

# ISGMA 2013

International Symposium on  
Green Manufacturing and Applications



June 25 (Tue) - 29 (Sat), 2013

Sheraton Waikiki Hotel, Honolulu, Hawaii, USA

# ISGMA 2013

International Symposium on  
Green Manufacturing and Applications

The Korean Society for Precision Engineering (KSPE)  
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)

## *Contents*

---

Welcome Address	1
Organizer	2
Committee	3
Plenary/Keynote/Invited Speaker	6
Program at a Glance	9
Tutorial	12
Program - Oral Session	13
Program - Poster Session	23
Venue	31
Registration/Award/Journal	32
Conference Information	33
Guide	34
Restaurant	35
Plenary Lecture	37
Keynote Speech	38
Oral Session (detail)	40
Poster Session (detail)	69
Authors Index	102

# Welcome Address

## Welcome Address

---

Aloha!!!

On behalf of the organizing committee, sponsors, and contributors of the 2013 International Symposium on Green Manufacturing and Application (ISGMA 2013), it is a great honor and privilege to welcome everyone to Honolulu, Hawaii, USA - the Paradise of the Pacific!

For ISGMA 2013, we received a record 720 technical papers and posters, have accepted 520, and expect to host nearly 600 participants representing 17 countries and nationalities! This year, 27 distinguished plenary, keynote, and invited speakers from internationally reputed institutes will aim to present the state-of-the-art research, development, and innovative advances and its related issues to our ever changing environment. We hope this will foster relevant discussions in the various fields of green manufacturing and applications as related to energy conservation, system efficiency, pollution and waste reduction, eco-friendly materials, renewable energy systems, and environment management in factories, robotics, and processes. Approximately 520 technical papers and posters will be presented in four parallel technical sessions and two poster sessions, respectively. We look forward to your interest and attendance!

Once again, we would like to express our sincere appreciation to all our sponsors and our advisory, technical, and organizing committees. All of the initial organization and modifications would not have been possible without each members participation, dedication, and effort in preparing for the incredible increase in participants this year!

We wish each of you an interesting, informative, and exciting experience at ISGMA 2013 as well as an enjoyable and relaxing experience in Honolulu, Hawaii - the Paradise of the Pacific!

Aloha a me Mahalo Nui Loa,



*Eung-Sug Lee*

*Song K. Choi*

**Dr. Eung-Sug Lee and Prof. Song K. Choi**

Chairs of ISGMA 2013

## Organizer

### Organized by



Korean Society for  
Precision Engineering (KSPE)



University of Hawaii at  
Manoa (USA)



Seoul National University (SNU)  
Institute of Advanced Machinery and Design



Manufacturing Institute for  
Research on Advanced Initiatives  
(Pan-Pacific MIRAI, Japan)



Korean Institute of Industrial Technology (KITECH)

### Co-organized by



State Key laboratory of advanced  
Forming Technology & Equipment (China)



State Key Laboratory of  
Metal Matrix Composite (China)



Korea Institute of  
Machinery & Materials (KIMM)



Inha University  
Creative Research Center for EAPap Actuator



Gyeongsang National University (GNU)  
Advanced Mechanical & Aerospace Eng.  
Education Program



Korea Institute of  
Carbon Convergence Technology



Changwon National University



Korea Institute of Materials Science (KIMS)



University Industrial Technology Force  
(UNITEF)



University of Ulsan



Seoul National University (SNU)  
Multi-scale Robotics Lab. (Korea)



Scientists and Engineers  
Without Borders



Seoul National University (SNU)  
Nano Printing Lab. (Korea)



The Korean Society for Composite Materials



Global Frontier Center for Multiscale  
Energy System

# Committee

## Honorary Chair

Chong Nam Chu, SNU (Korea)

## Conference Chairs

Eung-Sug Lee, KIMM (Korea)

Song K. Choi, Univ. of Hawaii at Manoa (USA)

## Co-Chairs

Sung-Hoon Ahn, SNU (Korea)

David Dornfeld, UC Berkeley (USA)

Ichiro Inasaki, Chubu Univ. (Japan)

Jong-Won Kim, SNU (Korea)

Gyu-Bong Lee, KITECH (Korea)

Friedrich B. Prinz, Stanford Univ. (USA)

## Advisory Committee

### Chairs :

Hon-Zong Choi, KITECH (Korea)

Sun-Kyu Lee, GIST (Korea)

### Members :

Jung-Hwan Ahn, Pusan Nat. Univ. (Korea)

Hyeong-Joon Ahn, Soongsil Univ. (Korea)

Yusuf Altintas, British Columbia Univ. (Canada)

Tojiro Aoyama, Keio Univ. (Japan)

Joong-Myeon Bae, KAIST (Korea)

Myung-whan Bae, Gyeongsang Nat. Univ. (Korea)

Paulo Bartolo, IPL (Portugal)

Christian Brecher, RWTH Aachen (Germany)

Jian Cao, Northwestern Univ. (USA)

Soo-Won Chae, Korea Univ. (Korea)

Hyuk Chang, Samsung Electronics (Korea)

Minho Chang, Korea Univ. (Korea)

Woo-Sok Chang, LG Electronics (Korea)

Dong-Woo Cho, POSTECH (Korea)

Maenghyo Cho, SNU (Korea)

Sung-Hoon Choa, SNUST (Korea)

Doosun Choi, KIMM (Korea)

Hon-Zong Choi, KITECH (Korea)

Mansoo Choi, SNU (Korea)

Sang Kyu Choi, KIMM (Korea)

Tae-hoon Choi, KITECH (Korea)

Young Choi, Chung-Ang Univ. (Korea)

Young jae Choi, KIMM (Korea)

Chih-Hsing Chu, Nat. TsingHua Univ. (Taiwan)

Jonathan Colton, Georgia Tech. (USA)

Fengzhou Fang, Tianjin Univ. (China)

Makoto Fujishima, Mori Seiki Co., Ltd. (Japan)

Jong-Seong Gim, Oerlikon Balzers Coating (Korea)

Young-Sam Ham, Korea Railroad Research Institute (Korea)

Chang-Soo Han, Hanyang Univ. (Korea)

Myung-Keun Han, KITECH (Korea)

Daehie Hong, Korea Univ. (Korea)

Jung-Hwa Hong, Korea Univ. (Korea)

Seong-Wook Hong, Kumoh Nat. Inst. Technology

Hae-Do Jeong, Pusan Nat. Univ. (Korea)

Sanghwa Jeong, Chosun Univ. (Korea)

Kazutoshi Katahira, RIKEN (Japan)

Shinill Kang, Yonsei Univ. (Korea)

Kyung-Tae Kang, KITECH (Korea)

Yeon June Kang, SNU (Korea)

Dae-Im Kang, KRISS (Korea)

## Committee

**Advisory Committee (continued)****Members :**

- Chang-Doo Kee, Chonnam Nat. Univ. (Korea)  
 Byeong-Hee Kim, Kangwon Nat. Univ. (Korea)  
 Byung Sun Kim, KIMS (Korea)  
 Dae-Eun Kim, Yonsei Univ. (Korea)  
 Dong-Soo Kim, Hanbat Univ. (Korea)  
 Dong Sung Kim, POSTECH (Korea)  
 Dong-Wook Kim, Chonbuk Nat. Univ. (Korea)  
 Gab-Soon Kim, Gyeongsang Nat. Univ. (Korea)  
 Gyu Man Kim, Kyungpook Nat. Univ. (Korea)  
 Jae Hwan Kim, Inha Univ. (Korea)  
 Jae Wan Kim, KRISS (Korea)  
 Jung Kim, KAIST (Korea)  
 Koug-Suk Kim, Chosun Univ. (Korea)  
 Sun-Ho Kim, Dongeui Univ. (Korea)  
 Seung-Woo Kim, KAIST (Korea)  
 Tae-Hyung Kim, Doosan Infracore (Korea)  
 Wan-Doo Kim, KIMM (Korea)  
 Sung-Lim Ko, Konkuk Univ. (Korea)  
 Tae-Jo Ko, Yeungnam Univ. (Korea)  
 Patrick Kwon, Michigan State Univ. (USA)  
 Chan-Hong Lee, KIMM (Korea)  
 Choon-Man Lee, Changwon Nat. Univ. (Korea)  
 Deug-Woo Lee, Pusan Nat. Univ. (Korea)  
 Dong-Weon Lee, Chonnam National Univ. (Korea)  
 Eung-Sug Lee, KIMM (Korea)  
 Jae Jong Lee, KIMM (Korea)  
 Kun-Woo Lee, SNU (Korea)  
 Kyehan Rhee, Myongji Univ. (Korea)  
 Sang Won Lee, Sungkyunkwan Univ. (Korea)  
 Seok-Woo Lee, KITECH (Korea)  
 Seung-Soo Lee, Konkuk Univ. (Korea)  
 Sung-Jae Lee, Inje Univ. (Korea)  
 Sung-Hwan Lee, Hanyang Univ. (Korea)  
 Sun-Kyu Lee, GIST (Korea)  
 Suk Lee, Pusan Nat. Univ. (Korea)  
 Aiping Li, Shanghai Jiao Tong Univ. (China)  
 Fei Liu, Chongqing Univ. (China)  
 Zhifeng Liu, Hefei Univ. of Tech. (China)  
 Amar K. Mohanty, University of Guelph (Canada)  
 Masahiko Mori, Mori Seiki Co., Ltd. (Japan)  
 Toshimichi Moriwaki, Kobe University (Japan)  
 Shreyes N. Melkote, Georgia Tech. (USA)  
 Hitoshi Ohmori, RIKEN (Japan)  
 Joao F. G. Oliveira, Sao Paulo Univ. (Brazil)  
 Heui-Jae Pakh, SNU Precision (Korea)  
 Chun-Hong Park, KIMM (Korea)  
 Hee-Chul Park, Korea Machine Tool  
 Manufacturers' Association (Korea)  
 Hong-Seok Park, Univ. of Ulsan (Korea)  
 Ji-Hyung Park, KIST (Korea)  
 Jun hong Park, Hanyang Univ. (Korea)  
 Simon S. Park, Univ. of Calgary (Canada)  
 Sung Kee Park, KIST (Korea)  
 Yong-Il Park, KIT (Korea)  
 Kem Robinson, UC Berkeley (USA)  
 Ciro A. Rodriguez, Tecnologico De Monterrey  
 (Mexico)  
 David Rosen, Georgia Tech. (USA)  
 Shad Roundy, Eco Harvester (USA)  
 Gunther Seliger, Technical University of Berlin  
 (Germany)  
 Zhongde Shan, China Academy of Machinery  
 Science & Tech. (China)  
 Chang Kyu Song, KIMM (Korea)  
 Chul-Ki Song, Gyeongsang Nat. Univ. (Korea)  
 Jun-Yeob Song, KIMM (Korea)  
 V. Sundararajan, UC Riverside (USA)  
 T. Wakabayashi, Kagawa Univ. (Japan)  
 Chengtao Wang, Shanghai Jiao Tong Univ.  
 (China)  
 Duck-Hyun Wang, Kyungnam Univ. (Korea)  
 Kyung-Hyun Whang, KIMM (Korea)  
 Jong-Ho Won, Chungnam Nat. Univ. (Korea)  
 Si-Si Tae Won, SNUST (Korea)  
 Paul K. Wright, UC Berkeley (USA)  
 Kazuo Yamazaki, UC Davis (USA)  
 Yasuhiro Yamazaki, Denso Corporation (Japan)  
 Gyun-Eui Yang, Chonbuk Nat. Univ. (Korea)  
 Seung-Han Yang, Kyungpook Nat. Univ. (Korea)  
 Sung-Mo Yang, Chonbuk Nat. Univ. (Korea)  
 Won Yi, Soongsil Univ. (Korea)  
 Hwa-Cho Yi, Yeungnam Univ. (Korea)  
 Yeong-Eun Yoo, KIMM. (Korea)  
 Di Zhang, Shanghai Jiao Tong Univ. (China)

