie Lu, Xianglong Guo, Di Zhang, Jining Qin (Shanghai Jiao Tong University)

Session D-1 - Energy Harvesting

Chairs : Byeng Dong Youn (Seoul National University) and Hak-Sung Kim (Hanyang University)

Monday, August 27, 14:00 - 14:20, Room : Grand Ballroom D

Invited Talk : Harvesting Strategy of Photosynthetic Electrons from Plant Cells

Won Hyoung Ryu (Yonsei University)

Monday, August 27, 14:20 - 15:05, Room : Grand Ballroom D

D-1-1 Negative Stiffness Structure for High-performance Vibration Energy Harvesting

Gi-Woo Kim (Kyungpook National University), Jaehwan Kim (Inha University)

D-1-2 Investigation of Energy Harvesting Map for Smart Plants

*Chulmin Cho, Hansol Yoon, Heonjun Yoon, Hongjin Kim, Sowon Lee (Seoul National University), Jae Eun Kim (Catholic University of Daegu),
Byeng Dong Youn, Yoon Young Kim (Seoul National University)*

D-1-3 Stochastic Energy Harvesting Analysis Under Wideband Vibration

Heonjun Yoon, Chulmin Cho, Byeng Dong Youn (Seoul National University)

Session A-2 - Wind Energy

Chairs : Pingfeng Wang (Wichita State University) and Byeng Dong Youn (Seoul National University)

Monday, August 27, 16:30 - 16:50, Room : Grand Ballroom A

Invited Talk : **Technical Issues and Visions for Offshore Wind Turbines**

Byeng Dong Youn (Seoul National University)

Monday, August 27, 16:50 - 17:35, Room : Grand Ballroom A

A-2-1 Prognosis Informed Wind Farm Operation and Maintenance for Concurrent Economic and Environmental Benefits

Pingfeng Wang, Prasanna Tamilselvan (Wichita State University), Byeng Dong Youn (Seoul National University)

A-2-2 Investigation About Aerodynamic Performance of a S809 Wind Turbine Airfoil

Tae-Jin Kang, Warn-Gyu Park (Pusan National University)

A-2-3 Fault Diagnostics and Prognostics in Offshore Wind Turbines: Review and Vision

Seung Hyuk Choi, Jong Moon Ha, Byung Chul Jeon, Byeng Dong Youn (Seoul National University)

Session B-2 - Novel/Non-traditional Process I

Chairs : Bo Hyun Kim (Soongsil University) and Hyeong-Joon Ahn (Soongsil University)

Monday, August 27, 16:30 - 17:30, Room : Grand Ballroom B

B-2-1 Saw-tooth Chip Formation and Its Effect on Cutting Force Fluctuation in Turning of Inconel 718

Lai-Chun Liu, Song Zhang, Jian-Feng Li, Ying Zhang (Shandong University)

B-2-2 Application Research on Digital Rapid Manufacturing of Engine Parts

Zhongde Shan, Feng Liu, Wengang Chenn Gu (China Academy of Machinery Science & Technology)

- B-2-3 Quality Improvement and Energy Saving Through Conformal Cooling System Design in Injection Molding**
Fu-Hung Hsu, Kent Wang, Chao-Tsai Huang (CoreTech System (Moldex3D) Co., Ltd.), Rong-Yeu Chang (National Tsing-Hua University)
- B-2-4 Material Saving and Product Quality Improvement with the Visualization of Hot Runner Design in Injection Molding**
Tzu-Chau Chen, Chao-Tsai Huang, Yan-Chen Chiu, Wei-Da Wang (CoreTech System (Moldex3D) Co., Ltd.), Cheng-Li Hsu, Chen-Yang Lin, Lung-Wen Kao (ANNTONG Co., Ltd.)

Session C-2 - Electric Vehicle and Safety

Chairs : Myung-Whan Bae (Gyeongsang National University) and Jay I. Jeong (Kookmin University)

Monday, August 27, 16:30 - 17:15, Room : Grand Ballroom C

- C-2-1 Study of Vehicle Hood Design for Reduction of Head Injury in Pedestrian Protection**
Hun Hee Kim, Jung Hwa Hong, Gyu Hyun Hwang (Korea University), Eun Young Ko, Dongseok Kim (GM Korea Company)
- C-2-2 Development of Speed Limit Safety Wheel**
Dong-Keun Lee, Si-Young Lee, Young-Jun Hong, Jae Mean Koo, Chang Sung Seok (Sungkyunkwan University)
- C-2-3 Evaluation of Roof Crashworthiness and Passenger Safety Under Rollover**
Kyung-Tae Lee, Hae-Sung Yoon, Sung-Hoon Ahn (Seoul National University)

ORAL PRESENTATION - August 28 (Tuesday)

Session A-3 - Smart Material and Structure I

Chairs : Jae Hwan Kim (Inha University) and Jinsong Leng (Harbin Institute of Technology)

Tuesday, August 28, 14:00 - 14:20, Room : Grand Ballroom A

Invited Talk I : Electrochemical Impedance Modeling of Bukcy-gel Actuators

Kinji Asaka (AIST), Hyacinthe Randriamahazaka (Université Paris Diderot - Paris 7)

Tuesday, August 28, 14:20 - 15:05, Room : Grand Ballroom A

A-3-1 A Basic Study on Electromechanical Behavior of Poly(vinylidene fluoride-trifluoroethylene) Based Electroactive Polymers

Ji-Hun Bae, Seung-Hwan Chang (Chung-Ang University)

A-3-2 Development of Statistic Framework to Optimize the Resistivity Property of Buckypaper

Chi-Lung Kuo, Jack C. P. Su (National Tsing Hua University)

A-3-3 Controller-free Electro-active Paper Actuator by Modulated Microwaves

Sang Yeol Yang, Sang-Dong Jang, Jaehwan Kim (Inha University)

Tuesday, August 28, 15:05 - 15:25, Room : Grand Ballroom A

Invited Talk II : Driving Ionic Polymer Actuators by Switching Amplifiers

Kentaro Takagi, Naoya Yamaguchi (Nagoya University), Kinji Asaka (AIST)

Session B-3 - Machining and Grinding II

Chairs : Simon S. Park (University of Calgary) and Gyu Man Kim (Kyungpook National University)

Tuesday, August 28, 14:00 - 14:20, Room : Grand Ballroom B

Invited Talk : **Development of Electric Rust Preventive Machining Method System - Safe Water Using for Machining Fluid: Complete Removal of Bacteria(enterobacter aerogenes) -**

Naohiro Nishikawa, Katsuhiko Omoe, Kenji Murakami, Yusuke Sato (Iwate University), Takekazu Sawa (Tokyo Denki University), Yoshihiro Hagihara, Nobuhito Yoshihara, Hiroaki Okawai, Toshirou Iyama, Masahiro Mizuno (Iwate University), Shinya Tsukamoto (Okayama University)

Tuesday, August 28, 14:20 - 15:35, Room : Grand Ballroom B

B-3-1 Failure Mechanisms of a Graded Ceramic Tool in Ultra High Speed Dry Milling of Inconel 718

Guangming Zheng, Jun Zhao, Anhai Li, Xiaobin Cui, Yonghui Zhou (Shandong University)

B-3-2 Exemplary Analysis of the Energy Consumption of Machine Tools

Christian Brecher (RWTH Aachen University), David Dornfeld (University of California), Johannes Triebs (RWTH Aachen University)

B-3-3 Characterization and Recognition of Particles for Improving of Cleanability in Automotive Production

Phan Quoc Bao, Sung-Lim Ko (Konkuk University)

B-3-4 Power Consumption and Tool Wear Assessment for Machining Titanium Alloys

Salman Pervaiz, Ibrahim Deiab, Basil Darras (American University of Sharjah)

