



International Symposium on Green Manufacturing and Applications 2011

October 6 Thur. – **7** Fri. 2011

**Hoam Convention Center
Seoul National University
Seoul, Korea**

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

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WELCOME ADDRESS

Dear Colleagues

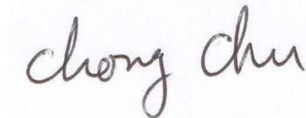
On behalf of the organizing committee and all of those who were involved in preparing for the International Symposium on Green Manufacturing and Applications (ISGMA 2011), it is a great honor to welcome all participants of ISGMA 2011 to Seoul National University.

In ISGMA 2011, we expect about 200 participants from around the world representing 16 countries. We invited 20 plenary/keynote speakers from leading institutes of the world to provide you the newest research issues and results. In order to foster effective discussions in various fields of green manufacturing and applications, more than 160 technical papers including posters will be presented in four parallel sessions and poster sessions.

I would like to express deepest thanks to all the sponsors for their generous support of ISGMA 2011. In addition, I would like to convey my sincere gratitude to the advisory committee members and organizing committee members for their valuable support.

We wish you all an interesting and informative stay in Seoul and look forward to an exciting experience at ISGMA 2011.

Sincerely,



Prof. Chong Nam Chu
Chairman of ISGMA 2011



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Program at a Glance

ISGMA 2011 (SNU, Seoul, KOREA)				
Oct. 6 (Thursday)	Room A (Water Lily)	Room B (Mugunghwa Hall)	Room C (Calamus)	Room D (Magnolia)
08:30~09:00	Registration (Hoam Convention Center)			
09:00~09:10	Opening Remark : Chong-Nam Chu (Mugunghwa Hall)			
09:10~10:00	Plenary Presentation I (Mugunghwa Hall) Title : Korean Initiatives for Green Growth : Policies and Projects Presenter : Young-Sup Joo, Korea (Chair : Jong-Won Kim)			
10:00~10:50	Plenary Presentation II (Mugunghwa Hall) Title : Energy Conversion at Nanoscale by Thin Film Deposition Techniques Presenter : Friedrich B. Prinz, United States (Chair : Sung-Hoon Ahn)			
10:50~11:00	Photo Time			
11:00~12:10	Session A - 1 (Water Lily) Energy saving in manufacturing processes I (Chairs : Patrick Kwon, Zhongde Shan)	Session B - 1 (Mugunghwa Hall) Processes of energy materials I (Chairs : Suk-Won Cha, Byung-Ki Ahn)	Session C - 1 (Calamus) Green precision machining (Chairs : Mitsutaka Matsumoto, Sang-Kee Min)	Session D - 1 (Magnolia) Energy harvesting I (Chairs : Henry A. Sodano, WonHyoung Ryu)
	Keynote Speech Title : Engineering Energy-efficient Surfaces and Forming Processes Speaker : Jian Cao (United States)	Keynote Speech Title : Cost-Effective and Green Manufacturing of Proton Conducting Perovskite Ceramic for Energy Applications via Solid-State Reaction Sintering Speaker : Ryan O'Hayre (United States)	Keynote Speech Title : UltraFabrication of Solar Optics Speaker : Hitoshi Ohmori (Japan)	Keynote Speech Title : Vibration energy harvesters of piezoelectric thin films Speaker : Isaku Kanno (Japan)
	Application Research on Digital Casting Precision forming Technology without patternless (Zhongde Shan, China)	Ultra Fast/Environmentally Benign Fabrication of PT-Based/MWCNT Alloy Catalysts via Intense Pulsed Light Induced for Direct Methanol Fuel Cell (Sung-Hyeon Park, Korea)	Development of Ultra-Precision Desktop Machine Tools and Components (Seung-Kook Ro, Korea)	Harvestable Energy Map of Train System for Energy Harvesting (Byung-Chang Jung, United States)
	Hot Stamping Die Design and Technology Application of Ultra-High Strength Steel Vehicle Door Beams (Jiang Chao, China)	Preparation of Y-doped Ba(Ce,Zr)O ₃ thin film by electrostatic spray deposition (Manow Piyaworapaiboon, Thailand)	A Study on the Cryogenic Micromachining and its Application for Extended Nano Space Fabrication (Shinya Kidani, Japan)	Harvesting of Photosynthetic Energy and the Challenges (Won-Hyung Ryu, Korea)
	KICOX Luncheon			
13:40~15:40	Session A - 2 (Water Lily) Energy savings in manufacturing processes II (Chairs : Tae-Hoon Choi, Jian Cao)	Session B - 2 (Mugunghwa Hall) Processes of energy materials II (Chairs : MaengHyO Cho, Sang-Kyun Kang)	Session C - 2 (Calamus) Eco materials (Chairs : Young-Bin Park, Jitendra Pandey)	Session D - 2 (Magnolia) Energy harvesting II (Chairs : Byeng-Dong Youn, Isaku Kanno)
	Keynote Speech Title : Key Manufacturing Technologies & equipment on Energy Saving and Emissions Reduction in Mechanical Industry Speaker : Zhongde Shan (China)	Keynote Speech Title : Supported Thin Film (1 μm) Gadolinia-doped Ceria Electrolyte Solid Oxide Fuel Cell Speaker : Ji-Won Son (Korea)	Keynote Speech Title : Effects of Micronized Rubber Powders from End of Life Tires on Structure and Properties of Polypropylene Composites Speaker : Jonathan Colton (United States)	Keynote Speech Title : Multifunctional Solutions for Piezoelectric Energy Harvesting Speaker : Henry A. Sodano (United States)
	Deformation Characteristics of AISI 1015 Steel in Combined Radial Backward Extrusion Process (Jeong Hoon Noh, Korea)	Fabrication of GDL Microporous Layer Using FEP for PEMFCs (Sung Bum Park, Korea)	Self-Sensing Carbon Nanocomposites for Intelligent Structural Health Monitoring (Giang Pham, United States)	Piezoelectric energy harvesting from ambient excitations (Soon-Duck Kwon, Korea)
	Friction and Wear of Self-mated SiC and Si3N4 in Green Water-based Lubricant (Shuai Yan, China)	Fabrication and Characterization of Thin-Film Fuel Cell with Bi-Layer Proton Conducting Electrolyte Prepared by PLD (Suk-Won Cha, United States)	CFRP gantry beams for energy saving in LCD manufacturing motion stage system (Binayak Bhandari, Korea)	Nested Piezoelectric Energy Harvester with Mode Sequence Conversion (Jae-Eun Kim, Korea)
	A Tribological Study of Vegetable Oil Enhanced by Nano-platelets and Implication in MQL Machining (Trung Ngyen, United States)	Fabrication of Intermediate Temperature Fuel Cell with Sn _{0.9} In _{0.1} P ₂ O ₇ Thin Film (Sangkyun Kang, Korea)	Thermal and mechanical properties of natural fiber/clay reinforced epoxy hybrid composites (P. Sudhakara, Korea)	A Development of Robust Energy Harvesting Skin with Statistical Model Calibration (Byungchang Jung, United States)
Grinding characteristics of sapphire (0001) surface with metal bonded grinding wheel contained nano-diamond (Hitoshi Ohmori, Japan)	Keynote Speech Title : Multiscale design of diffusion-stress coupled Li-ion battery anode Speaker : MaengHyO Cho(Korea)		A Multiscale Framework with Extended Kalman Filter for Lithium-Ion Battery SOC and Capacity Estimation (Chao Hu, United States)	