# Committee

## Technical Committee

### Chairs :

Myung-whan Bae, Gyeongsang Nat. Univ. (Korea)  
 Sang Kyu Choi, KIMM (Korea)  
 Sin-Jae Gang, Jeonju Institute of Machinery and Carbon  
 Composites (Korea)  
 Byung-Sun Hwang, KIMS (Korea)  
 Sang-Hwa Jeong, Chosun Univ. (Korea)  
 Byung-Sun Kim, KIMS (Korea)  
 Jaehwan Kim, Inha Univ. (Korea)  
 Choon-Man Lee, Changwon Nat. Univ. (Korea)  
 Zhongde Shan, China Academy of Machinery Science  
 & Technology (China)  
 Di Zhang, Shanghai Jiao Tong Univ. (China)

### Members :

Dong-Gyu Ahn, Chosun Univ. (Korea)  
 Joon-Hyung Byun, KIMS (Korea)  
 Eun-Chae Jeon, KIMM (Korea)  
 Gi-Woo Kim, Kyungpook Nat. Univ. (Korea)  
 Si Wook Kim, Chosun Univ. (Korea)  
 Minjae Ko, KITECH (Korea)  
 Seong Beom Lee, Inje Univ. (Korea)  
 Hyuneui Lim, KIMM (Korea)  
 Young-Bin Park, UNIST (Korea)  
 Sung-Ki Ryu, Gyeongsang Nat. Univ. (Korea)  
 Dongsig Shin, KIMM (Korea)  
 Jung Il Song, Changwon Nat. Univ. (Korea)  
 Pei-Chen Su, Nanyang Tech. Univ. (Singapore)  
 Jeong-Se Suh, Gyeongsang Nat. Univ. (Korea)  
 Moon-Kwang Um, KIMS (Korea)

## Organizing Committee

### Chair :

Young Choi, Chung-Ang Univ. (Korea)

### Members :

Byung-Ki Ahn (Hyundai-Kia Motors)  
 Dong-Gyu Ahn (Chosun Univ.)  
 Seok-Geun Cha (ACS Inc.)  
 Suk-Won Cha (SNU)  
 Seung-Hwan Chang (Chung-Ang Univ.)  
 Kyu Jin Cho (SNU)

Yong-Joo Cho (KITECH)  
 Sungwon Choi (Samsung Semiconductor)  
 Won-Shik Chu (SNU)  
 Doo-Man Chun (Univ. of Ulsan)  
 Young-Sun Hong (Samsung Heavy  
 Industries)  
 Jay-I. Jeong (Kookmin Univ.)  
 Tae-Sung Jung (Inha Tech. College)  
 Yeon June Kang (SNU)  
 Sang-Kyun Kang (Samsung Electronics)  
 Varsha Khare (SNU)  
 Beom-Keun Kim (Inje Univ.)  
 Bo Hyun Kim (Soongsil Univ.)  
 Chung-Soo Kim (SNU)  
 Dong Rip Kim (Hanyang Univ.)  
 Hak-Sung Kim (Hanyang Univ.)  
 Hyung-Jung Kim (Doosan Infracore)  
 Jong-Baeg Kim (Yonsei Univ.)  
 Min-Saeng Kim (ROKAF)  
 Woo-Chul Kim (Yonsei Univ.)  
 Young Beom Kim (Hanyang Univ.)  
 Kee-Won Kwon (SKKU)  
 C. S. Lee (Hanyang Univ.)  
 Dong-Yoon Lee (KITECH)  
 Dong-Jun Lee (SNU)  
 Jae-Wook Lee (LG Electronics)  
 Byung-Kwon Min, Yonsei Univ. (Korea)  
 Jitendra K. Pandey (SNU)  
 Min-Soo Park (SNUST)  
 Young-Bin Park (UNIST)  
 Rajendra C. Pawa (Hanyang Univ.)  
 Won-Hyoung Ryu (Yonsei Univ.)  
 Jung-Min Seo (KIMM)  
 Joon-Hyung Shim (Korea Univ.)  
 Hyon-Kee Sohn (KIMM)  
 Sanjiv Sonkaria (SNU)  
 Kahp-Yang Suh (SNU)  
 Eun-Sik Yoon (Korea Industrial Complex  
 Crop.)  
 Byeng-Dong Youn (SNU)

## Secretary General

Suk-Won Cha, SNU (Korea)



# Speaker

# Speaker

## Plenary Speaker

---



**David Dornfeld**  
*UC Berkeley (USA)*

### ***‘Moving Towards Green and Sustainable Manufacturing’***

David Dornfeld received his B.S., M.S. and Ph.D. degrees in Mechanical Engineering from the University of Wisconsin-Madison in 1976 in the area of Production Engineering. His Ph.D. thesis concerned the study of the fundamentals of abrasive machining. He joined the faculty of the University of California at Berkeley in the Mechanical Engineering Department in 1977 and is presently Professor of Manufacturing Engineering. Since July 1, 1999 he holds the first Will C. Hall Family Chair in Engineering. He currently serves as the Chair of the Mechanical Engineering Department. He served as Associate Dean for Interdisciplinary Studies in the College of Engineering. He holds an appointment as Special Division Deputy, Engineering Division, Ernst Orlando Lawrence Berkeley National Laboratory. He is past-Director of the Engineering Systems Research Center in the College of Engineering. In 1982 and 1992 he was Directeur de Recherche Associe, Ecole Nationale Superieure des Mines de Paris, Paris and Invited Professor, Ecole Nationale Superieure d'Arts et Metiers- ENSAM, Paris, respectively.

# David

# Dornfeld

## Speaker

## Keynote Speakers



**Jonathan Colton**  
*Georgia Tech (USA)*  
 Net Zero Energy Vaccine Warehousing  
 Systems for Developing and Transitional  
 Countries



**Thomas Hahn**  
*UCLA (USA) /SNU (Korea)*  
 Electrolytic Oxyhydrogen (EOH) Gas for  
 Green Thermal Processing



**Kenneth David Kihm**  
*Univ. of Tennessee (USA)*  
 Thermoelectric Energy  
 Conversion by Graphene Layers



**Woo Il Lee**  
*SNU (Korea)*  
 Processing of Biodegradable  
 Thermoplastic Composite  
 Reinforced with Long Fibers



**Amar K. Mohanty**  
*Univ. of Guelph (Canada)*  
 Green Plastics and Sustainability:  
 Challenges and Opportunities in the  
 Emerging Bioeconomy



**Taghi Tawakoli**  
*Hochschule Furtwangen Univ.*  
*(Germany)*  
 Environmentally Friendly  
 Precision Grinding



**Rajit Gadh**  
*UCLA (USA)*  
 Smart Grid - Integrating  
 Renewables, Electric Vehicles and  
 Micro Grids in the Creation of the  
 Energy Infrastructure of the Future



**Daniel J. Inman**  
*Univ. of Michigan (USA)*  
 Energy Harvesting Applications



**Byung Man Kwak**  
*KAIST (Korea)*  
 A Story of Developing New  
 Technologies from a New Concept  
 of Mobile Harbor for the 21st  
 Century Maritime Logistics



**Shinji Matsui**  
*Univ. of Hyogo (Japan)*  
 Innovative Nanoimprint  
 Lithography



**Friedrich B. Prinz**  
*Stanford Univ. (USA)*  
 Designing and Synthesizing  
 Materials for Energy Conversion



**Dong-Yol Yang**  
*KAIST (Korea)*  
 Light Weight Technology for  
 Green Manufacturing and  
 Environment

## Speaker

### Invited Speakers

---



**Cullen Buie**

*MIT (USA)*  
Electrophoretic Deposition for Environmentally Friendly Superhydrophobic Fabrics



**Byeng-Dong Youn**

*SNU (Korea)*  
Vibration-Based Fault Diagnostics for a Gearbox in Offshore Wind Turbines



**Suk Won Cha**

*SNU (Korea)*  
Fabrication and Characterization of Thin Film Electrolyte and Catalyst for Fuel Cells



**Chi-Hsing Chu**

*Nat. Tsing Hua Univ. (Taiwan)*  
High Precision Tool Path Planning in 5-Axis Flank Machining by Global Optimization



**Jaehwan Kim**

*Inha Univ. (Korea)*  
Flexible Zn<sub>2</sub>Oxide-Cellulose Hybrid Nanocomposite as a Green Smart Material



**Patrick Kwon**

*Michigan State Univ. (USA)*  
Machining Titanium Alloys: Critical Reviews and New Directions



**Choon-Man Lee**

*Changwon Nat. Univ. (Korea)*  
Current Research Trends in Laser Assisted Machining



**Heon Lee**

*Korea Univ. (Korea)*  
Amorphous Si Solarcells on Nano-patterned Substrate



**Manju Misra**

*Univ. of Guelph. (Canada)*  
Novel Green Materials from Lignin: Manufacturing And Applications



**Hitoshi Ohmori**

*RIKEN (Japan)*  
Development of Cubic Fresnel Lens Structure for Solar Heat Collector



**Young-Sun Ryuh**

*Korea Institute of Industrial Technology (Korea)*  
Biomimetic Robotic Fish "Ichthus" for Environmental Surveillance



**Zhongde Shan**

*China Academy of Machinery Science & Technology (China)*  
3D Forming Technology and Equipment Research of Woven Composites