B-3-5 Study of a High-efficiency Chatter Monitoring and Control System for Precision Milling Process

Shih-Ming Wang, Chien-Da Ho, Sheng-Hsien Chou, Po-Cheng Tsai (Chung Yuan Christian University), Chuntai Yen (Institute for Information Industry)

Session C-3 - Green Composite I

Chairs : Dani Jagadeesh (Changwon National University) and Jitendra K. Pandey (The University of Tokushima)

Tuesday, August 28, 14:00 - 14:20, Room : Grand Ballroom C

Invited Talk : **Thermodynamics and Kinetics in Metal Matrix Composites**

Tongxiang Fan, Di Zhang (Shanghai Jiao Tong University)

Tuesday, August 28, 14:20 - 15:35, Room : Grand Ballroom C

C-3-1 Bio-inspired Reinforcement of Natural Fiber Matrix by Surface Modified Nano-cellulose

Jitendra K. Pandey, Hitoshi Takagi, Hiroaki Genta (The University of Tokushima)

C-3-2 Evaluation of Basic Property and Cure Monitoring of Polymer Concretes for the Eco-friendly Maintenance of a Runway

Kyung-Chae Jung, Yoon-Ho Cho, Seung-Hwan Chang (Chung-Ang University)

C-3-3 Physical and Mechanical Properties of *Borassus* Fruit Fiber/PP Composites and Comparison with Other Natural Fiber Reinforced Composites

Posa Sudhakara (Changwon National University), A. P. Kamala Devi (Anna University), Chavidi Venkata Prasad, Dani Jagadeesh, Dong Woo Lee, Hye Soo Kim (Changwon National University), Byung Sun Kim (KIMS), Jung Il Song (Changwon National University)

C-3-4 Water Absorption and Tensile Properties of Corn Husk Flour/PLA Bio-composites

Dani Jagadeesh, Posa Sudhakara, Chavidi Venkata Prasad, Hye Soo Kim (Changwon National University), Byung Sun Kim (KIMS), Jung Il Song (Changwon National University)

C-3-5 Electromechanical Properties of Graphene Nanosheet-carbon Nanotube Hybrid Composite Sheets

Sang-Ha Hwang (UNIST), Young-Bin Park (UNIST)

Session D-3 - Novel/Non-traditional Process II

Chairs : Caroline S. Lee (Hanyang University) and Min Soo Park (Seoul National University of Science and Technology)

Tuesday, August 28, 14:00 - 15:15, Room : Grand Ballroom D

D-3-1 Optimization of Laser Treatment Condition for TiO₂ Electrodes on a Flexible Substrate Using LaNPDS (Laser-assisted Nano Particle Deposition System) for the Application of DSSC

Jinwoong Lee (Hanyang University), Jung-Oh Choi (Seoul National University), Seungkyu Yang (Hanyang University), Chung-Soo Kim, Sung-Hoon Ahn (Seoul National University), Caroline S. Lee (Hanyang University)

D-3-2 Heuristic Optimization Method for Cellular Structure Design of Light-weight Components

Jason N. Nguyen, Sang-In Park, David W. Rosen (Georgia Institute of Technology)

D-3-3 Minimum Lubrication for Friction Reduction of Metal

Shin-Sung Yoo, Dae-Eun Kim (Yonsei University)

D-3-4 Electrolytic Infiltration as a Low Energy Alternative to Conventional Methods

Abhimanyu Bhat, David L. Bourell (University of Texas at Austin)

D-3-5 Modification and Characteristics of Biodegradable Polymer Suitable for Selective Laser Sintering

Pil-Ho Lee (Sungkyunkwan University), Haseung Chung, Eunyong Chang (Hongik University), Seunghye Yu, Il Won Kim (Soongsil University), Sang Won Lee (Sungkyunkwan University)

Session A-4 - Appropriate Technology and Energy Management

Chairs : Kee-Won Kwon (Sungkyunkwan University) and Doo-Man Chun (University of Ulsan)

Tuesday, August 28, 16:00 - 16:20, Room : Grand Ballroom A

Invited Talk : Small Hydropower Plants Based Mini-grid for Sustainable Rural Electrification in Nepal - Appropriate Technology

Ramesh Kumar Maskey, Brijesh Adhikary, Vivek Bhandari, Rojesh Dahal (Kathmandu University), Nischal Shrestha (Krishna Grill & Engineering Works Pvt. Ltd.)

Tuesday, August 28, 16:20 - 17:50, Room : Grand Ballroom A

A-4-1 Providing Electricity: Sustainable Electrification in Remote Villages of Nepal

Binayak Bhandari, Kyung-Tae Lee, Min-Woo Han, Hyun-Taek Lee, Min Kyun Noh, Gee Hoon Park, Kyung Wook Min, Hee Jin Ahn, Munhyeok Chang, Ju Young Bae, Byung Chul Kim, In Wook Koo (Seoul National University), Hanjin Kim (Nepal Solar Volunteer Corps), Hyung Sub Kim, Hong Sik Chae, Danee Cho, Woong Jae Han (Hanyang University), Kwang Wook Park, Ung Gi Jeong (Gyeongsang National University), Aditya Joshi, Silu Bhochhibhoya, Prabhat Bista (Kathmandu University), Hanna Kim, Hyun Kim, Pratibha Bhandari, Sunil B. Shrestha, Suresh Kawan, Sanjeev Rajbhandari, Umesh Adhikari, Ratna B. Ghale, Jagat B. Ghale, Hira B. Ghale (Nepal Solar Volunteer Corps), Caroline S. Lee (Hanyang University), Chul Ki Song (Gyeongsang National University), Ramesh K. Maskey (Kathmandu University), Sung-Hoon Ahn (Seoul National University)

A-4-2 A Support System for Energy Efficient Product Assembly in SME

Uwe Laufs, Sebastian Schlund, Patrick Schneider (Fraunhofer IAO)

A-4-3 The Study of Green Supplier's Risk Management

Tsai Chi Kuo (Chung Yuan Christian University)

A-4-4 Exhaust Air Energy Recovery System for Electrical Power Generation in Future Green Cities

Wen Tong Chong, Sin Chew Poh, Ahmad Fazlizan, Sook Yee Yip (University of Malaya), Mei Hyie Koay (Universiti Teknologi MARA), Wooi Ping Hew (University of Malaya)

A-4-5 Unsteady SST Transition Wake Analysis for Tidal Current Power Device

Chul-Hee Jo, Kang-Hee Lee, Yu-Ho Rho, Jun-Ho Lee (Inha University)

A-4-6 Data Acquisition and Control System for 50kW Wave Energy Converter

Shin-Yeol Park, Byung-Hak Cho, Dong-Soon Yang, Kyung-Shik Choi, Byung-Chul Park (Korea Electric Power Research Institute)

Session B-4 - Bio Energy

Chairs : Sanghwa Jeong (Chosun University) and Dong-Gyu Ahn (Chosun University)

Tuesday, August 28, 16:00 - 17:45, Room : Grand Ballroom B

- B-4-1 Design and Fabrication of Light Guiding Plate as Illumination System for Flat-panel Type Photobioreactor**
Hun Kim, Gi Chan Park, Seong Seon Shin, Hyon Chol Lim, Min Yong Hwang, Seung Jin Lee, Jongtye Kim, Sanghwa Jeong, Jong Rak Park (Chosun University)

- B-4-2 Investigation of Biomass Production and Total Lipid Content of Fresh Water Four Green Microalgae on Three Cultivation Conditions**
Geun Ho Gim, Hyeon Seok Kim, Si Wouk Kim (Chosun University)

- B-4-3 Application of Rapid Prototyping Technology to Rapid Development of Flat Panel (FP) Photobioreactor Case for Microalgae**
Dong-Gyu Ahn, Chang-Gyu Cho, Young-Su Ahn, Sanghwa Jeong, Jong Tye Kim (Chosun University)