Program at a Glance

ISGMA 2011 (SNU, Seoul, KOREA)			
Oct. 6 (Thursday)	Room A (Water Lily)	Room B (Magnolia)	Room C (Calamus)
15:40 - 16:00	Coffee Break		
16:00 - 17:50	Session A -3 (Water Lily)	Session B - 3 (Magnolia)	Session C - 3 (Calamus)
	Energy/Sustainability management in product development and supply chain (Chairs : Chih-Hsing Chu, Dong-Yoon Lee)	Green materials and applications (Chairs : Seung-Hwan Chang, Figovsky Oleg)	Green machine tool (Chairs : Sang-Kee Min, Mitsutaka Matsumoto)
	Keynote Speech Title : Coordinate Product Design and Supply Chain Management to Minimize Carbon Footprint Speaker : Chih-Hsing Chu (Taiwan)	Keynote Speech Title : Functional materials converted from nature templates Speaker : DI Zhang (China)	Keynote Speech Title : Development of energy consumption monitoring procedure for the machine Speaker : Sangkee Min (United States)
	New Perspective in Corporate Reporting: Are Japanese manufacturers heading towards a sustainable future? (Jan Dusek, Japan)	Study of removal mechanism through polyester degradation for the application of Cu recycling (Md. Mominul Haque, Korea)	Green Alternative Processing Technology for A Spring Guide Pin of Stamping Die Set (T. H. Choi, Korea)
	Green Production :Batch Manufacture and Remanufacture for Periodic Demand (Hsiao-Fan Wang, Taiwan)	Demagnification Design of Electron Optics in SEM (Sun-Jong Lim, Korea)	The Effect of Ca Additions on the Mechanical Properties of Mg-Al-Sn Alloys (Young Min Kim, Korea)
	The Strategy analysis based on the carbon tax decision model (Tsai Chi Kuo, Taiwan)	Keynote Speech Title : Green Nanotechnologies Speaker : Figovsky Oleg (Israel)	Investigation of Particle Adhesion Force for Green Nanotechnology in Post-CMP Cleaning (Woonki Shin, Korea)
			Product end-of-life strategies to promote material resource circulations: From case studies of product reuse and remanufacturing businesses in Japan (Mitsutaka Matsumoto, Japan)
18:30 - 20:00	Keynote Speech Title : Development of Highly Productive Manufacturing Equipments for CIGS Thin Film Solar Cell Speaker : Heui Jae Pahk (Korea) (Chair : Suk-Won Cha)		
	SNU Precision Banquet (Mugunghwa Hall) Best Paper Award and Young Researcher Award Raffle: More than 10 units of newest 3D Smart phones will be provided by LG Electronics.		

*Test Ride to SNU Campus : Hyundai Mortors Fuelcell Car (13:30 ~ 15:30)

*SNU Lab Tour : 15:30 ~ 17:30

Program at a Glance

ISGMA 2011 (SNU, Seoul, KOREA)				
Oct. 7 (Friday)	Room A (Water Lily)	Room B (Mugunghwa Hall)	Room C (Calamus)	Room D (Magnolia)
	Session A -4 (Water Lily)	Session B - 4 (Mugunghwa Hall)	Session C - 4 (Calamus)	Session D - 4 (Magnolia)
	Energy savings in manufacturing processes III (Chairs : Doo-Man Chun, Yong-Joo Cho)	Development and applications of eco-friendly nano materials (Chairs : Hak-Sung Kim, Yong-bing Li)	Electro-chemical manufacturing processes (Chairs : Bo Hyun Kim, Min-Soo Park)	Green robotics (Chairs : Yeon-June Kang, Kyu-Jin Cho)
9:30~11:10	Ultrashort Pulse Laser Dicing Process for LED Sapphire Wafers (Dongsig Shin, Korea)	Deposition of PEDOT: PSS on ITO substrates by Electrohydrodynamic Atomization (Navaneethan Duraisamy, Korea)	Improvement of ECM Characteristics by Applying Ultrasonic Vibration (Wataru Natsu, Japan)	Development of Energy Efficient Turtle-like Swimming Robot with Smart Soft-morphing Structure (Hyung-Jung Kim, Korea)
	Micromachining glasses utilizing ultrashort pulse lasers (Jiyeon Choi, Korea)	Synthesis, Structural Characterization and Functionalization of the Coated of Iron Oxide Nanoparticles (Oybek Tursunkulov, Korea)	Study on Turning Characteristics of Tungsten Carbide with Electrolyte Jet (Tomonori Ota, Japan)	An Efficient Strategy to Enhance Longitudinal Flight Stability of Ornithopters (Joong-Kwan Kim, Korea)
	Research about the simulation-based optimization of manufacturing process considering environmental factors in the PCB industry (Seokjae Jung, Korea)	Biosynthesis of precious metal nanoparticles using plant extract, and their applications (Mohd Sayeed Akhtar, Korea)	Research on ECM Conditions for Micro-pin Fabrication of Tungsten Carbide Alloy (Naoki Shibuya, Japan)	Energy saving by using Redundant Parallel Manipulators (Sun Ho Kim, Korea)
	Parallel Disassembly by Atomic Theory for Dismantling End-of-Life Products (Shana Smith, Taiwan)	Research on Microstructure and High-temperature Creep Mechanism of Mg-9Gd-4Y-0.5Zr Magnesium Alloy (Yong-bing Li, China)	Micro Electro Discharge Machining of Polymer-Carbon Nanotube Composites (Yi Wan, United States)	Design and Installation of Floating Type Photovoltaic Energy Generation System Using FRP Members (Young-geun Lee, Korea)
	Nano-particle deposition system (NPDS) : low energy solvent-free dry spray process for metal and ceramic films (Doo-Man Chun, Japan)	Topological Interlocking : A Promising Principle for Design of Materials and Structures (Yuri Estrin, Australia)		
11:10~11:20	Coffee Break			
11:20~12:00	Plenary Presentation III (Mugunghwa Hall) Title : Towards Symbiotic Machining Processes Presenter : Ichiro Inasaki (Chair : Gyu-Bong Lee)			
12:00~13:10	Luncheon			
13:10~14:30	Poster Presentation (Chairs : Jong-Baeg Kim, Hyon-Kee Sohn, Young-Sun Hong, Woo-Sok Chang and Doo-Man Chun)			