**Di Zhang**

*Shanghai Jiao Tong Univ. (China)*  
Morphology Genetic Materials Template from Nature Species

## Program

## Tuesday 25

16:00~18:00	ISGMA Tutorial (Oahu)
20:30~21:30	ISGMA Steering Committee Meeting (Hy's Steak House)

## Wednesday 26

	Kahuku	Waianae	Honolulu	Kohala/Kona	Maui	Monarch (Royal Hawaiian)
8:00~9:15	PLM	Forming I	Advanced Material I	Automobile/ Electrical Vehicle		
9:15~9:25	Coffee Break					
9:25~9:55	Keynote Speech 1	Keynote Speech 2	Keynote Speech 3			
10:00~11:05	Energy Harvesting	3D Printing/ Additive Manufacturing	Thermal Device	Automobile		
	Invited Talk 1					
11:10~11:30						Opening Ceremony
11:30~12:20						Plenary Speech
12:20~13:10	Lunch					
13:10~13:40	Keynote Speech 4	Keynote Speech 5	Keynote Speech 6			
13:45~15:00	Energy Storage and Conversion	Innovative Process I	Energy Saving in Manufacturing Process	Damage Detection		
15:10~15:30	Invited Talk 2	Invited Talk 3	Invited Talk 4			
15:30~17:00	Fuel Cell/ Bio Fuel	Non-Traditional Manufacturing	Green Composite I			Poster Presentation I (A ~ H)
18:00~20:00						Poster Presentation II (I ~ P)

# Program

## Program

Thursday 27

	Kahuku	Waianae	Honolulu	Kohala/Kona	Monarch (Royal Hawaiian)
8:00~9:30	Recycle	Machining I	Smart Material and Structure	Process Control and Execution I	
9:30~9:40	<b>Coffee Break</b>				
9:40~10:10	Keynote Speech 7	Keynote Speech 8	Keynote Speech 9		
10:15~11:15	Zero Energy Building and Factory	Innovative Process II	Advanced Material II	Process Control and Execution II	
11:15~13:00	<b>Lunch</b>				
13:00~13:20	Invited Talk 5	Invited Talk 6	Invited Talk 7		
13:20~14:50	Wind Energy	Machining II	Advanced Material III	Design and Optimization	
15:00~15:20	Invited Talk 8	Invited Talk 9	Invited Talk 10		
15:20~16:50	Solar Energy	Machinery	Metal Matrix Composite	Forming II	
18:00~21:00					Banquet

## Program

## Friday 28

	Kahuku	Waianae	Honolulu	Kohala/Kona	Monarch (Royal Hawaiian)
8:00~9:30	Robot/ Robotics	Forming III	LCA/EIA/ Cleaning	Joining	
9:30~9:50	Invited Talk 11	Invited Talk 12	Invited Talk 13		
9:50~10:00	<b>Coffee Break</b>				
10:00~10:30	Keynote Speech 10	Keynote Speech 11	Keynote Speech 12		
10:35~11:50	Electric Power	Medical Device/ QoLT	Green Composite II	Advanced Materials IV	
12:00~15:00	Industrial/Technical Tour I - Univ. of Hawaii, Manoa				

## Saturday 29

10:00~12:00	Industrial/Technical Tour II - (TBA)				
-------------	--------------------------------------	--	--	--	--

Tuesday 25

## ISGMA Tutorial (Honolulu)

16:00~18:00

T-1 On Machining Features from Process Planning Point of View (Mujin Kang)

T-2 Recycling and Eco-design (Hwa-Cho Yi)

T-3 Green Machining (Patrick Kwon)

T-4 Vibration in Automobiles (Dong Pyo Hong)

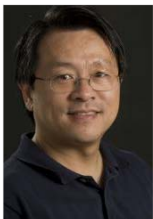
\* Extra registration fee for tutorial should be pre-paid by June 1, 2013



**Mujin Kang**  
Sungkyunkwan University



**Hwa-Cho Yi**  
Yeungnam University



**Patrick Kwon**  
Michigan State University



**Dong Pyo Hong**  
Chonbuk National University

## Oral Session

Wednesday 26

	Session A-1 (Kahuku)	Session B-1 (Waianae)	Session C-1 (Honolulu)	Session D-1 (Kohala/Kona)
	<b>PLM</b>	<b>Forming I</b>	<b>Advanced Material I</b>	<b>Automobile/ Electrical Vehicle</b>
8:00~9:15	<i>Chairs</i> Panos Prevadouras, Dong-Ho Lee	<i>Chairs</i> Tae-Wan Ku, Hitoshi Ohmori	<i>Chairs</i> Seung-Hwan Chang, Hak-Sung Kim	<i>Chairs</i> Kwangsuck Boo, Jay I. Jeong
	Integration of PLM Information Model and Energy Simulation for Green Manufacturing (Wen-Bin Zhao)	Application of Mechanical Trimming to Hot Stamped 22MnB5 Parts for Energy Saving (Hong-Seok Choi )	Modeling Strategies for Triaxial Braided Carbon/Epoxy Composites (Tobias Wehrkamp-Richter)	Evaluation of the Automatic Lane Keeping Control based upon a Perception Action Network(PAN) (Seunghwan Baek)
	Decision Tree Based Real Time Scheduling: A Decision Tree Construction Method (Yong-Ju Kwon)	Prediction of Microstructure Evolution during Hot Forging using Physically Based Dynamic Recrystallization Model (Ho Won Lee )	Carbon Fiber Preparation Study by Solvent-free Thermal Extrusion of Copolymer (Minhye Jung )	Dynamic Modeling and Simulation Study of Shift Mechanism for Dual Clutch Transmission (Kyoung-Hoon Kim)
	Dynamic lot sizing for disassembly and reprocessing in remanufacturing systems (Hyoung Ho Doh)	A Study on Process Replacement for the Outer Race of CV Joints (Tae-Wan Ku)	Carbon Fiber Life-cycle Analysis Issues (Bert Bras)	The Quick Top Pick-up Application to the Smart E-Bus (Yunsik Shin)
	MTConnect Based Real Time Monitoring Framework for FMS Control and Operation (Jae-Yong Baek)	Microstructure and Mechanical Properties of AZ61 Mg Alloy Processed by Half Channel Angular Extrusion (HCAE) (Kyungjin Kim )	Volatilization Properties of Pt-Au-ODS at High Temperature (Sang-Yeon Won)	Stability of Electric Vehicle with Respect to Chassis System (Seong Jong Park)
	A Branch and Bound Algorithm to Minimize the Total Family Tardiness for Job Shop Scheduling with Job Families (Jaemin Yu )	Formability Evaluation of Ferritic Stainless Steel with anisotropic Yield Criteria at Elevated Temperature (Hyuk Jong Bong )	Investigation on Repairable Damage Tolerance for Structural Design of Aircraft Composite Structure (Gwanglim Park )	
9:15~9:25	<b>Coffee Break</b>			



## Oral Session

### Wednesday 26

	<b>Keynote Speech 1 (Kahuku)</b>	<b>Keynote Speech 2 (Waianae)</b>	<b>Keynote Speech 3 (Honolulu)</b>	
	<b>Daniel J. Inman</b>	<b>Dong-Yol Yang</b>	<b>Kenneth D. Kihm</b>	
9:25~9:55	<i>Energy Harvesting Applications</i>  (Chair: Jaehwan Kim)	<i>Light Weight Technology for Green Manufacturing and Environment</i>  (Chair: Doo-Man Chun)	<i>Thermoelectric Energy Conversion by Graphene Layers</i>  (Chair: Woochul Kim)	
	<b>Session A-2 (Kahuku)</b>	<b>Session B-2 (Waianae)</b>	<b>Session C-2 (Honolulu)</b>	<b>Session D-2 (Kohala/Kona)</b>
10:00~11:05	<b>Energy Harvesting</b>	<b>3D Printing/ Additive Manufacturing</b>	<b>Thermal Device</b>	<b>Automobile</b>
	Chairs <i>Cheol Kim, Jaehwan Kim</i>	Chairs <i>Doo-Man Chun, Chung-Soo Kim</i>	Chairs <i>Woochul Kim, Kee Sung Lee</i>	Chairs <i>Myung-Whan Bae, Dong Pyo Hong</i>
	Ocean Surface Wave Lens for Wave Energy Focusing (Donghyup Youn)	Towards Greener Additive Manufacturing (David Roberson)	Optimization for Higher Efficiency of Thermoelectric Devices by Separating Energy Paths (Woochul Kim)	A Study on Robust Estimation of Rear Side Vehicle Recognition on Curved Road by using Rear Side View Vision System (Seunghwan Baek)
	Analysis of Piezoelectric Cantilever Energy Harvester Vibrates in Vortex (Cheol Kim)	Electrical Property of Cu/Ag Nano-composite Circuits Fabricated by Direct Printing Technology (Kwang-Seok Kim)	Thermal Performance of Breathing Wall in Winter Conditions (Zhiqiang John Zhai)	Study on Micro Deformation of Automobile Roof with Mastic Sealer after Oven Process (Jiseop Kim)
	Electromechanically Coupled Analytical Model of Energy Harvesting Skin (Byeng-Dong Youn)	Study of Geometry of Molded Surface Structure on Polydimethylsiloxane (PDMS) for Super-hydrophobic Surface (Doo-Man Chun)	A Study on the Thermal Performance Optimization, according to the Form of Heat Sink (Swl-Gi Kim)	Development of Efficient Deburring Process by Brushing at Window Intersection (Bao Phan Quoc)
	<b>Invited Talk 1</b>			
(10:45-11:05) Invited Speaker	<b>Hitoshi Ohmori</b>  <i>Development of Cubic Fresnel Lens Structure for Solar Heat Collector</i>	Novel Fabrication of Porous Structure via Co-deposition using Nano Particle Deposition System (Hyungsub Kim)	Development of Thermal Gradient Prediction Method for Thermal Barrier Coating (Yongseok Kim)	Sample Sustainability Assessment for Automobiles by Type of Propulsion (Panos Prevadourous)
11:10~11:30	<b>Opening Ceremony (Monarch Room at The Royal Hawaiian) - Eung-Sug Lee and Song K. Choi</b>			
11:30~12:20	<b>Plenary Speech (Monarch Room at The Royal Hawaiian) - David Dornfeld</b> (Chair: Jong Won Kim)			
12:20~13:10	<b>Lunch</b>			