- B-4-4 Transesterification of Microalgal Oil by Chemical and Enzymatic Methods**
Mi-Hwa Lee, Young-Chul Lee, Hyun-Jae Shin (Chosun University)

- B-4-5 Adsorption Characteristics of Micro Algae on Surface-modified PBR System**
Young Bin Kim, Sanghwa Jeong, Jeong Woo Park (Chosun University)

- B-4-6 A Study on Behavior Characteristics of Biofuel by Simultaneously Using Experimental and Numerical Analysis**
Hyung Soo Ha, Woo Sung Jung, Jeong Kuk Yeom (Dong-A University)

- B-4-7 A Novel Angiotensin I-converting Enzyme (ACE) Inhibitory Peptide from Biodiesel Byproducts of Marine Alga Nannochloropsis Oculata**
Zhong-Ji Qian, Tinh Van Nguyen, Won-Kyo Jung (Chosun University)

Session C-4 - PCB Manufacturing Process

Chairs : Gyu-Bong Lee (KITECH) and Suk-Keun Cha (ACS. Co., Ltd.)

Tuesday, August 28, 16:00 - 17:15, Room : Grand Ballroom C

- C-4-1 Analysis of Energy Efficiency and Productivity in Dry Process in PCB Manufacturing**
You-Jin Park (Chung-Ang University), Gyu-Bong Lee, Tae-Jun Ku (KITECH)
- C-4-2 Analysis of Energy Efficiency in Water Cleaning Process After Drilling PCB**
Gyu-Bong Lee, Tae-Jun Ku (KITECH), You-Jin Park, Seong-Wook Cho (Chung-Ang University)
- C-4-3 Stage-scanner Hybrid Method for FPCB Continuous and High Speed Routing**
Jaehoon Lee, Kwangho Yoon, Jeong Suh, Kyunghan Kim (KIMM)
- C-4-4 Simulation-based Eco-friendly Manufacturing System Design: Application to Printed Circuit Board Process**
Seokjae Jung (Gwangwoon University), Hyunje Jo, Gyu-Bong Lee, Yongju Cho (KITECH)
- C-4-5 Middleware and Application Technology Applying Complex Sensor for Real-time Energy Monitoring**
Suk-Keun Cha (ACS. co., Ltd.)

Session D-4 - Forming

Chairs : Zhongde Shan (China Academy of Machinery Science & Technology) and Basil Darras (American University of Sharjah)

Tuesday, August 28, 16:00 - 16:20, Room : Grand Ballroom D

Invited Talk : **Application Research on Hot Stamping Technology and Equipment of Automobile Ultra-high Strength Steel**
Zhongde Shan (China Academy of Machinery Science & Technology)

Tuesday, August 28, 16:20 - 17:05, Room : Grand Ballroom D

D-4-1 Highly Accurate Bending Process for Extruded Square Tubes

Kunito Nakajima, Noah Utsumi (Saitama University), Masashi Yoshida (Shizuoka Institute of Science and Technology)

D-4-2 Saving of Energy Consumption by Reducing Raw Material and Process Optimizing of an Industrial Forged Crankshaft

Bernd-Arno Behrens, Ingo Lüken, Jan Henjes (Leibniz Universität Hannover), Hong-Seok Park (University of Ulsan)

**D-4-3 Reducing Production Losses by Prolonging Service Life of Rolling Mill Shear Pins
with Ultrasonic Nanocrystal Surface Modification Technology**

*Young Sik Pyoun, In Ho Cho (Sun Moon University), Chang Min Suh (Kyungpook National University), Jin Park (Design Mecha Co., Ltd.),
Josh Rogers (North American Stainless), Ravil Kayumov (Sun Moon University), Riichi Murakami (The University of Tokushima)*

ORAL PRESENTATION - August 29 (Wednesday)

Session A-5 - Green Composite II

Chairs : Byung Sun Kim (KIMS) and Blessie A. Basilia (Industrial Technology Development Institute)

Wednesday, August 29, 09:20 - 10:35, Room : Grand Ballroom A

- A-5-1 Manufacture of Continuous Glass Fiber/Polylactic Acid (PLA) Composite and Its Mechanical Properties**
Jeong U Roh, Woo Il Lee (Seoul National University)
- A-5-2 Effect of Alkali Treatment on the Mechanical Properties of Woven Abaca Fabric/Unsaturated Polyester Composites**
Marissa A. Paglicawan, Blessie A. Basilia, Jo Ann Sy (Industrial Technology Development Institute), Byung Sun Kim (KIMS)
- A-5-3 Effect of Nanosilica and Colorant to Thermal Stability of Natural Fiber Reinforced Polyolefin Composite**
Kuan Yong Goh, Yern Chee Ching (University of Malaya)
- A-5-4 Basalt Fiber Reinforced Plastics - Multi-functional Applications, Easy Disposal and Recycling**
Boris Mislavsky (Kamenny Vek)
- A-5-5 Economical Recovery of CaO and CaCO₃ from Fly and Bottom Ash**
Byeong-Kyu Lee (University of Ulsan), Van-Tuan Vu (Decathlon Production Vietnam), Chihyeon Lee (University of Ulsan)

Session B-5 - Cost Effective Manufacturing Techniques of Green Energy Device

Chairs : Sang Kyu Choi (KIMM) and Hyuneui Lim (KIMM)

Wednesday, August 29, 09:20 - 10:20, Room : Grand Ballroom B

- B-5-1 A Study on Dispensing Head Driven by Piezoelectric Actuator for Jetting a High Viscosity Droplet**
Young-Bog Ham, Jung-Ho Park, So-Nam Yun (KIMM), Eun-Joo Lee (Woosong University)

- B-5-2 Ultrashort Pulse Laser Dicing Process of Sapphire Wafer for LED I Multibeam Laser Dicing Process Using a Diffractive Optical Element**
Dongsig Shin, Jeong Suh, Jiyeon Choi, Yongkwon Cho, Sangkyu Choi (KIMM)
- B-5-3 Nano/Micro Patterning Technology for Enhancing Optical Efficiency**
Eung-Sug Lee, Eun-Chae Jeon, Jihye Lee, Dae-Geun Choi, Jun-Ho Jeong, Tae-Jin Je, Young-Eun Yoo (KIMM)
- B-5-4 Nature-inspired Antireflection Structures: Facile Fabrication and Characterization of Optical Properties**
Hyuneui Lim, Seungmuk Ji, Sangkyu Choi (KIMM)

Session C-5 - Assembly and Joining

Chairs : Yongil Kim (Sungkyunkwan University) and Won-Shik Chu (Seoul National University)

Wednesday, August 29, 09:20 - 10:20, Room : Grand Ballroom C

- C-5-1 The Extended Application of Friction Stir Welding to Join Different Kind of Materials: Metal-ceramic Systems**
Yongil Kim, Donhyun Choi, Seung-Boo Jung (Sungkyunkwan University)
- C-5-2 Effect of B4C Particles on the Microstructure and Mechanical Properties of Friction Stir Welded Al 5083 Joint**
Jaeha Kim, Byungwook Ahn, Donhyun Choi, Yongil Kim, Seung-Boo Jung (Sungkyunkwan University)
- C-5-3 Material Properties of Graphite/Aluminum Metal Matrix Composite Joints Fabricated by Friction Stir Spot Welding**
Chi-Sung Jeon, Sung-Tae Hong, Md. Tariqul Hasan, Seung-Hyun Hur, Yong-Jai Kwon (University of Ulsan)
- C-5-4 Microstructures and Mechanical Property of Cu/B4C Composite Using Friction Stir Welding**
Byungwook Ahn, Jaeha Kim, Donhyun Choi, Yongil Kim, Seung-Boo Jung (Sungkyunkwan University)