Program at a Glance

ISGMA 2011 (SNU, Seoul, KOREA)				
Oct. 7 (Friday)	Room A (Water Lily)	Room B (Mugunghwa Hall)	Room C (Magnolia)	Room D (Calamus)
14:30~14:50	Coffee Break			
14:50~17:00	Session A -5 (Water Lily)	Session B - 5 (Mugunghwa Hall)	Session C - 5 (Magnolia)	Session D - 5 (Calamus)
	Energy savings in manufacturing processes IV (Chairs : You-Jin Park, Gyu-Bong Lee)	Green composites (Chairs : Byung-Sun Kim, Hyun-Joong Kim)	Design and manufacturing of sustainable products (Chairs : Saman K. Halgamuge, Chih-Hsing Chu)	Design and manufacturing of wind power systems (Chairs : Byung-Young Moon, Joon-Hyung Shim)
	Keynote Speech	Keynote Speech	Keynote Speech	A Study on Dynamic Analysis of Hybrid Wind Power Composite Blades according to Stacking Properties Method(Byong-Yun Kang, Korea)
	Title : Establishing Greener Products and Manufacturing Processes	Title : Effect of Atmospheric Plasma Polymerization for Natural Fibers	Title : An Online Numerical Index for Environmental Performance Evaluation of Industrial Processes	
	Speaker : Barbara S. Linke (United States)	Speaker : Byung Sun Kim (Korea)	Speaker : Saman K. Halgamuge (Australia)	
	An Application of Life cycle assessment (LCA) to Manufacturing Environments (ByungIl Yun, Korea)	Bio-Composites from Natural Resource: Application to Automotive Interior Parts (Hyun-Joong Kim, Korea)	Modulating Flow Cascade Heat Recovery for Improved CCHP Performance with Minimum Exergy Destruction (Saliya Jayasekara, Australia)	Economical and Environmental Analysis of a Wind-Hybrid Power System with Desalination in Hong-do, South Korea (Kihoo Bae, Korea)
	Auto-configuration for evaluation of energy efficiency and other factors of environmental influence of manufacturing system (Suk Keun Cha, Korea)	Effect of Diameters and Chemical Treatment on the Mechanical Properties and Structure of Date Palm Fiber Reinforced Epoxy Composite (Ali Abdalla, Korea)	A Decision Aid Tool for Enterprise Oriented Sustainability Metrics (Ming-Chuan Chiu, United States)	Development and Field Testing of Control and Monitoring System for Wave Energy Converters (Shin-Yeol Park, Korea)
	A study on the in-line induction heating process for forging in terms of saving operating energy (Berend Denkena, Germany)	Effect of maleic anhydride and zein coupling agents on physical properties of wood/poly(lactic acid) composites (Denni Kurniawan, Korea)	Simulation-based Analysis for Sustainability of Manufacturing System (Ju Yeon Lee, Korea)	Structural analysis and safety design of composite wind turbine blades considering static loads (Jaeheok Choi, Korea)
Development of a Heuristic Approach to Minimization of Energy Consumption in Inner Layer Scrubbing Process in PCB Manufacturing (You-Jin Park, Korea)	Effect of Chemical Retardant Treatment on Physico-Mechanical Properties of Jute Fiber Reinforced MAGPP Green Composites (Sweety Shahinur, Bangladesh)	A Study of Ecological Drilling and Tapping (Yoshihiko Murakami, Japan)	Climate system modeling for optimized location of offshore wind turbine system (Seung Joo Baik, Korea)	
	Fabrication of cellulose nanoparticle based composites with hydrophobic polymers (Jitendra. K. Pandey, Japan)	Solar generating system installation and a study on the efficiency monitoring in high altitude village in Nepal (Ramesh Maskey, Nepal)		
17:00~17:30	Closing (Best Poster Award)			

*Test Ride to SNU Campus : Hyundai Mortors Fuelcell Car (13:30~15:30)

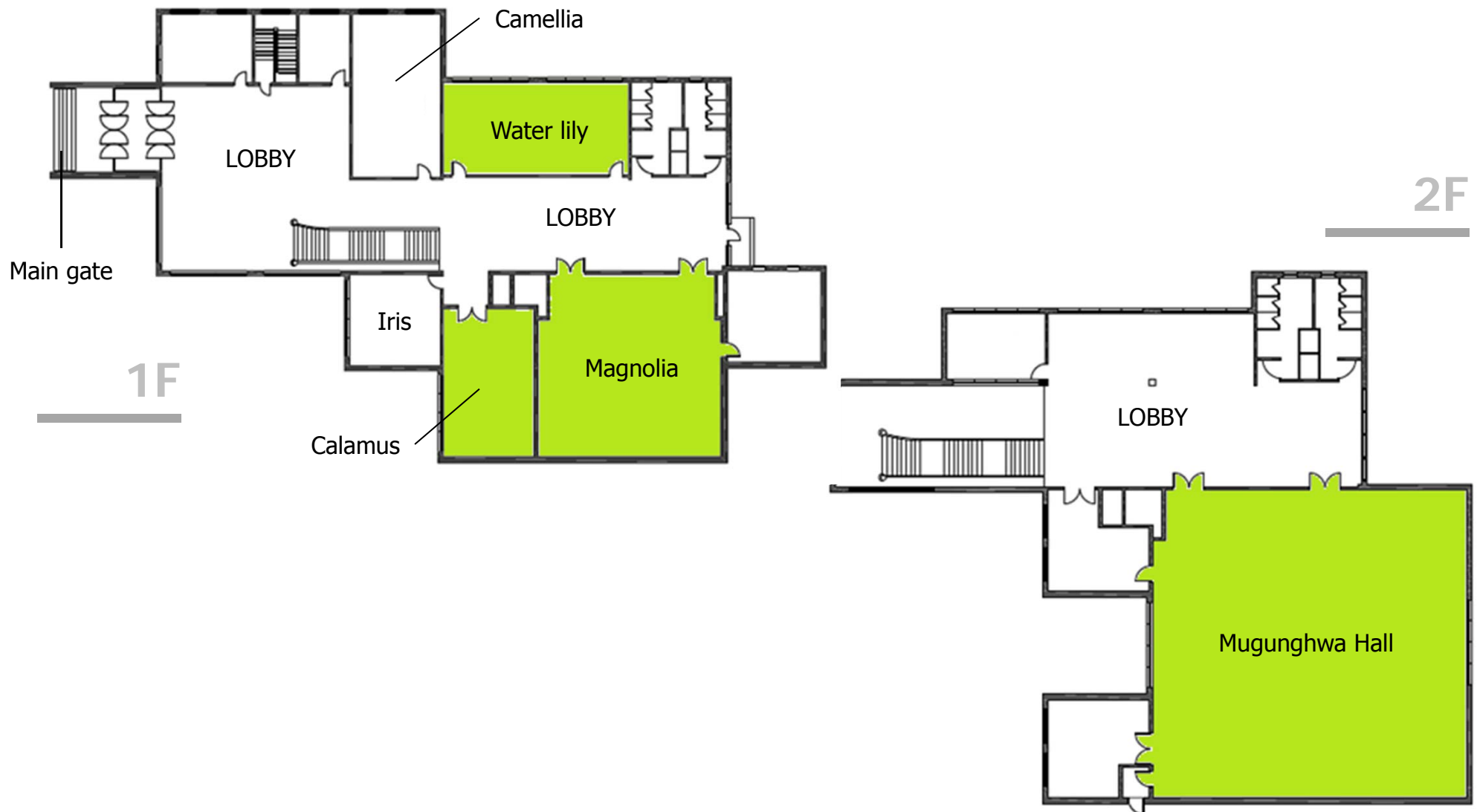
*Seoul City Tour, DMZ Tour or Palace Tour (13:00~17:00) : Arranged upon request

Program at a Glance

*Please note: the program schedule is not in its final version, adjustments still can occur.