## Oral Session

Wednesday 26

	<b>Keynote Speech 4 (Kahuku)</b>	<b>Keynote Speech 5 (Waianae)</b>	<b>Keynote Speech 6 (Honolulu)</b>	
<b>13:10~13:40</b>	<b>Friedrich B. Prinz</b>	<b>Woo Il Lee</b>	<b>Taghi Tawakoli</b>	
	<i>Designing and Synthesizing Materials for Energy Conversion</i>  (Chair: Suk Won Cha)	<i>Processing of Biodegradable Thermoplastic Composite Reinforced with Long Fibers</i>  (Chair: Scott Miller)	<i>Environmentally Friendly Precision Grinding</i>  (Chair: Gyu-Bong Lee)	
<b>13:45~15:00</b>	<b>Session A-3 (Kahuku)</b>	<b>Session B-3 (Waianae)</b>	<b>Session C-3 (Honolulu)</b>	<b>Session D-3 (Kohala/Kona)</b>
	<b>Energy Storage and Conversion</b>	<b>Innovative Process I</b>	<b>Energy Saving in Manufacturing Processes</b>	<b>Damage Detection</b>
	Chairs <i>Suk Won Cha, Zhiqiang J. Zhai</i>	Chairs <i>Scott Miller, Sang-Chul Jung</i>	Chairs <i>Gyu-Bong Lee, You-Jin Park</i>	Chairs <i>Seung-Han Yang, Young Choi</i>
	Numerical Study of Ice Formation in Ice Thermal Storage System using Thin Layer Ring (Junling Xie)	Microinjection Molding of the Polymeric Micro- cantilevers using a Variotherm Mold (Wook-Bae Kim)	Utilization of Resources for Eco-efficiency by Reducing Environmental Impacts of Unit Processes in PCB Manufacturing (Gyu-Bong Lee)	Multiple Quad-Copter Tracking With Multi- cameras (Longhai Jin)
	Preparation of High C-rate Characteristics of Carbonaceous Anode Material by Liquid Phase Plasma (Kang-Seop Yun)	Study on Multi-stage Deep Drawing Process for Rectangular Cup using Thin Sheet Material of SUS439 (Ji-Woo Park)	Optimization of Energy- related Measures in Dry Process of PCB Manufacturing (You-Jin Park)	Edge Detection and Three Dimensional Volume Reconstruction of Objects using Multiple X-ray Images (Sang Chul Hwang)
	Supercritical CO <sub>2</sub> Foam Stabilization for Enhanced Oil Recovery using Nanoparticles from Industrial By-products (Daeyang Lee)	Fabrication of Functionally Graded Materials using Biodegradable Polymer by Laser Material Processing (Pil-Ho Lee)	A Study on Combinatorial Dispatching Decision of Hybrid Flow Shop: Application to Printed Circuit Board Process (Sungwook Yoon)	Detection of Mechanical Damage in Fruits using Infrared Thermography Techniques (Ghiseok Kim)
	Numerical and Experimental Studies on the Performance of Wave Energy Converting System (Sungwon Shin)	Mechanical Behavior on a New Low Cost Manufacturing Process of Carbon Fiber Composites using Microwave Curing (Minhye Jung)	4M Integration for Energy Management in Manufacturing (Sukkeun Cha)	
	High-effectiveness Low-cost Micro-channel Heat Exchanger: Concept, Prototype and Manufacturing (David C. Denkenberger)	Development of Waste Automatic Sorting System for Climate Protection (Woo Zin Choi)	Life Cycle Assessment of Smart Split Partial Second Pass RO System (Sung-Hyuk Park)	

## Oral Session

Wednesday 26

	Session A-4 (Kahuku)	Session B-4 (Waianae)	Session C-4 (Honolulu)	Poster (Maui)
15:10~17:00	<b>Fuel Cell/Bio Fuel</b>	<b>Non-Traditional Manufacturing</b>	<b>Green Composite I</b>	Poster Session I (A ~ H)
	<i>Chairs Zhengjun Zhang, Young Beom Kim</i>	<i>Chairs Chaon-Man Lee, Cullen Buie</i>	<i>Chairs Hitoshi Takagi, Jung Il Song</i>	
(15:10~15:30) Invited Speaker	<b>Invited Talk 2</b>	<b>Invited Talk 3</b>	<b>Invited Talk 4</b>	
	<b>Suk Won Cha</b>	<b>Chih-Hsing Chu</b>	<b>Jaehwan Kim</b>	
	<i>Fabrication and Characterization of Thin Film Electrolyte and Catalyst for Fuel Cells</i>	<i>High Precision Tool Path Planning in 5-Axis Flank Machining by Global Optimization</i>	<i>Flexible ZnO-cellulose Hybrid Nanocomposite as a Green Smart Material</i>	
	Effects of Carbon Contamination of Yttria-stabilized Zirconia Film by Atomic Layer Deposition (Gu Young Cho)	Dry Electrical Discharge Machining of SS 316 (L. Rony Murickan)	Development of Waste Vegetable based Composites Reinforced by Bamboo Fiber (Teruo Kimura)	
	Thickness Influence of Y-doped BaZrO <sub>3</sub> on Performance of Thin Film Solid Oxide Fuel Cell (Jun Yeol Paek)	Characterizing the Machining Effects of Lateral Electrodes in Electrical Discharge Machining (A-Cheng Wang)	Electrical and Optical Properties of Nano-cellulose and Its Application (Hyun-Joong Kim)	
	Research On Thin Film Single Chamber Solid Oxide Fuel Cells (Yoon Ho Lee)	A study on Fretting and Sliding Wear Improvement of CVT Bearings by Nanoskin Modification (Young Sik Pyun)	Characterization of Cellulose Nanofiber Extracted from Waste Bio-resource (Hitoshi Takagi)	
	Comparison of Performances of Flexible Polymer Electrolyte Fuel Cell Based on PDMS Coated with Sputtered Metal and Ag Nanowires (Taehyun Park)	Preparation of Magnesium Thin Film by Non-aqueous Electrolysis at Room Temperature (Jesik Park)	Effect of Plasticizing Starch/Fiber Processing on the Mechanical Properties of Biomass Cushion Packaging Material (Kaikai Guan)	
	Bio-fuel Cells Composed by using Glucose Oxidase on Chitosan Coated Carbon Fiber Cloth (Hsiharng Yang)	A Simplified Thermal Transition Model for Linear Motion Guides (Yeonggeol Park)	Properties of Treated Abaca Fabric Composite Processed by VARTM (Marissa Paglicawan)	
	The Efficient Production of High Cetane Number Biodiesel from Animal Fats (Ajzargal Janchiv)		Flame Retardancy and Mechanical Properties of Natural Fiber Composites Containing Nanoclay (Jung Il Song)	
18:00~20:00				Poster Session II (I ~ P)

## Oral Session

Thursday 27

	Session A-5 (Kahuku)	Session B-5 (Waianae)	Session C-5 (Honolulu)	Session D-5 (Kohala/Kona)
8:00~9:30	<b>Recycle</b>	<b>Machining I</b>	<b>Smart Material and Structure</b>	<b>Process Control and Execution I</b>
	<i>Chairs</i> Hwa Cho Yi, Teruo Kimura	<i>Chairs</i> Patrick Kwon, Bo Hyun Kim	<i>Chairs</i> Byeng-Dong Youn, Seong Su Kim	<i>Chairs</i> Kwangyeol Ryu, Minseok Song
	Modification of Bitumen Characteristic by using Recycled Polypropylene (Yern Chee Ching)	A Micro Cutter Auto-alignment System with On-machine Positioning Error Measurement and Compensation Methods (Shih-Ming Wang)	Thermal and Mechanical Characteristics of the Micro/Nano-particles Reinforced Phenolic Foams Prepared by Microwave Processing (Seung A Song)	Equipment Supporting Platform to Develop the MES (Seung Woo Lee)
	Recyclability of Fiber Wastes as Reinforcement of Composite Materials (Takayuki Ishise)	Tool Selection Based on Machining Feature and Chatter Vibration in Rough Machining (Cheol Soo Lee)	Effect of Zinc Addition on Fabrication of Lotus-type Porous Copper (Hyeong-Tae Kim)	Simulation-based Analysis for Benefits of MES Implementation in Green Manufacturing (Wen-Bin Zhao)
	Creation of Pet Bottle Recycling Society in Small Scale (Hiroyuki Hamada)	A Study on Ball Endmill Cutting Force for Inclined Surface Angles using CAM (Gi Ho Yoon)	Magnetic Hybrid Colloid Decorated with Ligand-free Ag Nanoparticles as a Potent Antimicrobial Agent (Kyoungja Woo)	Development of Production Scheduler Specialized for Small and Medium Sized Sustainable Manufacturing Company (Moonsoo Shin)
	Verification of the Effect to Reduction of Emission of Carbon Dioxide by using Recycled Materials and Dope-dyeing Method (Takanori Negoro)	Ultrasonic Nanocrystal Surface Modification (UNSM) Effects of Cold Steel Tools (D2) on Tribological and Fatigue Characteristic (Ki Bea Hong)	Electro Active Actuator Based on TEMPO-mediated Oxidized Bacterial Cellulose and Graphene (Si Seup Kim)	Capturing Green Information and Mapping with MES Functions for Increasing Manufacturing Sustainability (Hwaseop Lee)
	Hydration Properties According to the Degree of Crystallinity of LFS cooled by High-pressure Air (Youngjae Bock)	The Development of Module for 5-axis Drilling of Closed Type Impeller (Hwang Jin Son)	A study on the Electromechanical Behavior of Silicone-OMMT Composites as Artificial Muscles (Ji-Hun Bae)	The Use of an Integrated Monitoring System Based on Machine-Status and Process-Status to Enhance Product Quality in c-MES (Yongsik Cho)
	Development of a Safety Helmet MMI with Wireless Communication (Hwa-Cho Yi)	Preliminary Study on the Effect of Spray Slurry Nozzle in CMP for Environmental Sustainability (Haedo Jeong)		Constructing Statistical Process Control System as a Simplified, Price-reduced Web-based System (Young Whun Chang)
	9:30~9:40	Coffee Break		