Session A-6 - Smart Material and Structure II

Chairs : Dong-Jun Lee (Seoul National University) and Jack C. P. Su (National Tsing Hua University)

Wednesday, August 29, 10:50 - 11:10, Room : Grand Ballroom A

Invited Talk I : **Multi-functional Soft Active Polymer and Applications**

Jinsong Leng, Liwu Liu, Yanju Liu (Harbin Institute of Technology)

Wednesday, August 29, 11:10 - 11:30, Room : Grand Ballroom A

Invited Talk II : **Effective Storage and Release of Mechanical Energy by Mimicking Flea's Jumping Mechanism**

Kyu-Jin Cho (Seoul National University)

Wednesday, August 29, 11:30 - 11:50, Room : Grand Ballroom A

Invited Talk III : **Underwater Robot**

Song K. Choi (University of Hawaii at Manoa)

Session B-6 - Fuel Cell

Chairs : Suk-Won Cha (Seoul National University) and O. N. Srivastava (Banaras Hindu University)

Wednesday, August 29, 10:50 - 11:10, Room : Grand Ballroom B

Invited Talk I : **Oxygen Activation over Engineered Surface Grains on YDC/YSZ Interlayered Composite Electrolyte for LT-SOFC**

Young Beom Kim (Hanyang University)

Wednesday, August 29, 11:10 - 11:30, Room : Grand Ballroom B

Invited Talk II : **Nanothin Film Solid Oxide Fuel Cells**

Pei-Chen Su (Nanyang Technological University)

Wednesday, August 29, 11:30 - 12:00, Room : Grand Ballroom B

B-6-1 Electrical Properties of Mo-doped Vanadium Oxide Thin Films on 446M Ferritic Stainless Steel Bipolar Plates for Fuel Cell Applications

Hye-Mi Jung, Sukkee Um (Hanyang University)

B-6-2 Preparation of Anode for SOFC via Physical Vapor Deposition

Gu Young Cho, Jongwoo Choi, Yoon Ho Lee, Suk Won Cha (Seoul National University)

Session C-6 - 3D Printing and R2R

Chairs : Khairudin Mohamed (Universiti Sains Malaysia) and Seung Mo Kim (Korea University of Technology and Education)

Wednesday, August 29, 10:50 - 11:35, Room : Grand Ballroom C

C-6-1 R2R Multilayer Additive Printing Process

Byung-Oh Choi (KIMM)

C-6-2 Patterning on 8-inch Flexible Substrate Using Roll-to-roll Nanoimprint Lithography

Nazrin Kooy, Khairudin Mohamed (Universiti Sains Malaysia)

C-6-3 *In-situ* Monitoring of Flash Light Sintering Process of Silver Nano-ink for Flexible Electronics

Wan-Ho Chung, Hyun-Jun Hwang, Hak-Sung Kim (Hanyang University), Seung-Hyun Lee (KIMM)

POSTER PRESENTATION I (Main Lobby) – 09:00 ~ 10:30, August 27 (Mon.)

Chair : Suk Won Cha (Seoul National University), Won-Shik Chu (Seoul National University), Tongxiang Fan (Shanghai Jiao Tong University), Gyu Man Kim (Kyoungpook National University), Young Beom Kim (Hanyang University), Ramesh Maskey (Kathmandu University), Sangkee Min (Pan-Pacific MIRAI), Simon S. Park (University of Calgary), Won Hyoung Ryu (Yonsei University), Byeng Dong Youn (Seoul National University)

Poster Session A (Manufacturing Process I)	
P-A-01	An Analytical Evaluation of the Laser-assisted Machining System with Tilting Axis Dong-Hyeon Kim, Na-Hyeon Cha, Choon-Man Lee (Changwon National University)
P-A-02	Trend of Environment Friendly Machining Technology of Difficult-to-cut Materials Kwang-Sun Kim, Dong-Hyeon Kim, Choon-Man Lee (Changwon National University)
P-A-03	Study on MQL Machining with Nano-particle in Micro Cutting of Nickel Plated Roll Die Kyung-Hee Park, Ki-Hyeong Song, Seok-Woo Lee, Dong Yoon Lee (KITECH)
P-A-04	New Measurement Method of Lateral Force for Difficult to Grinding Shape with a Wheel Plate Young-Sam Ham (Korea Railroad Research Institute)
P-A-05	Comparative Analysis of Sustainable Cooling Systems in the Intermittent Turning of Magnesium Pieces Diego Carou (UNED), Jose Luis Valencia Delfa (UCM), Adolfo José Saá Sarria, Eva María Rubio Alvir (UNED)
P-A-06	Non-pneumatic Tire Development Using Casting Process Seok-Ju Choi, Kil-Ju Ko, Ki-Ho Kang, Man-Seob Kim, Hak-Joo Kim (Hankook Tire Co. Ltd.)
P-A-07	Accelerated Life Test of Micro Drill Bit for Printed Circuit Board (PCB) Machining Jong-Cheon Lee, Jong-Seol Moon (Seoul National University), Gyu-Beom Jang (Neo Technical system Co. Ltd.), Sung-Hoon Ahn (Seoul National University)
P-A-08	Experimental Study of the Dry Facing of Magnesium Pieces Based on the Surface Roughness Eva María Rubio Alvir (UNED), Jose Luis Valencia Delfa (UCM), Adolfo José Saá Sarria, Diego Carou Porto (UNED)
P-A-09	Development of Bolt Cold Forging Using of Multi Former Die Set Chul Woo Park (KIST)
P-A-10	Friction Bit Joining of Aluminum and Cast Iron Michael Miles (Brigham Young University), Sung-Tae Hong (University of Ulsan), Coulter Woodward (Brigham Young University), Chi-Sung Jeon, Yong-Ha Jeong, Yong-Jai Kwon (University of Ulsan)
P-A-11	Alternative Manufacturing Process of Die Carring Hook for Reducing Material Loss Sang-Kon Lee, Myeon-Sik Jeong, Ji-Hyun Sung, Tae-Hoon Choi, Kang-Eun Kim (KITECH)

POSTER PRESENTATION I (Main Lobby) – 09:00 ~ 10:30, August 27 (Mon.)

P-A-12	Simulation Study for Permeation from Inside and Outside Weixiao Du, Zhongde Shan, Feng Liu, Haibo Chen, Shaoyan Qin, Juanjuan Qiao (China Academy of Machinery Science & Technology)
P-A-13	Research on Modeling Technology for 3D Weaving Composit Preforms Based Digital Guide Template Haibo Chen, Zhongde Shan, Feng Liu, Shaoyan Qin, Weixiao Du, Juanjuan Qiao (China Academy of Machinery Science & Technology)
P-A-14	Application of Ionic Liquid as Novel Lubricant in Micro Milling Minh-Quan Pham, Hae-Sung Yoon, Jong-Seol Moon, Varsha Khare, Sung-Hoon Ahn (Seoul National University)
P-A-15	Green Manufacturing Process for a Helical Pinion Gear Using Cold Extrusion Process Myeong-Sik Jeong, Sang-Kon Lee, Jeong-Hwan Yoon, Ji-Hyun Sung, Shin-Ok Lee, Tae-Hoon Choi (KITECH)
P-A-16	Machining Property of Axis Asymmetric BK7 Lens by ELID Grinding Technology Tae-Soo Kwak, Myung-Won Jung (Gyeongnam National University of Science and Technology), Hitoshi Ohmori (RIKEN), Geon Hee Kim (Korea Basic Science Institute)
P-A-17	Size, Weight and Cost Reduction of Ti-6Al-4V ELI Rod Diameter of Spinal Fixation System through Application of UNSM (Ultrasonic Nanocrystal Surface Modification) Technology Young Sik Pyoun (Sun Moon University), Chang Min Suh (Kyungpook National University), In Ho Cho (Sun Moon University), Ki Young Lee, Jang Hong Ahn (KPC), Anis Cherif, Berthold Scholtes (Kassel University), Ravil Kayumov (Sun Moon University)