ISGMA 2011 Poster session				
	Poster Session 1	Poster Session 2	Poster Session 3	Poster Session 4
1	Ecological, thermal insulation materials based on natural raw sources from agriculture (Jitka Hroudova, Czech Republic)	A New Pattern Wind Power Smoothing System Based on Hybrid Energy Storage Techniques (Peng Yu, China)	Structural Design and Analysis of the Active Head Restraint for Reducing the Neck Injury (Yunsiik Yang, Korea)	Tool Wear in Forward Rod and Backward Tube Forming Processes (Jeong-Hoon Noh, Korea)
2	Study on the disinfection efficacy of Enhanced Physical Treatment for environmental conservation in sea water (Chang-Hyun Bae, China)	Simulation of transport phenomena and electrochemical reaction for an anode-supported flat-tube solid oxide fuel cell in a stack (Joonguen Park, Korea)	Design and Experimental Investigation on Water Hydrostatic Bearing (Jong-Youp Shim, Korea)	Estimations for the Cost and Environmental Impact of Composite Train Bodyshell depending on Manufacturing process (Sang-Jin Lee, Korea)
3	"Green Cement" reducing of CO2 emissions in the cement industry – Eco friendly housing (Klara Krizova, Czech Republic)	Electrical resistance analysis of gas diffusion layer and contact resistance for PEMFC (Jang-Gil Kim, France)	Design of diffuser sheet-free high efficiency U-shaped Light Guide Plate for LED Flat Light (Yoon-Ki Park, Korea)	Fabrication of Fine Pitch Conductive Patterns using Laser Direct Structuring (Byoung-Man Paik, Korea)
4	A Green and Sustainable Nanotechnology: Role of Ionic Liquids (Varsha Khare, Germany)	YSZ Thin Film Functional Layer on GDC based SOFC (Joong-Sun Park, United states)	An Energy Supply System for Geological Storage of Carbon Dioxide (Young Kim, Korea)	Study on Hydrophobic Surface by Laser Micro Patterning (Il-Hwan Cho, Korea)
5	Fabrication of Biodegradable Porous Silica Nanorods (Sang-Hyun Lee, Korea)	Characteristic Behaviors on Air-breathing Direct Methanol Fuel Cells (Joong-Sun Park, United states)	Adaptive Step Size Control in Maximum Power Point Tracking Using the Perturb-and-Observe Method (Jae-Sung Kim, Korea)	Micro machining of large surface roll molds (Dong-Yoon Lee, Korea)
6	Predicting Li ion diffusivity in lithium-silicon alloy for lithium ion battery : ab initio & kinetic monte carlo study (Kyeongjae Cho, United States)	Air-breathing Polymer Electrolyte Membrane Fuel Cell using Metal-coated Polycarbonate as Bipolar Plates (Ji-Hwan An, United states)	Design and Control of 2kW Class Power Takeoff Unit for Rotating Body Type Wave Energy Converter (Dong-Soon Yang, Korea)	Optimized cooling system for large-area and high-rate deposition of hydrogenated microcrystalline silicon (You-Bong Lim, Korea)
7	Ab initio study on the effect of dopant on ionic and electronic conductivity (Kyeongjae Cho, United States)	Pt-Ru Catalyst Deposition by Atomic Layer Deposition for Thin Film SOFC (Young-Beom Kim, United states)	A Simulation on Road Generation System (Seung-Chul Kim, Korea)	A Study on the Manufacturing of Digital Camera Barrel using of Magnesium alloy (Chul-Woo Park, Korea)
8	Ab-initio simulation of catalytic NO decomposition on noble metal surface: d-band dependency analysis (Kyeongjae Cho, United States)	Synthesis of PtRuW for Improved Electrocatalytic Activity in a Methanol Oxidation (Seung-Hee Woo, Korea)	Design for Energy Saving in Scan Controlled Focused Ion Beam Processing (Doo-Man Chun, Japan)	Fabrication of semi-conductive oxide layer on polymer substrate for dye-sensitized solar cell using nano particle deposition system and laser treatment (Doo-Man Chun, Japan)
9	Friction and Wear Behavior of Aluminum Composites Sliding Against Kevlar Reinforced Polymer Composites (Ma Baoji, China)	Investigation of Ionic Conductivity Change by Fluorine Contamination in Atomic Layer Deposited Y-doped BaZrO3 for Proton Conducting Ceramic Fuel Cells (Jihwan An, United States)	Improving Organic Photovoltaics Performance Prediction and Optimization through Simulation (Jung-Won Kim, Korea)	Analysis on the Tool Wear in Combined Forward and Backward Tube Extrusion Process (Vishara Ruchiranga Jayasekara, Korea)
10	Nanoscope observation of oxygen vacancy distribution using Kelvin probe microscopy (Minhwan Lee, United States)	Simulation of train induced forced wind draft for generating electrical power from vertical axis wind turbine (VAWT) (Nikhita Chilugodu, Singapore)	Weight saving effect of the composite optical structure for unmanned aerial vehicle (Dae-Young Kim, Korea)	The influences of deposition parameters on the microcrystalline silicon single junction cell efficiency in large-area and high rate deposition (Doo-Sup Hwang, Korea)
11	Effect of Differential Particle Size Distribution on Mechanical Properties and Microstructure during Spark Plasma Sintering from CP-Ti Powders (Je-Ha Shon, Korea)	Intermediate Temperature Proton Conducting Ceramic Fuel Cells by Atomic Layer Deposition and Pulsed Laser Deposition (Joong Sun Park, United States)	Development of EHPS control algorithm for energy saving (Min-Chul Shin, Korea)	A Study on Sliding Wear Characteristics and Processing of MoSi2 (Sung-Ho Park, Korea)
12	Preliminary characterisation of the structural and behavioral properties of the magnetotactic bacterial actin-like homolog, MamK: A potential biomimetic strategy for the in vitro alignment of lipid enclosed magnetic nanoparticles (Sanjiv Sonkaria, Germany)	Experimental and Theoretical Studies of Ion Transport in Y-doped Barium Zirconate (Rojana Pornprasertsuk, Thailand)	Evaluation of Optimum Performance for Reinforced Air Spring Suspension System using Nonlinear Dynamic Analysis Method (Byeong-Soo Kim, Korea)	Characteristic on BAM coated carbide tool in drilling of composite/titanium stack (Kyung-Hee Park, Korea)
13	Investigation of electrophysical and mechanical characteristics of porous copper-carbon composite materials prepared by spark plasma sintering (Bunyod Allabergenov, Korea)	Fabrication of Nano-porous Silver in a Close-packed Array as an Electrode of Low Temperature SOFCs (Young Beom Kim, United States)	Condition monitoring for gearbox of wind power generation system using wavelet packet transform (Young-Man Cho, United States)	Energy Efficient Drilling for PCB Manufacturing Considering Lead Time (Barbara S. Linke, United states)
14	Effect of inorganic filler and matrix contents on electrical Properties of polymer composite bipolar plates for PEMFCs. (Je-Ha Shon, Korea)	Proton Conduction in Epitaxial and Polycrystalline Yttrium-doped Barium Zirconate Thin Films (Young Beom Kim, United States)	Study of multi-dimensional design approach for simultaneous consideration of functional and environmental requirements based on multiple criteria decision making (Doo-Man Chun, Japan)	Influence of Punch Face Geometry on Surface Deformation Patterns in Backward Can Extrusion Processes (Beong-Bok Hwang, Korea)
15	Soundproofing effect of PP/Clay and PP/CNT nanocomposites (Jitendra. K. Pandey, Japan)	Estimation of Singapore's hourly solar radiation using hybrid-Markov transition matrices method (O-Jin Kwon, Singapore)	Development of LED bar handler for LED BLU measurement system (Tae-Ho Ha, Korea)	Agent-based Cost Efficient Process Planning for Micro Milling (Chih-Hsing Chu, Taiwan)
16	Wear Surface Characteristics and Wear Mechanisms of Aluminum Composites Sliding Against Kevlar Reinforced Polymer Composites (Ma Baoji, China)	High-Temperature Proton-Conducting Zirconium phosphate Glass Thin Film Having Gradient (Jong-Eon Kim, Korea)	Micro-grid simulation of on-grid and off-grid renewable energy systems including energy storage systems for Jeju island in Korea (O-jin Kwon, Singapore)	Micro EDM of hard metal using water (Se-Hyun Ahn, United states)
17	Fabrication of copper-graphite composites by spark plasma sintering and its characterization (Bunyod Allabergenov, Korea)	Fabrication of Proton Exchanged NASICON Thin film (Masayuki Nagai, Japan)	NDE Inspection of Terahertz Waves in Wind Turbine Composites (David K. Hsu, United states)	Greening PCB Drilling Process: Burr Minimization and Other Strategies (Yu-Chu Huang, United States)
18	Design and fabrication of an aluminum-composite hybrid vehicle wheel using adhesive bonding method for weight reduction and ride comfort (Seong Hwan Yoo, Korea)	Hybrid Proton-Conductors Based on 3-Glycidoxypropyltrimethoxysilane And Water-Insoluble Heteropolyacid (Masayuki Nagai, Japan)	Design of a Lightweight Bumper Back Beam Consisting of a Reusable Plastic (Dong-Gyu Ahn, Korea)	An Identification of Process Parameters for Edge Sealing Shape of Vacuum Glazing using Multiple Regression Method (Young-Shin Kim, Korea)
19	Fabrication and Mechanical Properties of High Volume Fraction of Jute Fiber/Poly lactide Composites for Truck Liner (Rui-Hua Hu, China)	Active oxygen exchange along the grain boundaries of solid-state electrolytes (Wonyoung Lee, United States)	Lightweight Design of Machine Tool spindles using Genetic Algorithm (Dong-Hyeon Kim, Korea)	Management of Energy Resources and Analysis of Energy Efficiency in PCB Manufacturing Process (Gyu-Bong Lee, Korea)