## Oral Session

Thursday 27

	Keynote Speech 7 (Kahuku)	Keynote Speech 8 (Waianae)	Keynote Speech 9 (Honolulu)	
9:40~10:15	<b>Jonathan Colton</b>	<b>Thomas Hahn</b>	<b>Shinji Matsui</b>	
	<i>Net Zero Energy Vaccine Warehousing Systems for Developing and Transitional Countries</i> (Chair: Jingjing Li)	<i>Electrolytic Oxyhydrogen (EOH) Gas for Green Thermal Processing</i> (Chair: Cullen Buie)	<i>Innovative Nanoimprint Lithography</i> (Chair: Heon Lee)	
10:15~11:15	<b>Session A-6 (Kahuku)</b>	<b>Session B-6 (Waianae)</b>	<b>Session C-6 (Honolulu)</b>	<b>Session D-6 (Kohala/Kona)</b>
	<b>Zero Energy Building and Factory</b>	<b>Innovative Process II</b>	<b>Advanced Material II</b>	<b>Process Control and Execution II</b>
	Chairs <i>Jingjing Li, Suk Won Cha</i>	Chairs <i>Doo-Man Chun, Won-Shik Chu</i>	Chairs <i>Hyun-Joong Kim, Heon Lee</i>	Chairs <i>Seung Woo Lee, Mujin Kang</i>
	Sustainable Warehouses and Industrial Shed Structures After 2012 Earthquake In Northern Italy (Gian Paolo Cimellaro)	Development of Prediction System of Sealing Process Parameters for Obtaining the Desired Shape of Geometry (Youngsin Kim)	Residual Stress Manipulation of R.F. Sputtered ZnO Thin Film with Nano-particle Seed Layer (Tae-Hwan Ahn)	Analysis of Manufacturing Processes with Process Mining in Configurable Manufacturing Execution Systems (Minseok Song)
	Optimization of energy Consumption using Building Energy Performance Analysis and Energy Consumption Measured Values (Seunghye Park)	Enabling of Local Value Creation via Openness for Emergent Synthesis (Steffen Heyer)	Facile Route Toward Mechanically Stable Superhydrophobic Copper Using Oxidation-reduction Induced Morphology Changes (Seung-Mo Lee)	The Study of Data Interface between MES and DES for an Agile Production Planning (Hyunjei Jo)
	The Study of Construction Waste Management System Process Utilizing BIM/GIS for Low-carbon Green Growth (Hyemi Kim)	Water Purification Technique using the Mist Flow Generated by a Rotating Cone (Takahiro Adachi)	TiO <sub>2</sub> Nanotubes Formed by Two-step Anodization for Drug Loading Applications (Hua Li)	Development of Process Planning System for Machining and Assembly (Jae Kwan Kim)
		The Effect of Surface Roughness on the Pressure Drop in a Hydro-thermal Tube of the Pressurized Water Reactors (Gyun-Ho Gim)	Novel Dispersion Method for Carbon Black by Applying the Direct Friction Force (Seung Su Kim)	On Classification of Multi-axis Features Based on Manufacturing Process (Kyung Ha Kim)

## Oral Session

Thursday 27

	Session A-7 (Kahuku)	Session B-7 (Waianae)	Session C-7 (Honolulu)	Session D-7 (Kohala/Kona)
	<b>Wind Energy</b>	<b>Machining II</b>	<b>Advanced Material III</b>	<b>Design and Optimization</b>
13:00~14:50	Chairs Kwang-Hee Im, Ki-Weon Kang	Chairs Dong-Yoon Lee, Jingjing Li	Chairs Jaehwan Kim, Yern Chee Ching	Chairs Baeksuk Chu, Heungseob Kim
	<b>Invited Talk 5</b>	<b>Invited Talk 6</b>	<b>Invited Talk 7</b>	
(13:00-13:20) Invited Speaker	<b>Byeng-Dong Youn</b>	<b>Patrick Kwon</b>	<b>Cullen Buie</b>	First presentation starts at <b>13:20</b>
	<i>Vibration-Based Fault Diagnostics for a Gearbox in Offshore Wind Turbines</i>	<i>Machining Titanium Alloys: Critical Reviews and New Directions</i>	<i>Electrophoretic Deposition for Environmentally Friendly Superhydrophobic Fabrics</i>	
	Health Data Definition for Health Diagnostics of Wind Turbine Gearbox (Jong Moon Ha)	Static Stiffness Analysis of a 5-axis Stage for Electron Beam Finishing (Jongkyu Jeong)	Preparation and Characterization of Copper/Copper Coated Silicon Carbide Composites (Azida Azmi)	Structural Design and Shape Optimization for Folding Head Restraint Module of Rear Folding Seat (Yunsik Yang)
	Light Weight Design of Direct-Drive Generator for Large-Scaled Wind Turbine (Yun Cheol Rho)	Cutting Theory of the Peripheral Edge of Brush Blade, and Test of Its Effectiveness (Hyun-Wook Kwon)	The Effect of Viscosity and Surface Tension of Forming Agents on the Permeability of Foamed Concrete (Jeong Ji Yong)	Design of a High-efficiency Multi-phase Pump using Numerical Optimization Techniques (Joon-Hyung Kim)
	Aerodynamic Design for the Rotor of a Savonius Turbine using CFD (Jong-Hyeon Shin)	Development of the FE Analysis Method to Predict the Burr Formation in the Shearing Process of Zircaloy-4 Sheet (Hyunsoo Jeong)	An Evaluation of the Physical Properties of Bottom ash Discharged from the Dry Process and Its Applicability as Light-weight Aggregate Concrete (Joung-Soo Sun)	Development of Integrated Shop Operation System in Multiple FMC environments with Real-Time Rescheduling Architecture (Jeong-Hoon Shin)
		Integrated Analysis Method of Thin-walled Turbine Blade Precise Manufacturing (Hui Wang)	Mechanical Properties of Light weight Concrete at Elevated Temperature (Gyuyong Kim)	Numerical Simulations of Ingot Cracking in Forging Furnace (Filip Tikal)
		Study of An Efficient Real-time Monitoring and Control System for BUE and Cutter Breakage for CNC Machine Tools (Shih-Ming Wang)	Sound Absorption Property of Porous Concrete using Bottom Ash with Various Size (Duck-Jin Choi)	Real-time Adjustment and Optimization of Remote Laser Welding Parameters by using ANN in Eco-automotive Factories (Kezia Amanda Kurniadi)
		Effect of Scale of Machining Hardware on Energy Consumption (Hae-Sung Yoon)	Comparative Analysis of Mechanical and Thermal Properties According to Laminated Orientation of CFRP Through Bending Test (Hee Jae Shin)	Eco-friendly Process Generation and Restructuring for Self-reconfigurable Manufacturing Systems (Sangil Lee)

## Oral Session

### Thursday 27

	Session A-8 (Kahuku)	Session B-8 (Waianae)	Session C-8 (Honolulu)	Session D-8 (Kohala/Kona)
	<b>Solar Energy</b>	<b>Machinery</b>	<b>Metal Matrix Composite</b>	<b>Forming II</b>
15:00~16:50	Chairs <i>Shinjiro Umezu, Blessie Basilia</i>	Chairs <i>Sun-Kyu Lee, Gyu Man Kim</i>	Chairs <i>Tongxiang Fan, Manju Misra</i>	Chairs <i>Zhongde Shan, Haedo Jeong</i>
	<b>Invited Talk 8</b>	<b>Invited Talk 9</b>	<b>Invited Talk 10</b>	<b>Invited Talk 11</b>
(15:00-15:20) Invited Speaker	<b>Heon Lee</b>	<b>Choon-Man Lee</b>	<b>Di Zhang</b>	<b>Zhongde Shan</b>
	<i>Amorphous Si Solarcells on Nano-patterned Substrate</i>	<i>Current Research Trends in Laser Assisted Machining</i>	<i>Morphology genetic materials template from nature species</i>	<i>3D Forming Technology and Equipment Research of Woven Composites</i>
	Atomic-scale Imaging of TiO <sub>2</sub> (101) Anatase Surface by Simultaneous AFM/STM (Cesar Moreno)	Multi-Resolution Simulation of Robot Machining (Yonghua Chen)	An Approach to Enhanced Tensile Ductility in Particulate Reinforced Ultrafine-grained Metallic Composite by Nano-dispersion Toughening (Hua Gong)	Forming of Medium-Carbon Steel Around Ac1 Temperature (ASR) (Daniela Hauserova)
	TiO <sub>2</sub> -TiN Composite Thin Films as Photo-catalyst in the Visible Light with Tunable Optical Bandgap (Zhengju Zhang)	The Strength Analysis and Array according to the Pillar Paste Compositions for Supporting Vacuum Glazing Gap (Jaekyung Kim)	Improved Thermal Conductivity of Diamond/Aluminum Composites by a Tungsten Interface Nanolayer (Honghua Wang)	Analysis of Mechanism of Backflow Defect of the Aluminum Wheel Flow Forming (Wan-Gi Cha)
	Dye-Sensitized Solar Cell (DSSC) Utilizing Dichroic Mirrors (Shinjiro Umezu)	Study on Kinematic Characteristics of Asymmetric Schönflies Motion Generators (Wheekuk Kim)	In-situ Synthesized TiC Reinforced Magnesium Matrix Composites (Tongxiang Fan)	A Study on Multiple Die Stretch Forming for Curved Surface of Sheet Metal (Ji Woo Park)
	Bio-inspired Deposition of Nano-particles on the Glass Surface for Dye Sensitized Solar Cell (DSSC) (Jitendra K. Pandey)	Friction Experiment of LM Roller Guide THK SRG25 (De-Jun Cheng)	A Study on HVOF Coating of WC-metal Powder Coated on Incone718 Substrate of Magnetic Bearing Shaft Material (Tongyul Cho)	Study on Flexible Roll Forming Process for Multi-Curved Surface of Sheet Metal (Jun Seok Yoon)
	Methanol Artificial Photosynthesis using Iron Doped TiO <sub>2</sub> (Amir Abidov)	A Study on the Vibration Control for Magnetic Bearing-Shaft of Turbo Blower (Hoon Hyung Jung)	Newly Test Method Distribution of Fly Ash in Aluminum Matrix Composites by Stir Casting (Shuei-Wan Henry Juang)	Friction Effect and Surface Treatment of Tool on Warm Forming of Mg Alloy Sheet (Youngseon Lee)
	Community Solar Steam Cooking System - A case Study of Shri Sai baba Sansthan Trust (Vinod Gondkar)	Servo Control Performance Analysis of a Precision Roll Lathe using the Finite Element Method (Chang-Ju Kim)	Material Properties of Graphene/Aluminum Metal Matrix Composites Fabricated by Friction Stir Processing (Yong-Ha Jeong)	Development of Non-lubricated Die for Magnesium Sheet Forming of Car Body Part (Jae Du Nam)