P-A-18	Analysis and Optimization on the Preformation of the C-type Stringer Fabricated in the Prepreg Pultrusion Process Yuequan Wang, Junwei Qi, Jian Xiao, Leiming Deng, Kun Cheng, Jun Xiao (Nanjing University of Aeronautics and Astronautics)
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Poster Session B (Manufacturing Process II)

P-B-01	Numerical Studies on Welding Temperature Distribution and Residual Stress in Thick-welded Plate at Different Time of Cooling Reenal Ritesh Chand, Ill-Soo Kim, Na-Hyun Na, Ji-Hye Lee (Mokpo National University), Ji-Yeon Shim (KITECH)
P-B-02	Investigation of Cutting Depth on Surface Roughness in High-speed Machining of Al Alloy 7075 Hyeong-Yeol Park, Myung-Wan Bae (Gyeongsang National University), Hwa Jung (Korea Polytechnic College)
P-B-03	Application of Laser Direct Structuring Technique for Fabrication of Fine Pitch Conductive Patterns Jae Hoon Lee, Byoung Man Paik, Dongsig Shin (KIMM)
P-B-04	Development of Laser Systems for Large-area Multi-cutting Kwangho Yoon, Kyunghan Kim, Jaehoon Lee (KIMM)
P-B-05	Energy Saving in Line Patterning Using Pulse Laser by Reducing Overlapping Rate with Rectangular Beam Shape Jae-Hoon Lee, Won-Jin Lee, Dong-Jae Shin, Gaasuren Daavasuren, Doo-Man Chun (University of Ulsan)

POSTER PRESENTATION I (Main Lobby) – 09:00 ~ 10:30, August 27 (Mon.)

P-B-06	Replication of the Fresnel Lens for the Solar Cells by Nano Imprint Lithography Sooyeon Park (University of Science and Technology), Mira Jeong (KIMM), Jaejong Lee (University of Science and Technology, KIMM)	P-B-12	Micro Patterns on the Roll Surface for Printed Electronics Using Laser Ablation Processing Jiwhan Noh, Heeshin Kang (KIMM), Suckjoo Na (KAIST), Jung Suh (KIMM)
P-B-07	Low Temperature Laser Sintering of Silver Nano Ink on Polymer Substrate for Roll-to-roll Printing Process Seung-Hyun Lee, Junyeob Yeo, Ki-Sang Nam, Byung-Oh Choi (KIMM), Seung-Hwan Ko (KAIST)	P-B-13	Lithium-doped Nickel Oxide Thin Film Fabricated by Inkjet Printing Process Chun-Chih Hunag (National Taiwan University), Pei-Chen Su (Nanyang Technological University), Ying-Chih Liao (National Taiwan University)
P-B-08	Nano Particle Deposition System Simulation on the Graphics Processing Unit Hyunseo Park, Sung-Hoon Ahn, Kunwoo Lee (Seoul National University)	P-B-14	Precision Gravure Printing of Conductive Lines for Printed Electronics Deokkyun Yoon, Seung-Hyun Lee (KIMM)
P-B-09	Localized Surface Polishing Process Using Nanomechanical Tools Hyun-Taek Lee, Chung-Soo Kim, Gil-Yong Lee, Jung-Oh Choi (Seoul National University), Jiseong Lee, Dong-Young Jang (Seoul National University of Technology), Sung-Hoon Ahn (Seoul National University)	P-B-15	Electrode Fabrication by Using AFM-based PCD Tool and Its Application to Electrochemical Imprinting Using DC Pulses Sun Ho Kim, Jeong Woo Park (Chosun University)
P-B-10	Preparation of Monodisperse Drug-loaded PLGA Microparticles Using a Microfluidic Flow-foucs Using Device Hwan-Gon Kim, Kyung Min Kim, Sang Hak Lee, Young Ho Kim, Gyu Man Kim (Kyungpook National University)	P-B-16	Fabrication of Roll Patterning Machine Using Electron Beams Gyungho Khim, Chun-Hong Park (KIMM)
P-B-11	Analysis of Polymer Processing in Embossing/Demolding Stage during Thermal Nanoimprint Lithography Seung Mo Kim (Korea University of Technology and Education)	P-B-17	Green Synthesis of Self-assembled Graphene Nanoparticles by Ionic Liquid Chung-Soo Kim, Jung-Oh Choi, Hyun-Taek Lee (Seoul National University), Jiseong Lee (Seoul National University of Science and Technology), Jae-Il Park (Seoul National University), Dong-Young Jang (Seoul National University of Science and Technology), Varsha Khare, Sung-Hoon Ahn (Seoul National University)

POSTER PRESENTATION I (Main Lobby) – 09:00 ~ 10:30, August 27 (Mon.)

- P-B-18 Direct Pattern Writing of Tin Particles Using Nano Particle Deposition System (NPDS)
Gil-Yong Lee, Chung-Soo Kim, Jung-Oh Choi, Hyun-Taek Lee, Sung-Hoon Ahn (Seoul National University)
- P-B-19 Silicon Nanoparticles Produced by Laser Ablation in Various Solutions
Min Shin, Jong-Won Yoon (Dankook university), Chang-Sam Kim (Korea Institute of Science and Technology)

Poster Session C (Machinery/Product I)

- P-C-01 A Study on Analytical Prediction of Transmission Error and Load Distribution for a Plug-in HEV
Qi Zhang, Jaehwa Kang, Kiback Yun, Yeongsik Jeong, Sung-Ki Lyu (Gyeongsang National University)
- P-C-02 Handling Gripper for Automotive Parts of Pre-coated Steel Plate
Kyoung Taik Park, Doo Hyung Kim (KIMM)
- P-C-03 The Performance Characteristics of Integrated Cylinder Lubricator System with an Accumulated Distribution by the Electronic Control in a Large Two-stroke Diesel Engine
Myung-Whan Bae (Gyeongsang National University), Hwa Jung (Korea Polytechnic College), Chang-Hwan Bae (Hoseo University), Soo-Min Kim (Gyeongsang National University)
- P-C-04 Structural Design of the Head Restraint Module for Reducing the Neck Injury
Yunsik Yang, Euysik Jeon (Kongju National University)

- P-C-05 Green Gear Analysis for Multi-axle Differential with Spiral Bevel Gears
Sung Gil Han, Ung Gi Jeong, Kwang Wook Park (Gyeongsang National University), In-Hwa Park (Taein Precision Corp.), Tae-Il Oh (Ajou Motor College), Chul-Ki Song (Gyeongsang National University)
- P-C-06 Shape Optimization for Green Gears
Kwang Wook Park, Sung Gil Han, Ung Gi Jeong (Gyeongsang National University), Won Bae (HSG Heavy Industry Co.), Jeong Se Suh, Chul-Ki Song (Gyeongsang National University)
- P-C-07 Software to Estimate the Characteristics of SMA Tool Clamping System
Sungcheul Lee, Seung-Kook Ro, Jong-Kweon Park (KIMM)
- P-C-08 Identification of Cross-sectional Shape of the Glass Edge Melting Zone according to the Process Parameters Using Multiple Regression Method
Youngshin Kim, Euysik Jeon (Kongju National University)
- P-C-09 Force-velocity Properties of Rat Esophageal Striated Muscle
Jungjoon Suh, Junghwa Hong (Korea University)
- P-C-10 Design of Air-cell Pillow for Cervical Stability Using Design of Experiment (D.O.E.)
Hyukjoo Lim, Junghwa Hong, Hun Hee Kim (Korea University)
- P-C-11 A Strength Analysis according to the Distance of Array Pattern of Pillar for Supporting Vacuum Glazing Gap Using Ring on Ring Test
Jaekyung Kim, Euysik Jeon (Kongju National University)

POSTER PRESENTATION I (Main Lobby) – 09:00 ~ 10:30, August 27 (Mon.)