VENUE LAYOUT



EXHIBITION

- Hyundai Motors
 - Hyundai Motors Fuel cell Car
 - Location: In front of Hoam convention center
 - Test Ride to SNU Campus: 13:30 ~ 15:30 either on October 6 or 7
- LG electronics
 - Location: Lobby of Hoam convention center

CONFERENCE INFORMATION



REGISTRATION

Registration will open on October 6-7 in the Main Lobby (1F).

Category	On-Site Registration
Regular	450 USD (385,000 KRW)
Student	250 USD (275,000 KRW)
Accompanying	150 USD (165,000 KRW)

1. Regular registration and student registration fees include all conference activities: all materials, sessions, lunches (10.6~10.7), banquet, and refreshments.
2. Accompanying registration fee includes banquet and refreshments.

AWARDS

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

JOURNAL PUBLICATION

Selected full papers longer than 3 pages in the template will be published at the International Journal of Precision Engineering and Manufacturing (IJPEM, SCIE)



CONFERENCE INFORMATION

- POSTER PRESENTATION

Posters will be displayed in the Main Lobby 1F and Lobby at 2F. Posters should be put up by 13:00 and dismantled after 14:30 on the October 7. All poster presenters are encouraged to be at their poster panels for discussion with participants during the poster presentation time.

Date & Time	October 7, 13:10 – 14:30
Place	Lobby (1F, 2F)

- LUNCH (Sponsor : KICOX on October 6)

Lunch will be provided at the out door café on October 6 and 7.



- BANQUET (Sponser : SNU Precision)

Date & Time	October 6, 18:30 ~ 20:00
Place	Mugunghwa Hall

Banquet will be offered to all members including regular/student/accompanying. By raffle, more than 10 units of newest 3D smart phones will be provided by LG Electronics during the banquet. Please bring your raffle ticket to the banquet.

- COFFEE BREAK

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

CONFERENCE INFORMATION

- INFORMATION DESK

General information of the conference will be available at the information desk located in the Main Lobby (1F) during the conference.

- LOCAL TRANSPORTATION

> From Incheon International Airport to Hoam Faculty House, SNU

Transportation	Limousine 6017 (Direct)	Limousine 6003 (Indirect)	Taxi
Travel time	90 Min.	110 Min.	70 Min.
Fare	15,000 KRW	9,000 KRW	60,000 KRW

> From Kimpo International Airport to Hoam Faculty House, SNU

Transportation	Limousine 6003	Subway	Taxi
Travel time	60 Min.	70 Min.	50 Min.
Fare	4,000 KRW	1,200 KRW	18,000 KRW

- CONFERENCE SECRETARIAT

Seoul National University, Seoul, 151-742, Korea.

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PLENARY LECTURE

>>PLENARY LECTURE

Time		Mugunghwa Hall
October 6 (Thursday)		
09:10 - 10:00	PL1	Young-Sup Joo (Ministry of Knowledge Economy) Korean Initiatives for Green Growth : Policies and Projects Chair : Jong-Won Kim (Seoul national University).
10:00 - 10:50	PL2	Friedrich B. Prinz (Stanford University) Energy Conversion at Nanoscale by Thin Film Deposition Techniques Chair : Sung-Hoon Ahn (Seoul National University)
October 7 (Friday)		
11:20 - 12:00	PL3	Ichiro Inasaki (Chubu University) Towards Symbiotic Machining Processes Chair : Gyu-Bong Lee (KITECH)

Oral session

Chair : Jong-Won Kim

Thursday, October 6, 09:10 - 10:00, Room : Mugunghwa Hall

Plenary I : **Korean Initiatives for Green Growth : Policies and Projects**
Young-Sup Joo (Ministry of Knowledge Economy)

Chair : Sung-Hoon Ahn

Thursday, October 6, 10:00 - 10:50, Room : Mugunghwa Hall

Plenary II : **Energy Conversion at Nanoscale by Thin Film Deposition Techniques**
Friedrich B. Prinz, Joong-Sun Park, Young-Beom Kim (Stanford University)

Session A1 - Energy saving in manufacturing processes I

Chairs : Patrick Kwon, Zhongde Shan

Thursday, October 6, 11:00 - 11:30, Room : Water Lily

Keynote Paper : **Engineering Energy-efficient Surfaces and Forming Processes**
Jian Cao (Northwestern University)

Thursday, October 6, 11:30 - 12:10, Room : Water Lily

A1-1 Application Research on Digital Casting Precision Forming Technology Without Patternless
Zhongde Shan, Feng Liu, Zhaoxian Gu (State Key Lab of Advanced Forming Technology & Equipment of China)

A1-2 Hot Stamping Die Design and Technology Application of Ultra-high Strength Steel Vehicle Door Beams
Jiang Chao, Zhongde Shan, Zhuang Bailliang, Xu Ying (Advanced Manufacturing Technology Center of CAM)

Session B1 - Processes of energy materials I

Chairs : Suk-Won Cha, Byung-Ki Ahn

Thursday, October 6, 11:00 - 11:30, Room : Mugunghwa Hall

Keynote Paper : **Cost-Effective and Green Manufacturing of Proton Conducting Perovskite Ceramics for Energy Applications via Solid-State Reaction Sintering**

Ryan O'Hayre, Daniel Clark, Stefan Nikodemski, Jianhua Tong (Colorado School of Mines)

Thursday, October 6, 11:30 - 12:10, Room : Mugunghwa Hall

B1-1 **Ultra Fast/Environmentally Benign Fabrication of PT-Based/MWCNT Alloy Catalysts via Intense Pulsed Light Induced for Direct Methanol Fuel Cell**

Sung-Hyeon Park, Hae-Mi Jung, Suk-kee Um (Hanyang University), Yong-Won Song (KIST), Hak-Sung Kim (Hanyang University)

B1-2 **Preparation of Y-doped Ba(Ce,Zr)O₃ Thin Film by Electrostatic Spray Deposition**

Manow Piyaworapaiboon, Rojana Pornprasertsuk (Chulalongkorn University)

Session C1 - Green precision machining

Chairs : Mitsutaka Matsumoto, Sang-Kee Min

Thursday, October 6, 11:00 - 11:30, Room : Calamus

Keynote Paper : **UltraFabrication of Solar Optics**

Hitoshi Ohmori (RIKEN)