18:00~21:00

**Banquet (Monarch Room at The Royal Hawaiian)**  
Awards (Best Paper/Best Poster/Young Researcher)

## Oral Session

Friday 28

	Session A-9 (Kahuku)	Session B-9 (Waianae)	Session C-9 (Honolulu)	Session D-9 (Kohala/Kona)
8:00~9:50	<b>Robot/Robotics</b>	<b>Forming III</b>	<b>LCA/Environmental Impact Assessment/Cleaning</b>	<b>Joining</b>
	<i>Chairs Kyu-Jin Cho, Won-Shik Chu</i>	<i>Chairs Wheekuk Kim, Yonghua Chen</i>	<i>Chairs Bert Bras, Guillermo bregon-Pulido</i>	<i>Chairs Tae-Wan Ku, Timotius Pasang</i>
	Energy Savings of a 2-DOF Parallel Manipulator with Redundant Actuation (Giuk Lee)	Numerical Approach to Evaluate Spiral Forming Coil of Electromagnetic Forming Process for Pattern Die (Hak Gon Noh)	LCA Estimation for Environmental Burden Reduction Technique Considering Human Learning Curve in Decision Making of Reasonable End-milling Condition (Hiroyuki Kodama)	An Estimation of Fatigue Life and Prediction of Caulking Press Joining (Suk Woo Hong)
	Development of Artificial Wing of Dragonfly Utilizing Micro-Fabrication (Shinjiro Umezu)	Effect of Annealing Temperature on Formation of Intermetallic at Interface of Al/Cu Clad Fabricated by Hydrostatic Extrusion (Jongbeom Lee)	Water Consumption and Impact of Vehicle Manufacturing (Bert Bras)	Design of Hole Clinching Process for Joining of CFRP-Aluminum (Chan-Joo Lee)
	Green Robotics, Automation, and Machine Intelligence; a new Engineering College Course in Sustainable Design (Joseph Wunderlich)	Numerical Simulation Procedure to Evaluate Formability Enhancement of Fiber Metal Laminates (Byoung-Eon Lee)	Environmental Impact of PEM Fuel Cell Manufacturing for Automotive Applications (Joshua Chien)	Optimization of GMA Overlay Welding Bead Shape using Mathematical Model (Jisun Kim)
	The Effect of a Bio-inspired Variable Stiffness Mechanism in a Robotic Fish (Kyu-Jin Cho)	Design of Multi-stage Profile Ring Rolling Process for Excavator Idler Rims with Both Radial Surface Contours using UVDET and Extremum Rolling Ratio (Kyung-Hun Lee)	Review of the End-of-life Phase for Consumer Electronics and Its Associated Impacts, Implications, and Management (Jennifer Mangold)	Weldability of a New Titanium Alloy for Aerospace Applications (Timotius Pasang)
	Underwater Robot based on Biomimetic Swimming Motion using Smart Soft Composite Actuator (Sung-Hoon Ahn)	Springback of Magnesium Alloy AZ31 Sheets at Elevated Temperatures (Ji Hoon Kim)	Leaching Behavior of CMSX-4 Ni-based Superalloy in Acid Solutions (Min-Seuk Kim)	Microstructure and Mechanical Properties of Friction Stir Welded Mg-Al-CaO Alloy (Don Hyun Choi)
	Building Maintenance Tool Unit System for Irregular Surface Façade (Sung-Min Moon)		Selective Leaching of Mo in MoS <sub>2</sub> -slag by use of Ultrasound (Kyeong Woo Chung)	B4Cp Reinforced AA2024 Aluminum Alloy Composite using Friction Stir Welding (Byung-Wook Ahn)
	<b>Invited Talk 12</b>		<b>Invited Talk 13</b>	
<b>Young-Sun Ryuh</b>		<b>Manju Misra</b>		
(9:30~9:50) Invited Speaker	<i>Biomimetic Robotic Fish "Ichthus" for Environmental Surveillance</i>	<i>Novel Green Materials from Lignin: Manufacturing And Applications</i>		
9:50~10:00	<b>Coffee Break</b>			



## Oral Session

Friday 28

	Keynote Speech 10 (Kahuku)	Keynote Speech 11 (Waianae)	Keynote Speech 12 (Honolulu)	
10:00~10:30	<b>Rajit Gadh</b>  <i>Smart Grid - Integrating Renewables, Electric Vehicles and Micro Grids in the Creation of the Energy Infrastructure of the Future</i> (Chair: Young Beom Kim)	<b>Byung Man Kwak</b>  <i>A Story of Developing New Technologies from a New Concept of Mobile Harbor for the 21st Century Maritime Logistics</i> (Chair: Chang-Doo Kee)	<b>Amar K. Mohanty</b>  <i>Green Plastics and Sustainability: Challenges and Opportunities in the Emerging Bioeconomy</i> (Chair: Jitendra K. Pandey)	
10:35~11:50	<b>Session A-10 (Kahuku)</b>	<b>Session B-10 (Waianae)</b>	<b>Session C-10 (Honolulu)</b>	<b>Session D-10 (Kohala/Kona)</b>
	<b>Electric Power</b>	<b>Medical Device/QoLT</b>	<b>Green Composite II</b>	<b>Advanced Material IV</b>
	Chairs Young Beom Kim, Chung-Soo Kim	Chairs Chang-Doo Kee, Jong-Ho Won	Chairs Jitendra K. Pandey, Pietro Russo	Chairs Di Zhang, Honghua Wang
	Hybridization of Multiple Renewable Power Sources for Remote Village Electrification (Binayak Bhandari)	Novel Design of Lighting for Endoscopy (Jae Young Joo)	Electron Beam Curing of Poly(ethylene glycol) Diglycidyl Ether (PEGGE) Functionalized MWNTs/Epoxy Composites (Hezhou Liu)	Effects of Al <sub>2</sub> Ca on Microstructure Formation and Tensile Properties of Al-Mg Alloys (Seong-Ho Ha)
	An Adaptive Control to Perform Tracking in DC to DC Power Converters With Energy Considerations (Guillermo Obregon-pulido)	Analysis of Musculoskeletal System of Human during Lifting Task with Arm using Electromyography (Sungyoon Lee)	Fully Biodegradable Blown Films Reinforced with Halloysite Nanotubes: Tensile and Tear Properties (Pietro Russo)	Green Manufacturing for Al-Mg Alloys (Young-Ok Yoon)
	Kinematic Modeling and Position Compensation Based on Mecanum Wheeled Omni-directional Mobile Robot (Baesuk Chu)	Development of the New Biomechanical Design of the Field Sport Wheelchair with the Separated Seat and the Folding Leg Rest (JinBock Yi)	Effect of Compatibilizers on Properties of Wood/poly(lactic acid) Composites (Denni Kurniawan)	Effects of Sr Addition and Heat Treatment on the Morphology of Eutectic Si in the Al-12Si Die Casting Alloys (Gil-Yong Yeom)
	Analysis of Powertrain Sizing and Regenerative Braking Control in Electric Vehicles (Chang Woo Shin)	Development of Cost Effective Hand Exercise Devices for Post Stroke Patients (Bong-Keun Jung)	Development of High Heat-resistant Cellulose Fiber Contributing to Green Products (Si Ha)	Comparative Study of Fe <sub>2</sub> O <sub>3</sub> Spheres and Cubes-like Nanostructures Synthesized using Chemical Method for Photocatalytic Degradation of Rhodamine B Dye (Caroline S. Lee)
		EMG Normalization using Multiple Contraction Levels for Human-machine Interface (Masato Watanbe)	Mechanical Properties of High Performance Biomass Plastic with 51wt% Wood Powder (Ying Yu)	Compact Magnetorheological Control Valve Design with Multiple Annular and Radial Gaps (Fitrian Imaduddin)

# Poster Session I

Wednesday 26, 15:10~17:00, Maui Room

*Chairs: Won-Shik Chu, Doo-Man Chun, Hak-Sung Kim, Choon-Man Lee, Jitendra K. Pandey, Seung-Han Yang*

	A	B	C	D
	Material I	CAE/Analysis/Machinery	Machining	Machining/EDM/ Laser Machining/Joining
1	Effect of Electric Current Density on the Mechanical Property of Advanced High Strength Steels under Quasi-Static Tensile Loads (Min-Sung Kim)	Comparison of Inverse Matrix Method and Polynomial Curve Fitting for Aspheric Surface Equation Reconstruction (Dong-Ik Kim)	Energy Consumption Model using Electrical Load in Milling Machine (Min-Soo Kim)	Modeling and Dynamic Simulation of a 4-Axes Machine Tool (Chang Kyu Song)
2	Structural Behaviors and Curling Influence of Single Shear Bolt Connections with Aluminum Alloys (7075-T6) (Yonghyun Cho)	Design and Analysis of Wire Rope Type Wheel Carrier System (Seong Beom Lee)	Chatter Prevention by Vibration Between Tool and Work-piece in Milling Process (Jang Yeob Lee)	Analysis of Tool Wear Factors in Sand Mold Milling (Xiaoli Dong)
3	The Flow Behavior Modeling of AZ61 Magnesium Alloy at Elevated Temperatures Considering the Effects of Strain Rate and Grain Size (Hong Seok Kim)	Analysis of Positioning of Permanent Magnets for Large Scale Surge Relief Valve using the Finite Element Method (Sang-Don Ye)	Optimum Design of the Internal Flushing Channel of a Drill Bit using RSM and CFD Simulation (Changheon Song)	Research on Reconstruction and Numerical Control Machining of Free-form Surface Parts (Xiulan Wen)
4	Evolution of Goss Orientation During Thermal Heating with Different Heating Rate for the Primary Recrystallization in Fe-3.1%Si Grain-oriented Electrical Steel (Sung-Ji Choi)	Analysis of Torque Bias Ratio of A Helical Gear Type Limited Slip Differential (Gwang Yong Shin)	Development of an Optimum Cutting Condition Decision System for Micro Patterns in Ultra Precision Diamond Turning (Thanh Hung Duong)	Investigation of Machining Characteristics using the Hybrid Process of EDM with Ultrasonic Vibration and Assisted Magnetic Force (Yan-Cherng Lin)
5	Estimation of Fatigue Crack Propagation Model of Mg-Al-Zn Alloys under Different Specimen Thickness Conditions by Using Interpolation of Random Variable (Seon Soon Choi)	Analysis on the Capacitive Pressure Sensor with Ring Mesa Structure (Hee Chan Cho)	(MQL) Lubrication for Better Surface Quality and More Safe Environments in End-milling (Nik Masmiahi Nik Pa)	Fabrication of Lenticular Pattern Mold using Wire EDM and Electrolytic Polishing with Deionized Water (Jong Wuk Park)
6	Numerical and Empirical Study of Butting Process for AZ31B Magnesium Alloy Tube (Soo Sik Han)	Implementation of c-MES and Analysis of its Effects in Small-sized Manufacturing Enterprises (Gyeong-mi Park)	Surface Texturing by a Turning Process using a Circular Driven Rotary Tool with Multiple Cutting Edges (Sung-Tae Hong)	Experimental Study of Micro Machining by EDMed Tools (Bo Hyun Kim)
7	Dynamic Properties of Austenitic Stainless Steels by Hydrogen Charging (Insoo Son)	Configurable MES: Developing and its Implication for SMEs (SungMin Bae)	Investigation of Cutting Conditions on Surface Roughness Characteristics in Titanium Machining (Myung-Whan Bae)	One Step Fabrication of Bio-inspired Hierarchical Structure by Wire EDM and Their Roll to Roll Application for Self-cleaning Film (Won-Gyu Bae)
8	Study on Aluminum Matrix Composites Reinforced with Continuous Carbon Fibers Manufactured by Vacuum Pressure Impregnation (Qiubao Ouyang)	Scatter Artifact Correction Using GPU-based Monte Carlo Dose Calculation (Kyunchan Jin)	Experimental investigation of Eco-friendly Machining for Titanium Alloy (Kyunghee Park)	Evaluation of Delamination in Tungsten Specimen by using Laser Ultrasonic Technology with High Frequency (Kyung Min Hong)
9	Synthesis of Carbon Nanotube / Aluminium Composite Powders by Polymer Pyrolysis Chemical Vapor Deposition (Xiaocui Li)	Fatigue Analysis for Flexible Tube Subjected Lateral Deflection (Jinbong Kim)	Improvement of Chip Thickness Model in 2-flutes Slot End Milling (Ki Yong Lee)	Direct Writing of Graphene Pattern using Laser-induced Chemical Vapor Deposition (Jongbok Park)
10	Composite Patch Repair to Aluminum Alloy Plate by Induction Curing (Minho Kim)	Stress Analysis of Bellows Subjected to Various Displacement Conditions (Jinbong Kim)	A New Tool Holder Design of Two-dimensional Motion for Fabricating of Micro Dimple and Groove Pattern (Rendi Kurniawan)	A Study of Manufacturing of High Efficiency Cooling Channel Core by laser aided Direct Metal Tooling (DMT) Technology (Ji Hyun Sung)