P-C-12	Structural Analysis of Bellows Used Expansion Valve So-Nam Yun, Young-Bog Ham, Jung-Ho Park (KIMM)
P-C-13	A Maglev Linear Motion Stage with Low Energy Magnetic Actuators Seung-Kook Ro, Byung-Sub Kim, Sung-Chul Lee, Jong-Kweon Park (KIMM)
P-C-14	Smart Railway Axle Box Embedded with FBG Sensor to Monitor Axle Temperature Hyuk-Jin Yoon, Myung-Jun Park, Jung-Seok Kim, Young-Jin Hwang (Korea Railroad Research Institute)
P-C-15	Influence of Recycling Method on the Physical Properties of Recycled Polyethylene Terephthalate (PET) Yarn Sun Young Lee, Tae Min Hong, Jong Sung Won, Seung Goo Lee (Chungnam National University)
P-C-16	Thermal Properties of Polyurethane Foams Prepared from Depolymerization Products of Waste Printed Circuit Boards Sera Shin, Daisoo Lee (Chonbuk National University)
P-C-17	Design of Optical Body Tube Based on Blood Diagnostic Lab-on-a-chip for Efficiently Detection of Fluorescence Insup Kim, Hun Hee Kim, Woonwon Jung, Junghwa Hong (Korea University)
P-C-18	The Fatigue Life Evaluation and Load History Measurement of Motor Block Bracket Unit for KTX-Sancheon Trains Chan Woo Lee, H. J. Kim, D. H. Lee (Korea Railroad Research Institute)

P-C-19	Fatigue Crack Life Evaluation in High Cr Alloys Si-Yeon Bae, Gee-Wook Song, Bum-Shin Kim (KEPCO Research Institute)
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Poster Session D (Material I)

P-D-01	Study on High Temperature Processing of Ti-10Ta-10Nb Alloys Jaesam Ban (GJTP), Kwang-Min Lee (Chonnam National University), Gabwoon Hwang (Songwon University), Hyunseung Kim (Megagen Implant Co., Ltd.), Kyungku Lee (GJTP), Mongsook Vang, Hongso Yang, Hyun-Pil Lim, Gyejeong Oh, Sangwon Park, Kwi-Dug Yun (Chonnam National University)
P-D-02	Friction and Wear Properties of α -Al ₂ O ₃ -coated SiC Particle Reinforced Nickel Matrix Composites Zhong Wu, Lei Liu, Bin Shen, Wenbin Hu (Shanghai Jiao Tong University)
P-D-03	Nacre-mimetic Nanolaminated Al ₂ O ₃ /Al Composites Fabricated by Flake Powder Metallurgy Lin Jiang, Honghua Wang, Zhiqiang Li, Genlian Fan, Di Zhang (Shanghai Jiao Tong University)
P-D-04	Surface Hardening of Titanium Using a Gas Nitriding Masashi Yoshida (Shizuoka Institute of Science and Technology), Ryuta Ichiki (Oita University), Noah Utsumi (Saitama University)
P-D-05	Microstructure and Hardness of AlN Layer Obtained by Gas Nitriding of Al Alloys Masashi Yoshida, Zhou Tao (Shizuoka Institute of Science and Technology), Masahiro Okumiya (Toyota Technological Institute), Noah Utsumi (Saitama University), Yoshiki Tsunekawa (Toyota Technological Institute)

POSTER PRESENTATION I (Main Lobby) – 09:00 ~ 10:30, August 27 (Mon.)

- P-D-06 Chemical Recycling of Polyurethane Elastomers Containing Graphene Oxide
Chorong Oh, Daisoo Lee (Chonbuk National University)
- P-D-07 Microstructure Related Thermoelectric Properties of Te Based Alloys
Seungmin Hyun, Seong-Jae Jeon, Hoo-Jeong Lee (Sungkyunkwan University), Jun-Yeob Song (KIMM)
- P-D-08 Effect of Low-melting Glass Addition on the Thermal Properties of the Anorthite/Spinel Composites
Jiwhan Won, Seunggu Kang (Kyonggi University)
- P-D-09 Crystallization Behavior of CaO-MgO-SiO₂ Glass-ceramic System of Varying MgO/CaO Ratio Fabricated by 2-stage Heat Treatment
Yongsung Kim, Seunggu Kang (Kyonggi University)
- P-D-10 Fabrication of Cordierite/Al₂O₃ Composites and Characterization of Their Thermal Properties for a Low-temperature Cofired Ceramic Application
Sinae Jo, Seunggu Kang (Kyonggi University)
- P-D-11 Actuation Test of Nitinol Shape Memory Alloy according to Manufacturing Methods
Haan Kim (Seoul National University), Do Kwan Chung (Dongyang Mirae University), Se Won Lee, Ki Young Song, Chong Nam Chu (Seoul National University)
- P-D-12 Investigation of Shrinkage Control of Ni/Al₂O₃ Composite through Empirical Modeling
Seungkyu Yang, Hyeongsub Kim, Caroline S. Lee (Hanyang University)

- P-D-13 Low Emissivity Property of Amorphous Oxide and Metal Multifunctional Transparent Thin Films
Sang Yeol Lee, Taehyun Kang (Cheongju University)
- P-D-14 Fabrication of Graphene Aluminum-Composite by Friction Stir Processing
Chi-Hoon Jeon (University of Ulsan), Jeong-Jin Seo (Hyundai Hysco Company), Sung-Tae Hong, Young-Jin Yum, Seung-Hyun Hur (University of Ulsan), Kwang-Jin Lee (KITECH)
- P-D-15 T-ray Nondestructive Evaluation of FRP Composites
Kwang-Hee Im (Woosuk University), Kil-Sung Lee (DACC), In-Young Yang (Chosun University), David K. Hsu (Iowa State University)

Poster Session E (Energy Device I)

- P-E-01 A Study on Efficiency of PV Module according to Solder Compositions in Highly Stressed Conditions
Jin Sik Kim, Hyo Jae Kim, Hyug Jong Kim, Soo Hyun Won, Seong Hoon Cho, Byung Ho Choi (Kumoh National Institute of Technology)
- P-E-02 Dynamic Response Simulation of an Offshore Wind Turbine Suspended by a Floating Crane
Seong-Ho Seo, Myung-Il Roh, Nam-Kug Ku (University of Ulsan), Kyu-Yeul Lee (Seoul National University)
- P-E-03 Synthesis of Long TiO₂ Nanorod (~18 μ m) Arrays on FTO Glass for Photovoltaic Devices
Lochin Yusupov, Bee Lyong Yang (Kumoh National Institute of Technology)

POSTER PRESENTATION I (Main Lobby) – 09:00 ~ 10:30, August 27 (Mon.)