Oral session

Thursday, October 6, 11:30 - 12:10, Room : Calamus

C1-1 Development of Ultra-Precision Desktop Machine Tools and Components

Seung-Kook Ro, Byung-Sub Kim, Seong-Chul Lee, Woo-Chul Shin, Jong-Kweon Park (KIMM)

C1-2 A Study on the Cryogenic Micromachining and its Application for Extended Nano Space Fabrication

S. Kidani, Y. Mizumoto, K. Sakai, Y. Sato, Y. Kakinuma (Keio University)

Session D1 - Energy harvesting I

Chairs : Henry A. Sodano, Won-Hyoung Ryu

Thursday, October 6, 11:00 - 11:30, Room : Magnolia

Keynote Paper : Vibration Energy Harvesters of Piezoelectric Thin Films

Isaku Kanno (Kyoto University)

Thursday, October 6, 11:30 - 12:10, Room : Magnolia

D1-1 Harvestable Energy Map of Train System for Energy Harvesting

Byung-Chang Jung (University of Maryland), Heon-Jun Yoon, Byeng-Dong Youn (Seoul National University)

D1-2 Harvesting of Photosynthetic Energy and the Challenges

Won-Hyoung Ryu (Yonsei University), Fritz B Prinz (Stanford University)

Session A2 - Energy savings in manufacturing processes

Chair : Tae-Hoon Choi, Jian Cao

Thursday, October 6, 13:40 - 14:10, Room : Water Lily

Keynote Paper : **Key Manufacturing Technologies & Equipment on Energy Saving and Emissions Reduction in Mechanical Industry**

Zhongde Shan, Shaoyan Qin, Qian Liu, Feng Liu (State Key Lab of Advanced Forming Technology & Equipment of China)

Thursday, October 6, 14:10 - 15:30, Room : Water Lily

A2-1 Deformation Characteristics of AISI 1015 Steel in Combined Radial Backward Extrusion Process

Jeong-Hoon Noh, Beong-Bok Hwang (Inha University)

A2-2 Friction and Wear of Self-mated SiC and Si₃N₄ in Green Water-based Lubricant

Shuai Yan, Bin Lin, Feng Liu (Tianjin University), Fugang Yan (Tianjin Transportation Vocational College)

A2-3 A Tribological Study of Vegetable Oil Enhanced by Nano-platelets and Implication in MQL Machining

Trung Nguyen (Michigan State University), In-Whan Do (XG Sciences, Inc.), Patrick Y. Kwon, Patrick Y. Kwon (Michigan State University)

A2-4 Grinding Characteristics of Sapphire (0001) Surface with Metal Bonded Grinding Wheel Contained Nano-Diamond

Hiroshi Kasuga, Teruko Kato (RIKEN), Nobuhide Itoh (Ibaraki University), Yutaka Kameyama (Tokyo City University), Hitoshi Ohmori (RIKEN)

Session B2 - Processes of energy materials

Chair : Maeng-Hyo Cho, Sang-Kyun Kang

Thursday, October 6, 13:40 - 14:10, Room : Mugunghwa Hall

Keynote Paper : **Supported Thin Film (1 μ m) Gadolinia-doped Ceria Electrolyte Solid Oxide Fuel Cell**

Doo-Hwan Myung (KIST, Yonsei University), Jong-Ill Hong, Jong-Ho Lee, Hae-Weon Lee, Ji-Won Son (KIST)

Oral session

Thursday, October 6, 14:10 - 15:10, Room : Mugunghwa Hall

B2-1 Fabrication of GDL Microporous Layer Using FEP for PEMFC

Sung-Bum Park, Yong-il Park (Kumoh National Institute of Technology)

B2-2 Fabrication and Characterization of Thin-Film Fuel Cell with Bi-Layer Proton Conducting Electrolyte Prepared by PLD

Suk-Won Cha (Stanford University), Sang-Hoon Ji, Ik-Whang Chang, Jong-Woo Choi (Seoul National University)

B2-3 Fabrication of Intermediate Temperature Fuel Cell with Sn_{0.9}In_{0.1}P₂O₇ Thin Film

Sang-Kyun Kang, Pil-Won Heo, Tae-Young Kim, Jin-Su Ha (Samsung Advanced Institute of Technology)

Thursday, October 6, 15:10 - 15:40, Room : Mugunghwa hall

Keynote Paper : Multiscale Design of Diffusion-Stress Coupled Li-Ion Battery Anode

Maeng-Hyo Cho (Seoul National University), Kyeong-Jae Cho (University of Texas), Seong-Min Chang, Jang-Hyuk Moon (Seoul National University)

Session C2 - Eco materials

Chair : Young-Bin Park, Jitendra Pandey

Thursday, October 6, 13:40 - 14:10, Room : Calamus

Keynote Paper : Effects of Micronized Rubber Powders from End of Life Tires on Structure and Properties of Polypropylene Composites

Ravi Ayyer, Tom Rosenmayer, William Schreiber (Lehigh Technologies), Jonathan Colton (Georgia Institute of Technology)

Thursday, October 6, 14:10 - 15:10, Room : Calamus

C2-1 Self-Sensing Carbon Nanocomposites for Intelligent Structural Health Monitoring

Giang Pham (Marine Corps Systems Command), Sang-Woo Kim, Sang-Ha Hwang, Young-Bin Park (UNIST)

- C2-2** **CFRP Gantry Beams for Energy Saving in LCD Manufacturing Motion Stage System**
Binayak Bhandari, Gil Yong Lee (Seoul National University), Dong-Soo Choi, Jun-Hyun Kim (JUSTEK), Sung-Hoon Ahn (Seoul National University)
- C2-3** **Thermal and Mechanical Properties of Natural Fiber/Clay Reinforced Epoxy Hybrid Composites**
P. Sudhakara, J. I. Song (Changwon National University), B. S. Kim (Korea Institute of Materials Science)

Session D2 - Energy harvesting II

Chairs : Byeng-Dong Youn, Isaku Kanno

Thursday, October 6, 13:40 - 14:10, Room : Magnolia

Keynote Paper : **Multifunctional Solutions for Piezoelectric Energy Harvesting**
Henry A. Sodano, Yirong Lin, Hixiong Tang (University of Florida)

Thursday, October 6, 14:10 - 15:30, Room : Magnolia

- D2-1** **Piezoelectric Energy Harvesting from Ambient Excitations**
Soon-Duck Kwon (Chonbuk National University)
- D2-2** **Nested Piezoelectric Energy Harvester with Mode Sequence Conversion**
Jae-Eun Kim (Catholic University of Daegu), Yoon-Young Kim (Seoul National University)
- D2-3** **A Development of Robust Energy Harvesting Skin with Statistical Model Calibration**
Byung-Chang Jung (University of Maryland), Chul-Min Cho, Byeng-Dong Youn (Seoul National University)
- D2-4** **A Multiscale Framework with Extended Kalman Filter for Lithium-Ion Battery SOC and Capacity Estimation**
Chao Hu, Byung C. Jung (University of Maryland), Tae-Jin Kim, Byeng D. Youn (Seoul National University)

Oral session

Session A3 - Energy/Sustainability management in product development and supply chain

Chairs : Chih-Hsing Chu, Dong-Yoon Lee

Thursday, October 6, 16:00 - 16:30, Room : Water Lily

Keynote Paper : **Coordinate Product Design and Supply Chain Management to Minimize Carbon Footprint**