Wednesday 26, 15:10~17:00, Maui Room

# Poster Session I

	A	B	C	D
	Material I	CAE/Analysis/Machinery	Machining	Machining/EDM/ Laser Machining/Joining
11	Study on the Strength Properties of Non-cement Matrix Mixed with Waste Resources (Sun-Gyu Park)	FEA-based Design Enhancement of a Large Pressure Vessel (Hyunsik Kim)	Evaluation of Energy Efficiency in Cutting Aerospace Materials with High-pressure Cooling Lubricant Supply (Dieter Lung)	Sintering of Copper Nano Ink Using a DPSS Laser (JunHo Yu)
12	Tribological Behaviors of Ceramic Substrate Coated with PU / SiO <sub>2</sub> Composite Coating (Garlie Liew)	Estimation of Positioning Error of Precision Linear Stages (GyungHo Khim)	The Experimental Research about the Deformation of Airfoil after 5-Axis machining (Su-Jin Kim)	Temperature Calculation of the Laser-Sintered Silver Nanoparticle Ink (Heuseok Kang)
13	Fracture Properties of Carbon Coated LPS-SiCf / SiC Composites (Sang Pill Lee)	Finite Element Analysis, Considering Viscoelastic Property of Periodontal Ligament (Bong-Su Kim)	Instability of High Speed Interference Fit Tool-spindle System with Internal Friction (Yusong Wang)	Micro-cutting with Diamond Tool Micro-patterned by Femtosecond Laser (Jaegu Kim)
14	Effect of Phosphate to Water Resistance of Magnesium-oxychloride Cement (Kyu Hong Hwang)	A Study on the Fiber Orientation Control Method of Glass Fiber Reinforced Plastic Gear using CAE Analysis (Jeongyeon Park)	Simulation of Energy Consumption due to Cutting Process Motion in a Machine Tools (Chan-Hong Lee)	Remanufacture of the Machine Components by Coaxial High Power Fiber Laser Cladding (Chonghao Zhang)
15	Characterization and Electrochemical Corrosion Behavior of Biology Ceramic Coatings on Magnesium Alloy by Micro-arc Oxidation (Ying Xiong)	Fault Diagnostics of Auto-focus Module for Phone Camera using Resonant Frequency Shift (Taeho Ha)	Research on Aerodynamically Assisted Sand Removing for Sand Mold Milling (Feng Liu)	A New Approach of the Weld Seam Tracking for Multi-layer Welding with Weaving Motion (Seunghwan Baek)
16	A Study on the Mechanical Properties of AM60B with MgO-CNT (Myeonghan Yoo)	A Study on Permanent Magnet Spherical Motors by Analytical Method (Hanwoong Ahn)	A Study on the Development of a New Variable Preload System using Giant Magnetostrictive Material (Dong-Hyeon Kim)	Void Closure Behavior by Incremental Upsetting and Diffusion Bonding for 1.5 wt%C High Carbon Workroll (Seong-Hoon Kang)
17	Preparation and Properties of Surface Modified Graphene by Grafting of Polymers (Norio Tsubokawa)	Design Optimization of Support Structure for Long-range Telescopic Boom Lift (Henry Panganiban)	The Selection of the Optimal Machining Condition of High-hardness Resin using the 5-axis Machine (Seoksun Kang)	Effect of W Substitution for Mo on Secondary Phase Formation of Super Duplex Stainless Steels Welds (Haeji Park)
18	Multi-Functionalized Bio-polymer Microspheres (Sungkwon Yoon)	Effect of Shape and Optical Property of Plastic Single Lens to Optical Performance of Phone Camera Lens Module (Taeho Ha)	Improved Tapping Torque Estimation in Rigid Tapping Processes (Syh-Shiuh Yeh)	Assembly Strategy of the Square Peg using Force Torque Sensor (Dong Il Park)
19	Spreading Kinetics of Poly (diisobutylene maleic acid) at the Air-water Interface (Nam Jeong Kim)	Long-lived Accurate Dispenser for Fine Powder (Changwoo Lee)	Investigation of Drilling Efficiency using Percussion Test of Drill Bit (Kibeom Kwon)	Drying Characteristics of Printed Silver paste (Kwang-Young Kim)
20	Thermal Properties and Rheological Behavior of Thermoreversible Crosslinking Supramolecular Polymers with Multiple Hydrogen-bonding (Yujie Chen)	Design of Bridgeless IPMSM to Reduce the Amount of the Rare Earth Permanent Magnet (Jin-Young Park)	Estimation of Volumetric Errors and Electric Power Consumption for Different Configurations of the Machine Tools (Jooho Hwang)	Welding Line Seam Tracking S/W Which Use CCD Camera (Jeng O Kim)

# Poster Session I

Wednesday 26, 15:10~17:00, Maui Room

*Chairs: Jihwan An, Cullen Buie, Woochul Kim, Young Beom Kim, Chung-Soo Kim*

	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>
	<b>Forming/Forging</b>	<b>Recycle/Energy Management/Marine</b>	<b>Wind/Solar Energy</b>	<b>Automobile</b>
1	Development of Hybrid Clinched Structure by using Multi Cohesive Zone Model (Chan-Joo Lee)	Methodology for Calculating Recyclability of Consumer Electronic Products: A New Approach (Jennifer Mangold)	Terahertz Radiation Nde df Composite Materials for A Use of Wind Energy (Kwang-Hee Im)	A Study on the Structural Design of Carbody by Stress Measurement (Sung Cheol Yoon)
2	Strips Cold Rolling: Material Model and Numerical Analyses by CAE Systems (Filip Tikal)	A Study on Novel Collector of Underwater Dissolved Air using Centrifugation (Jung-Ho Park)	Probabilistic Fatigue Life Prediction of Small Wind Turbine Composite Blade (Ki-Weon Kang)	NDT Evaluation on Motor Block and Driving Gear of Bogie using Infrared Thermography Technique (Chanwoo Lee)
3	Effect of Rolling Direction on the Development of Microstructure, Texture, and Mechanical Properties of AZ31B Alloys (No-Jin Park)	Collaborative Development of Water Purifier for Green Product using SCM-A Case Study of Coway (Suryoung Kim)	Angular Stability Analysis of a Power System Connected to Wind Generation System (Jiho Park)	Searching and Discovering Niche Technology Area using Patent Information Analysis: Focus on Korea Automobile Industry (SungMin Bae)
4	Deformation Behavior of AZ31 Mg Alloy Sheets Containing CaO Component by Strain-rate and its Microstructure Change (Jongbeom Lee)	Recycling Technology for Phenol Resin(Bakelite) Waste using Supercritical Fluid (Hang Kyu Cho)	Effects of Drivetrain Parameters on the Performance of a Wind Turbine using the Multibody Dynamics (Wei Shi)	A Study on the Performance Improvement of the IPMSM for Electric Power Steering (Han-Woong Ahn)
5	Precision Balance Forming Technology Using Artificial Neural Network (Dong Hwan Kim)	Vulcanized (TPV) Composite Prepared by the Waste Tire and Plastic Powder (Ju Young An)	Investigations on Carbon/platinum Hybrid Counter Electrodes for Stable and Efficient Dye-sensitized Solar Cells (Sung Chul Hong)	Modeling and Validation of a Hydraulic Control System for Wheel-loader's AT (Joo-Young Oh)
6	3D Woven Forming Technology Research of Composites Parts (Zhongde Shan)	The Recycle of Spent Iron Based Catalyst Modified with Nano Size Palladium for the Removal of Toluene (Sang Chai Kim)	Analysis on the Paint-type Si Quantum Dot-sensitized Solar Cells (Hyunwoong Seo)	Structural Optimization of Outer Tie Rod for Electrical Vehicle (Bukyo Seo)
7	Research on a Weaving Forming Technology for Composites with High Fiber Volume Ratio (Shaoyan Qin)	Purification and Separation of Rare Earth Elements from CCFL with Extraction Chromatography (Jeong Gon Kim)	Investigation of Laser Sintering Treatment on Flexible Dye-sensitized Solar Cell Fabricated by Nano Particle Deposition System (Seungkyu Yang)	Vibration Analysis of Cooling Pump for Commercial Vehicles (Chul Ki Song)
8	Experimental Investigation on Galling Performance of Tool Steel in Stamping of UHSS (Sung-Guuy Kim)	Methanol Production from Gasification of Municipal Solid Waste (Young-Kwon Park)	Photovoltaic Performance of Quasi-solid State Dye-sensitized Solar Cells Composed of Organic Dyes including Multi-acceptors / Anchors in their Chromophores (Young Rock Kim)	Optimal Design and Crash Analysis of an Automotive Bumper Back Beam using Response Surface Method (Kwanho Ko)
9	Development of Green Extrusion Process for Producing Aluminum Tube (Sang-Kon Lee)	Increasing Yields of Waste-cooking-oil Biodiesel using Ionic Liquids as Catalysts with a Microwave System (Yuan-Chung Lin)	Effects of the Concentrations of NH4F of Electrolyte and Reaction Time in Anodic Oxidation Process on the Photovoltaic Property of Back-illuminated DSSC (Ho Chang)	A Study on a Vehicle Modeling with a Suspension System and Analysis for the Improvement of the Ride Comfort (Yongju Chu)
10	The New Friction Stir Forming Process for Joining Dissimilar Materials (Sladjan Lazarevic)	Pyrolysis of Wood Polymer Composite (Young-Kwon Park)	Fabrication of Glass Fresnel Lens for High Concentrate Photovoltaic system (Seok-Min Kim)	Reduction of Mechanical Loss of EPS System by Assist Unit Redesigning (Min Chul Shin)