P-E-04	QD Co-sensitized Solar Cells Using TiO ₂ Nanorods on FTO Glass Ji Yeong Kim, Hyun Kim, Bee Lyong Yang (Kumoh National Institute of Technology)	P-E-10	Metal-glass Hybrid Electrolyte Using Proton-conducting Zirconium Phosphate Glass Thin Film Jong-Eon Kim, Sung Bum Park, Yong-Il Park (Kumoh National Institute of Technology)
P-E-05	Influence of Laser Sintering Treatment on Flexible Dye-sensitized Solar Cell Fabricate by Nano Particle Deposition System Jung-Oh Choi, Chung-Soo Kim, Gil-Yong Lee, Hyun-Taek Lee (Seoul National University), Caroline S. Lee (Hanyang University), Sung-Hoon Ahn (Seoul National University)	P-E-11	Proton Conducting Hybrid Membranes Doped with Zirconium Jae Sik Cho, Sung Bum Park, Yong-Il Park (Kumoh National Institute of Technology)
P-E-06	Numerical and Experimental Investigation of Superposed Heat Flux in MOCVD Reactor Youbong Lim, Doosup Hwang, Jungmin Ha, Changyeop Jeon, Chisun Kim, Yoonho Choi, Jeongsoo Lee, Soohoa Jeong, Woosok Chang (LG Electronics Inc.)	P-E-12	A Study on the Heat Losses Reduction for the In-line Induction Heating System Hong-Seok Park (University of Ulsan), Berend Denkena (Leibniz University of Hannover), Xuan-Phuong Dang (NhaTrang University), Gyu-Bong Lee (KITECH), Jan Henjes, I. Lüken (Leibniz University of Hannover)
P-E-07	A Fully Self-biased Solar Energy Harvesting System for Wireless Sensor Node Applications Ji-Eun Jeong, Jun-Han Bae, Jong-Min Baek, Xuefan Jin, Jung-Hoon Chun, Kee-Won Kwon (Sungkyunkwan University)	P-E-13	A Study on Cu ₂ -xSe Thin Films Synthesized by a Solution-based Method for Solar Cells Seon Young Park, Jin Young Lee, Si Ok Ryu (Yeungnam University), Seung-Yeol Han, Chih Hung Chang (Oregon State University)
P-E-08	A Startup-free Solar Energy Harvesting System with Impedance Adjustment Techniques for MPPT Jun-Han Bae, Ji-Eun Jeong, Jong-Min Baek, Xuefan Jin, Jung-Hoon Chun, Kee-Won Kwon (Sungkyunkwan University)	P-E-14	Coupled with Graphene to Improve Silicon Solar Cell Research of the Charge Collection Sang-Yeop Kim, Soo-Jeong Jo, Jeong-Ae Park, Eun-Young Lee, LiLi He, Young Cheol Lee, Abidov Amir, Sungjin Kim, Heung Woo Jeon (Kumoh National Institute of Technology)
P-E-09	An Experimental Study on Temperature Characteristics of Korean Traditional Ondol System in Varying Gorae Geometry: Application of Goguryeo Style Jjok Gudeul Gee-Hoon Park, Se-Jin Kim, Jin-Sol Kim, Gil-Yong Lee, Min-Soo Kim, Sung-Hoon Ahn (Seoul National University)		

POSTER PRESENTATION II (Main Lobby) – 09:00 ~ 10:30, August 28 (Tue.)

Chair : Hyeong-Joon Ahn (Soongsil University), Kinji Asaka (National Institute of Adv. Industrial Sci. and Tech.), Kyu-Jin Cho (Seoul National University), Doo-Man Chun (University of Ulsan), Bohung Kim (University of Ulsan), Beom-Keun Kim (Inje University), Naohiro Nishikawa (Iwate University), Young-Bin Park (UNIST), Jitendra K. Pandey (The University of Tokushima), Kentaro Takagi (Nagoya University)

Poster Session F (Design and Manufacturing Process)

- P-F-01 Analysis of Grid-pattern on Metal Sheet by Micro Roll Texturing Process
Bui Quang Thanh (Korea University of Science and Technology), Jong-Kweon Park, Seung-Kook Ro (KIMM)
- P-F-02 Development of Apparatus in Low Bandwidth for Surface Texturing Technology
Rendi Kurniawan, Tae Jo Ko (Yeungnam University)
- P-F-03 Fabrication of Micro Patterns Using Poly Crystalline Diamond Shaping Tools
In Yong Moon, Bo Hyun Kim (Soongsil University), Youngsoo Seo, Keun Park, Young Hak Cho (Seoul National University of Science and Technology)
- P-F-04 Research on Relation among Inlet/Outlet Pressure, Pressure Loss and Inlet Velocity of a Complex Resistance Muffler
Jian-Hua Fang (The Chinese PLA 72465), Yi-Qi Zhou (Shandong University), Qiang Ji, De-Li Zhu (The Chinese PLA 72465), Pei-Gang Jiao (Shanghai Jiao Tong University)
- P-F-05 Assessment and Improvement of Environmental Impact of Water Cleaning Process after Drilling PCB
Minjae Ko, Gyu-Bong Lee (KITECH), Byeongil Yun, Hyowon Suh, (KAIST)

- P-F-06 Research on Cooling Speed and Quenching Uniformity of Hot Stamping Parts
Yongsheng Ye, Zhongde Shan (China Academy of Machinery Science & Technology), Baoyu Wang (University of Science and Technology Beijing), Wanhua Cai, Chao Jiang, Milan Zhang (China Academy of Machinery Science & Technology)
- P-F-07 Effect of Micro-drilling Sequence on PCB Manufacturability
Jong-Seol Moon, Hae-Sung Yoon (Seoul National University), Gyu-Bong Lee (KITECH), Sung-Hoon Ahn (Seoul National University)
- P-F-08 Construction of Energy Cost Model for PCB Drilling
Hae-Sung Yoon, Jong-Seol Moon, Minh-Quan Pham (Seoul National University), Gyu-Bong Lee (KITECH), Sung-Hoon Ahn (Seoul National University)
- P-F-09 A Green Early-warning Model for Machining System Based on GA-BP Neural Network and Its Application
Hua Zhang, Wei Yan, Zhi-Gang Jiang (Wuhan University of Science and Technology)
- P-F-10 Design and Optimization of Hot Stamping Die Cooling System
Mi-Lan Zhang, Zhongde Shan (China Academy of Machinery Science & Technology), Wei Sun (Drexel University), Chao Jiang, Ying Xu, Bai-Liang Zhuang (China Academy of Machinery Science & Technology)

POSTER PRESENTATION II (Main Lobby) – 09:00 ~ 10:30, August 28 (Tue.)

P-F-11	Study of Structural and Dielectric Properties of BaTiO ₃ Capacitor Fabricated by Nano Particle Deposition System (NPDS) Jinwoong Lee, Seungkyu Yang, Caroline S. Lee (Hanyang University)
P-F-12	Ultrashort Pulse Laser Dicing Process of Sapphire Wafer for LED II Micro-Raman Analysis of Laser-induced Internal Stress in Sapphire Jiyeon Choi, Dongsig Shin, Yongkwon Cho, Jeong Suh, Sangkyu Choi (KIMM)
P-F-13	Study on Reliability Assessment of Industrial Air Booster Valve Baek Ju Sung, Jong Bae Lee (KIMM)
P-F-14	A Study on Pressure Level Sensor Using Change of Contact Resistance Jung-Ho Park, So-Nam Yun, Young-Bog Ham (KIMM), Yun-Jong Han (JCAMONTROL Co., Ltd.)
P-F-15	Numerical Analysis of Multipath Vacuum Insulator Panel Supports Shin Woo Jang, Young Choi (Chung-Ang University), Gyu-Bong Lee (KITECH), Seong-Wook Cho (Chung-Ang University)
P-F-16	Performance Optimal Design of a Quasi-zero Stiffness Isolator Using Flexure Kyoung-Rock Kim, Hyeong-Joon Ahn, Yo-Han You (Soongsil University)
P-F-17	Nonlinear Control of Active QZS Isolator Based on Lyapunov Function Van Trung Pham, Kyoung-Rock Kim, Hyeong-Joon Ahn (Soongsil University)