Jack C. P. Su, Chih-Hsing Chu, Yu-Te Wang (National Tsing Hua University)

Thursday, October 6, 16:30 - 17:30, Room : Water Lily

A3-1 **New Perspective in Corporate Reporting: Are Japanese Manufacturers Heading Towards a Sustainable Future?**

Jan Dusek, Yoshiro Fukuda (Hosei University)

A3-2 **Green Production : Batch Manufacture and Remanufacture for Periodic Demand**

Hsiao-Fan Wang, Chun-Yuan Fu (National Tsing Hua University)

A3-3 **The Strategy Analysis Based on the Carbon Tax Decision Model**

Tsai Chi Kuo, Sheng Chun Lin, Chien Ying Lee, Ming Yu Kuo (Chung Yuan Christian University)

Session B3 - Green materials and applications

Chairs : Seung-Hwan Chang, Figovsky Oleg

Thursday, October 6, 16:00 - 16:30, Room : Magnolia

Keynote Paper : **Functional Materials Converted from Nature Templates**

Di Zhang, Jiajun Gu, Huilan Su, Tongxiang Fan, Shemin Zhu, Wang Zhang, Qinlei Liu, Han Zhou (Shanghai JiaoTong University)

Thursday, October 6, 16:30 - 17:10, Room : Magnolia

B3-1 Study of Removal Mechanism through Polyester Degradation for the Application of Cu Recycling

Md. Mominul Haque, Hyungsub Kim, Man-Sik Kong, Seungjun Lee, Caroline Sunyong Lee (Hanyang University)

B3-2 Demagnification Design of Electron Optics in SEM

Sun-Jong Lim, Ji-Yeon Choi (KIMM)

Thursday, October 6, 17:10 - 17:40, Room : Magnolia

Keynote Paper : Green Nanotechnologies

O. Figovsky (International Nanotechnology Research Center)

Session C3 - Green machine tool

Chairs : Sang-Kee Min, Mitsutaka Matsumoto

Thursday, October 6, 16:00 - 16:30, Room : Calamus

Keynote Paper : Development of Energy Consumption Monitoring Procedure for the Machine Tools

T. Behrendt, A. Zein, C. Herrmann (Braunschweig University of Technology), S. Min (DTL Corporation), D. Dornfeld (University of California)

Thursday, October 6, 16:30 - 17:50, Room : Calamus

C3-1 Green Alternative Processing Technology for A Spring Guide Pin of Stamping Die Set

M. S. Jeong, S. K. Lee, J. H. Sung, K. W. Lee, K. E. Kim, S. K. Choi, T. H. Choi (KITECH)

C3-2 The Effect of Ca Additions on the Mechanical Properties of Mg-Al-Sn Alloys

Young-Min Kim, Young-Cheol Lee (KITECH), Yong-Ho Park (Pusan National University)

Oral session

C3-3 Investigation of Particle Adhesion Force for Green Nanotechnology in Post-CMP Cleaning

Woon-ki Shin, Joon-ho An, Hae-do Jeong (Pusan National University)

C3-4 Product End-of-Life Strategies to Promote Material Resource Circulations: From Case Studies of Product Reuse and Remanufacturing Businesses in Japan

Mitsutaka Matsumoto (AIST)

Thursday, October 6, 18:30 - 18:50, Room : Mugunghwa Hall

Keynote Paper : Development of Highly Productive Manufacturing Equipments for CIGS Thin Film Solar Cell

Heui-Jae Park (Seoul National University & SNU Precision)

Session A4 - Energy savings in manufacturing processes III

Chairs : Doo-Man Chun, Yong-Joo Cho

Friday, October 7, 09:30 - 10:50, Room : Water Lily

A4-1 Ultrashort Pulse Laser Dicing Process for LED Sapphire Wafers

Dong-Sig Shin, Jung Suh, Yong-Kwon Cho, Sang-kyu Choi (KIMM)

A4-2 Micromachining Glasses Utilizing Ultrashort Pulse Lasers

Ji-Yeon Choi, Sung-Hak Cho, Jung-Suh, Jae-Hoon Lee (KIMM)

A4-3 Research about the Simulation-Based Optimization of Manufacturing Process Considering Environmental Factors in the PCB Industry

Seok-Jae Jung (Gwangwoon University), Hyun-Je Jo, Gyu-Bong Lee, Yong-Ju Cho (KITECH)

A4-4 Parallel Disassembly by Atomic Theory for Dismantling End-of-Life Products

Shana Smith, Pei-Yu Hong (National Taiwan University)

A4-5 Nano-Particle Deposition System (NPDS) : Low Energy Solvent-Free Dry Spray Process for Metal and Ceramic Thin Films

Doo-Man Chun (Kyoto University, University of Ulsan), Jung-Oh Choi (Seoul National University), Caroline Sunyong Lee (Hanyang University), Isaku Kanno, Hidetoshi Kotera (Kyoto University), Sung-Hoon Ahn (Seoul National University)

Session B4 - Development and applications of eco-friendly nano materials

Chairs : Hak-Sung Kim, Yong-bing Li

Friday, October 7, 09:30 - 11:10, Room : Mugunghwa hall

B4-1 Deposition of PEDOT: PSS on ITO Substrates by Electrohydrodynamic Atomization

Navaneethan Duraisamy, Nauman Malik Muhammad, Mustafa Maria (Jeju National University), Dong-Soo Kim, Kyung-Hyun Choi (KIMM)

B4-2 Synthesis, Structural Characterization and Functionalization of the Coated of Iron Oxide Nanoparticles

Oybek Tursunkulov, Bunyod Allabergenov, Soo-Jeong Jo, Soon-Wook Jeong, Sung-Jin Kim (Kumoh National Institute of Technology)

B4-3 Biosynthesis of Precious Metal Nanoparticles Using Plant Extract, and Their Applications

Mohd Sayeed Akhtar, Yeoung-Sang Yun (Chonbuk National University)

B4-4 Research on Microstructure and High-Temperature Creep Mechanism of Mg-9Gd-4Y-0.5Zr Magnesium Alloy

Yong-bing Li (China Academy of Machinery Science & Technology), Hong-Guang Yang, Hong-Zhi Cui (Shandong University of Science and Technology), Yun-Bo Chen (China Academy of Machinery Science & Technology)

B4-5 Topological Interlocking : A Promising Principle for Design of Materials and Structures

Yuri Estrin (Monash University)

Oral session

Session C4 - Electro-chemical manufacturing processes

Chairs : Bo Hyun Kim, Min-Soo Park

Friday, October 7, 09:30 - 11:10, Room : Calamus

- C4-1 Improvement of ECM Machining Characteristics by Applying Ultrasonic Vibration**
Wataru Natsu, Hisashi Nakayama (Tokyo university of agriculture and Technology), Zuyuan Yu (Dalian University of Technology)

- C4-2 Study on Turning Characteristics of Tungsten Carbide Alloy with Electrolyte Jet**
Tomonori Ota, Naoki Shibuya, Wataru Natsu (Tokyo university of agriculture and Technology)

- C4-3 Research on ECM Conditions for Micro-pin Fabrication of Tungsten Carbide Alloy**
Naoki Shibuya, Yukihiro Ito, Wataru Natsu (Tokyo university of agriculture and Technology)

- C4-4 Micro Electro Discharge Machining of Polymer-Carbon Nanotube Composites**
Yi Wan, Dave Kim (Washington State University), Young-Bin Park (UNIST)

Session D4 - Green robotics

Chairs : Yeon-June Kang, Kyu-Jin Cho

Friday, October 7, 09:30 - 11:10, Room : Magnolia

- D4-1 Development of Energy Efficient Turtle-like Swimming Robot with Smart Soft-morphing Structure**
Hyung-Jung Kim, Sung-Hyuk Song, Sung-Hoon Ahn (Seoul National University)

- D4-2 An Efficient Strategy to Enhance Longitudinal Flight Stability of Ornithopters**
Joong-Kwan Kim, Jun-Seong Lee, Jae-Hung Han (KAIST)

D4-3 Energy Saving by Using Redundant Parallel Manipulators

Sun H. Kim, Jay I. Jeong, Jongwon Kim (Seoul National University)

D4-4 Design and Installation of Floating Type Photovoltaic Energy Generation System Using FRP Members

Young-Geun Lee, Jin-Woo Choi, Hyung-Joong Joo, Jeong-Hun Nam, Soon-Jong Yoon (Hongik University)

Chair : Gyu-Bong Lee

Friday, October 7, 11:20 - 12:00, : Mugunghwa hall

Plenary III : Towards Symbiotic Machining Processes

Ichiro Inasaki (Chubu University)

Poster Presentation

Chairs : Jong-Baeg Kim, Hyon-Kee Sohn, Young-Sun Hong, Woo-Sok Chang and Doo-Man Chun

Friday, October 7, 13:10 - 14:30, Lobby

Oral session

Session A5 - Energy savings in manufacturing processes IV

Chair : You-Jin Park, Gyu-Bong Lee

Friday, October 7, 14:50 - 15:20, Room : Water Lily

Keynote Paper : **Establishing Greener Products and Manufacturing Processes**

Barbara Linke, David Dornfeld, Yu-Chu Huang (University of California)

Friday, October 7, 15:20 - 16:40, Room : Water Lily

A5-1 An Application of Life Cycle Assessment (LCA) to Manufacturing Environments

Byung-Il Yun, Myung-Su Kim, Hyo-Won Suh (KAIST)

A5-2 Auto-Configuration for Evaluation of Energy Efficiency and Other Factors of Environmental Influence of Manufacturing System

Suk-Keun Cha (ACS Co. Ltd.), Gyu-Bong Lee (KITECH), Han-Gyu Kim (SMIC Co. Ltd.)

A5-3 A Study on the In-line Induction Heating Process for Forging in Terms of Saving Operating Energy

*Berend Denkena (Leibniz University of Hannover), Xuan-Phuong Dang (University of Ulsan),
Jan Henjes, I. Lüken (Leibniz University of Hannover), Gyu-Bong Lee (KITECH), Hong-Seok Park (University of Ulsan)*

A5-4 Development of a Heuristic Approach to Minimization of Energy Consumption in Inner Layer Scrubbing Process in PCB Manufacturing

You-Jin Park (Chung Ang University)

Session B5 - Green composites

Chairs : Byung-Sun Kim, Hyun-Joong Kim

Friday, October 7, 14:50 - 15:20, Room : Mugunghwa hall

Keynote Paper : **Effect of Atmospheric Plasma Polymerization for Natural Fibers**

Byung-Sun Kim, Jin-Woo Yi, Ji-Sang Park (KIMS)

Friday, October 7, 15:20 - 17:00, Room : Mugunghwa hall

B5-1 Bio-Composites from Natural Resource: Application to Automotive Interior Parts

Hyun-Joong Kim, Byoung-Ho Lee (Seoul National University)

B5-2 Effect of Diameters and Chemical Treatment on the Mechanical Properties and Structure of Date Palm Fiber Reinforced Epoxy Composite

A. Abdalla (South Valley University), NPG. Suardana, Do-Yeon Jung, Kwang-Seog Choi, Jae-Kyoo Lim (Chonbuk National University)

B5-3 Effect of Maleic Anhydride and Zein Coupling Agents on Physical Properties of Wood/Poly(lactic Acid) Composites

Denni Kurniawan (Dongguk University), Jong-Rok Ha, Byung-Sun Kim (KIMS), Dae-Young Kim, Ho-Yong Lee, Joong-Yeon Lim (Dongguk University)

B5-4 Effect of Chemical Retardant Treatment on Physico-mechanical Properties of Jute Fiber Reinforced MAgPP Green Composites

Sweety Shahinur, Mahbub Hasan, Qumrul Ahsan (Bangladesh Jute Research Institute)

B5-5 Fabrication of Cellulose Nanoparticle Based Composites with Hydrophobic Polymers

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

Oral session

Session C5 - Design and manufacturing of sustainable products

Chairs : Saman K. Halgamuge, Chih-Hsing Chu

Friday, October 7, 14:50 - 15:20, Room : Magnolia

Keynote Paper : **An Online Numerical Index for Environmental Performance Evaluation of Industrial Processes**
Saman K. Halgamuge, Samaneh Schrokravi, Andres Munoz, Suhi Maheswararajah, Colin Burvill, Alan Smith (University of Melbourne)

Friday, October 7, 15:20 - 17:00, Room : Magnolia

C5-1 Modulating Flow Cascade Heat Recovery for Improved CCHP Performance with Minimum Exergy Destruction
Saliya Jayasekara, Jayantha Siriwardena, Saman Halgamuge (University of Melbourne)

C5-2 A Decision Aid Tool for Enterprise Oriented Sustainability Metrics
Ming-Chuan Chiu, Jordan Shelton, Gül Okudan (The Pennsylvania State University)

C5-3 Simulation-based Analysis for Sustainability of Manufacturing System
Ju-Yeon Lee, Hyoung-Seok Kang, Chan-Mo Jun, Hye-Yun Lee, Sang-Do Noh (SungKyunKwan University)

C5-4 A Study of Ecological Drilling and Tapping
Yoshihiko Murakami, Mitsuyoshi Nomura, Takayuki Sibata, Masami Masuda, Osamu Horiuchi (Toyohashi University of Technology)

C5-5 Solar Generating System Installation and a Study on the Efficiency Monitoring in High Altitude Village in Nepal
Ramesh Maskey (Kathmandu University), Binayak Bhandari, Gil-Yong Lee, Kyung-Tae Lee, Hae-Sung Yoon, Dong-Hyun Kim, Sung-Hyuk Song, Jong-Seol Moon, Sung-In Kim, Yoon-Ho Kim, Hak-Chan Kim, Sun-Kyung Yu, Won-Jong Eun, Hye-Seung Jeong, Sung-Hoon Ahn (Seoul National university)

Session D5 - Design and manufacturing of wind power systems

Chairs : Byung-Young Moon, Joon-Hyung Shim

Friday, October 7, 14:50 - 17:00, Room : Calamus

- D5-1 A Study on Dynamic Analysis of Hybrid Wind Power Composite Blades according to Stacking Properties Method**
Byong-Yun Kang (Doha Industry Co. Ltd.), Jeong-Young Han, Cheol-Hyun Hong (Pusan National University), Byong-Young Moon (Kunsan National University)
- D5-2 Economical and Environmental Analysis of a Wind-Hybrid Power System with Desalination in Hong-do, South Korea**
Ki-Ho Bae, Joon-Hyung Shim (Korea University)
- D5-3 Development and Field Testing of Control and Monitoring System for Wave Energy Converters**
Shin-Yeol Park, Byung-Hak Cho, Dong-Soon Yang, Kyung-Shik Choi (Korea Electric Power Research Institute)
- D5-4 Structural Analysis and Safety Design of Composite Wind Turbine Blades considering Static Loads**
Balakumaran Natarajan, Jae-Hwan Lee, Sang-Joon Shin (Seoul National University)
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