P-F-18	Stiffness Analysis for a 5-axis Stage with a Dynamically Equivalent Finite Element Model for Linear Motion Guide Bearings Jongkyu Jeong, Hyeyeon Kim, Chongjin Won, Jay I. Jeong (Kookmin University)
P-F-19	Optimization Simulation the Reuse Member of Steel Structure for Environmental Load Reduction Hyun Soo Kim, Jeong Hyun Jang, Jin Hyang Kim, Jae Hyuk Choi (Chosun University)
P-F-20	A Study on the Fiber Orientation Control Method of Glass Fiber Reinforced Plastic Gear Using CAE Analysis Jeongyeon Park, Gil-Sang Yoon, Gun-Hee Kim, Jeong-Won Lee (KITECH)

Poster Session G (Composite and Smart Structure)

P-G-01	Aerobic Biodegradability of Polyester/Poly(lactic Acid) Composites for Automotive NVH Parts Sun Kyoung Jeoung (Korea Automotive Technology Institute), Ki Dong Lee (NVH Korea Inc.), Seung Eul Yoo (Korea Automotive Technology Institute), Su Nam Lee (NVH Korea Inc.), Pyong-Chan Lee (Korea Automotive Technology Institute)
P-G-02	Effect of Plasma Polymerization on the Cellulose Fabric Composite Containing Functional Fillers Hae-Jun Park (Changwon National University), Byung-Sun Kim (KIMS), Chee-Ryong Joe (Changwon National University)
P-G-03	Effect of Monomer on the Plasma Polymerization of Basalt Fiber/PLA Jong Rok Ha, Byung-Sun Kim (KIMS), Jung Il Song (Changwon National University)

POSTER PRESENTATION II (Main Lobby) – 09:00 ~ 10:30, August 28 (Tue.)

P-G-04	Performance Test Study and Preparation of Biomass Cushion Packaging Material Gang Li, Fangyi Li (Shandong University)	P-G-10	A Weight-reduction Design Method for a Box-type Hybrid Bodyshell with Cut-outs for Rolling Stock Using Lightweight Material Substitutions Jeonggil Cho, Jeongseo Koo (Seoul National University of Science and Technology), Hyunseung Jung (Korea Railroad Research Institute)
P-G-05	Research on Design Method of Active Disassembly Structure Triggered by Temperature-pressure Coupling Zhifeng Liu, Yifei Zhan, Huanbo Cheng, Xinyu Li, Shaobo Pan (Hefei University of Technology)	P-G-11	Study on Vibration Suppression of Beam Type Solar Cell Substrate Transportation Robot Cheol Hoon Park, Dong Il Park, Eui Jun Yoo (KIMM)
P-G-06	Locomotion of Eel-like Fish Robot Using Smart Soft Composite Kyung-Tae Lee, Erkhes Bilegt, Won-Shik Chu, Sung-Hyuk Song, Min-Woo Han, Hyung-Soo Kim, Jang-Yeob Lee, Sung-Hoon Ahn (Seoul National University)	P-G-12	Biomimetic Turtle-like Swimming Robot Sung-Hyuk Song, Min-Woo Han, Jang-Yeob Lee (Seoul National University), Hyung-Jung Kim (Doosan Infracore), Won-Shik Chu, Sung-Hoon Ahn (Seoul National University)
P-G-07	Development of Woven Type Smart Soft Composite (SSC) Structure Min-Woo Han (Seoul National University), Renzhe Wu (LG Electronics Inc.), Sung-Hyuk Song, Won-Shik Chu, Kyung-Tae Lee (Seoul National University), Daniel Lee (Seoul International School), Sung-Hoon Ahn (Seoul National University)	P-G-13	Development of an Energy Efficient Lightweight Gripper Inspired by the Flytrap Seung-Won Kim, Je-Sung Koh, Junghyun Ryu, Jonggu Lee, Maenghyo Cho, Kyu-Jin Cho (Seoul National University)
P-G-08	Electrochemical Actuator Based on Tunable Reduced Graphene Oxide Bucky Papers Jin-Han Jeon, Jung-Cheol Yoo, Il-Kwon Oh (KAIST)	P-G-14	Analysis of an Energy Efficient Variable Stiffness Structure Inspired by a Vertebral Column Tae Myung Huh, Yong-Jai Park, Kyu-Jin Cho (Seoul National University)
P-G-09	Development and Motion of Bio-inspired Underwater Vehicle: a Ray Robot Won-Shik Chu, Hyung-Soo Kim, Kyung-Tae Lee, Sung-Hyuk Song, Min-Woo Han, Jang-Yeob Lee (Seoul National University), Nam-Ji Park (Concord Academy), Sung-Hoon Ahn (Seoul National University)	P-G-15	A Study on the Improvement of Electro-mechanical Properties of Cellulose Composite Chulho Yang (Andong National University), Jaehwan Kim (Inha University)

POSTER PRESENTATION II (Main Lobby) – 09:00 ~ 10:30, August 28 (Tue.)

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Important Dates

Abstract Submission : **December 31, 2012**
Acceptance Notification : **February 28, 2013**
Early Registration : **April 1, 2013**
Full Paper Submission(Optional) : **April 15, 2013**

Topics

- **Design & Manufacturing**
 - Machinery / Aerospace / Electronics / Plant / Robot / EV / Hybrid Car
 - CAD / CAE / CAM / PLM / SCM / Optimization / Reverse Engineering
 - Appropriate Technology / QoLT / Medical Technology / Bio Technology
 - Reliability Analysis / PHM / Faulty Diagnostics and Prognostics
- **Energy Saving & Waste Reduction**
 - Machining / Forming / Grinding / Casting / Forging / Molding / Joining
 - Micro-Nano / Laser / Energy-beam / Printed Electronics
 - 3D Printing / RP&M / R2R / Electro-Chemical / Non-traditional
 - Re-manufacturing / Recycle / MQL
- **New-Renewable Energy**
 - Solar / Wind / Bio / Hydrogen Energy / Fuel Cell
 - Energy Harvest / Storage / Conversion / Recovery
- **Light-Eco-friendly Material & Structure**
 - Natural / Bio-inspired / Light-weight / Flexible / Powder / Multifunctional
 - Metals / Ceramics / Polymers / Composites / FGM / Graphene
 - Smart Material & Structure / Photonic / Display
- **Energy-Environment Management and Policy**
 - Green Factory / Strategy / Policy
 - LCA / Environmental Impact Assessment
 - Smart Grid / IT Applications / Energy Monitoring

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- Korean Society for Precision Engineering (KSPE, Korea)
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Institute of Advanced Machinery and Design (IAMD, Korea)
- University of Hawaii at Manoa(USA)
- Korea Institute of Industrial Technology (KITECH, Korea)
Korea Engineering Plant Technology Center(KEPC, Korea)
- Manufacturing Institute for Research on Advanced Initiatives
(Pan-Pacific MIRAI, Japan)

Co-Organizers

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- Gyeongsang National Univ. (GNU, Korea)
- Inha Univ. (Korea)
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- Korea Industrial Complex Corp. (KICOX, Korea)
- Korea Institute of Machinery and Materials (KIMM, Korea)
- Korea Institute of Materials Science (KIMS, Korea)
- Seoul National Univ. (SNU, Korea)
Multi-scale Robotics Lab. (MRL)
Nano Printing Lab.
- State Key Lab. of Adv. Forming Tech. & Equipment (China)
- State Key Lab. of Metal Matrix Composites (China)
- Univ. of Ulsan (Korea)
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Publications

- Selected paper will be published in one of the journals as below(optional) after review;
 - International Journal of Precision Engineering and Manufacturing (SCIE, IF 1.141)
 - Journal of Biobased Materials and Bioenergy (SCIE, IF 1.037)
 - Journal of Composite Materials (SCI, IF 1.068)
- More SCI/SCIE indexed journals to be added.



ISGMA 2012

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