Wednesday 26, 15:10~17:00, Maui Room

# Poster Session I

	E Forming/Forging	F Recycle/Energy Management/Marine	G Wind/Solar Energy	H Automobile
11	Quantitative Evaluation of Shape Accuracy in Sheet Metal Forming of a Hat-type Product with UHSS (Se-Ho Kim)	Control the Growth of Barnacles in Water Intakes at Electric Power Plants (Saad Proulos)	A Study on the Performance of Solar-powered Seawater Desalter with Internal Reflector (In Guk Jeong)	A Study on Finite Element Methods for Lightweight and Life Prediction of Bus Emergency Step (Sun Ho Ko)
12	The Analysis of Roll Contact Angles to the Plastic Flow Instability in Flow Forming (Kai Jin)	A Study on Electricity Demand Forecasting per Green BIM-based Building Design for Application of Smart-grid (Jae-Wook Lee)	The Study on the CIGS Solar Cells with the ZnS Films by Newly Designed Sputtering System (Jae-Hee Lee)	Benefit of e-Transmission for NEV (Bumjoon Kim)
13	Analytical Evaluation of Formability of Magnesium Alloy Sheet Material Based on the Plastic Instability and Inherent Geometrical Instability Conditions (Woojin Song)	A Study On Energy Simulation-based Low-carbon Design Methods for Development of Green BIM Guidelines (Kweon Hyoung Lee)	Photovoltaic Properties of Dendritic Photosensitizers containing Multi-functional chromophores for Dye-sensitized Solar Cells (Sok Kyun Choi)	
14	Study on Parameters of Infusion from Inside and Outside at Same Time (Weixiao Du)	A Study of the Corrosion Behavior of the STS304 and the STS430, Depending on Surface Pre-treatment Conditions, in PEMFC under Operating Status (Min Seok Moon)	Organic Photo-sensitizers based on Triphenylamine with Multi-anchoring Chromophore for Dye sensitized Solar Cells (Chi Hwan Lee)	
15	Research on Spot Cooling of the Bumper Hot Stamping Mold (Wanhua Cai)	Integrating Lidar and BIM Technology with GIS for Efficient Operation and Management of Wastewater Treatment Plant (Jae-Ho Choi)	Improvement of Photovoltaic Performance of Fluorescence Materials added TiO <sub>2</sub> electrode in Dye-sensitized Solar Cells (Byeong Cheol Jeon)	
16	Tracking Control of Hydraulic Forging Press Machine using Model-based Friction Compensation (Qing Pan)	Installation of Off-grid Hybrid Power Generation System and Smart Grid in Remote Mountainous Village of Nepal (Kyung-Tae Lee)	Application of transparent Graphene Materials for Electrode of Flexible Photovoltaic Cell (Sangyeop Kim)	
17	Study on Gear Forging Process for Manufacturing the Clutch Drum (Bong-Joon Kim)	Direct Teaching and Playback Method based Robotic Finishing System (Chang-Soo Han)	Fabrication of Graphene Modified TiO <sub>2</sub> Paste for Utilization in Dye-sensitized Solar Cells (Amir Abidov)	
18	Development of the Progressive Press-forging Process for Manufacture of a Nut Plate Without Welding (Kee Poong Kim)	Performance Investigation of Super Artificial Reef for Fish Habitat Purpose (Bumshick Shin)		
19	Mg Scroll Forging at Warm Forming Condition (Jonghun Yoon)	Experimental Study on Wave Impact Pressure on Slit Caisson Breakwater (Sungwon Shin)		
20	Development of Magnesium CCM using High-pressure Diecasting Process (Joon Hyuk Song)			

# Poster Session II

Wednesday 26, 18:00~20:00, Maui Room

*Chairs: Young Choi, Jay I. Jeong, Bo Hyun Kim, Jaehwan Kim, Dong-Yoon Lee, Jung-Il Song*

	I Material II	J Smart Materials & Structure/Medical Device	K CAD/CAM/Analysis/Machinery	L Machinery/Non-Traditional Manufacturing
1	Biomimetic Structure of the Guide Sleeve for 3D Weaving Composites (Xiaochuan Wu)	Evaluation on Hydrogen Embrittlement of Material using Nondestructive test (Jinkyung Lee)	A Study for the Effects of Geometry on the Mechanical Behavior of Flexible Tube (Jinbong Kim)	Failure Analysis on the Gripping Performance of an Automatic Tool Changer (Bo-Sik Kang)
2	Improving Thermal Conductivity of Bio PCM Composites using Carbon Nanomaterials (Sumin Kim)	A Piezo-driven Parallel Compliant Stage using Antagonistic Arrangement of Piezo Actuators (Kee-Bong Choi)	Molecular Dynamics Simulations of Thermal Resistance and Temperature Dependence of Kapitza Length on Silicon-water Interface (Bohung Kim)	Direct Equipment Interface to Build a Paperless Manufacturing Environment (So Jeong Nam)
3	Improvement of Physical Property by Carbonation Reaction of Non-cement Mortar using Fly Ash and Blast Furnace Slag (Junyoung Park)	Dynamic Impact Behavior of NiTi Shape Memory Alloy (Sung Young)	Integrated Dynamic System Simulation for Control Design (Byung-Sub Kim)	Effect of the Surfactant on Size of Nickel Nanoparticles Generated by Liquid-Phase Plasma Method (Sang-Chul Jung)
4	Efficient Reduction of Graphite Oxide by Various Reduction Agents and Its Effect on Electrical Conductance (Sung Jin An)	Design and Analysis of Displacement Amplification Mechanism for Slacked Piezoelectric Actuator (Young-Bog Ham)	A Study of Structural Analysis on the Superficial Grooving Stainless Thin Plate (Seong Beom Lee)	In-situ Temperature Measurement of Copper Nano Ink During Flash Light Sintering Process (Wan Ho Chung)
5	Compressive Strength Properties According to the Conditions of Inorganic Composite Using Industrial By-product (Sangsoo Lee)	Development of a Dynamic Model for the Index Finger Exoskeleton Actuated by Polymer Actuators (Kyeahan Rhee)	Tolerance Optimization of Lower Arm by using Genetic Algorithm and Process Capability Index (Kwangki Lee)	Feature of Mechanical Properties of Stainless Steel Composites with TiC <sub>x</sub> Ny Synthesized by Spark Plasma Sintering (Bunyod Allabergenov)
6	Properties of Paste Based on Mixing Ratios of Ternary System Inorganic Composites and Addition Percentage of Alkali Accelerator (Hayoung Song)	Control Method for Centering Rolls in Radial-axial Ring Rolling Process (Sanghyeon Kim)	Dynamic Behavior of Timoshenko Beams Subjected to Sub-tangential Follower Force (Insoo Song)	Surface Roughness Improvement of Mold Materials by High Density Electron Beam Scanning with Low Energy (Jin-Seok Kim)
7	Electromechanical Behavior of Cellulose-ZnO Hybrid Nanocomposites (Byung-Woo Kang)	Superposition Method to Estimate the Characteristics of SMA Tool Clamping System (Sungcheul Lee)	Digital Manufacturing Gypsum Mould Technology Research (Zhennan Wang)	Analysis of Pile up Formation During AFM Nano Patterning of IZO Coated Pyrex Glasses (Seoung Lee)
8	Study on Impact Toughness of Composite with Three Dimensional Flexible Guide Weaving (Zheng Wang)	Self-assembly of Biomimetic Sponges (Jinyoung Choi)	Based on the Digital Rapid Prototyping Research of Desulfurization Gypsum Formula (Yongwei Wang)	AFM-based Nano Electrochemical Machining in a Tiny Electrolyte Droplet (Gil Jun Kim)
9	Synthesis of Glycerol Carbonate from Glycerol and Urea with Cobalt-containing Metal Oxide as Catalysts (Chohye Yoon)	Effect of SMA Powder / Fiber on Dynamic Properties of Carbon Fiber Reinforced Polymer (Hyung-Soo Kim)	Pixel-based Process Planning for Layered Manufacturing of Heterogeneous Objects (Ki-Hoon Shin)	Fabrication of Nanodome Array by Nano-imprinting and Physical Vapor Deposition for Enhanced Fluorescence Substrate (Seok-Min Kim)
10	Development of a Lightweight GFRP Composite Bogie: Fatigue and Running Stability Tests (Jung Seok Kim)	Biomimetic Underwater Robot Using Smart Soft Composite: a Ray-like Robot (Won-Shik Chu)	Friction Measurement System of Linear Motion Bearings (Gyungho Khim)	Ultrasonic Nano-crystal Surface Modification of Rolling Ball Screws on performance characteristics (Yasutoshi Tominaga)

Wednesday 26, 18:00~20:00, Maui Room

# Poster Session II

	I Material II	J Smart Materials & Structure/Medical Device	K CAD/CAM/Analysis/ Machinery	L Machinery/Non-Traditional Manufacturing
11	A study of Detecting Defect Carbon-Carbon Composites by Infrared Thermography (Jae Sung Kim)	Morphing Car-spoiler using Woven Type Smart Soft Composite (SSC) Actuator (Min-Woo Han)	Modeling and Simulation of Control Systems for Machinery Equipments (Chang Kyu Song)	Transparent Conductive Film using Roll Printed and Imprinted Grid Patterns (Kwang-Young Kim)
12	Damping Property of MWCNTs Reinforced Nanocomposites (Shiuh-Chuan Her)	Performance Evaluation of A Pseudo-aural-to-vibrotactile Display System (Wheekuk Kim)	Evaluation for Fracture Resistance Curve and Test Jig of the Compact Pipe Specimen (Keontae Park)	Bio-inspired Fibrillar Adhesives for Clean Transportation System with Switchable Adhesion Properties (Doogon Kim)
13	Influence of the Manufacturing Process on the Mechanical Properties of Flax / Epoxy Composites (Ihab El Sawi)	Simulation of Caulking Process of a Ball Joint Using Flexible Multibody Dynamics (Bong-Su Sin)	Novel NO2 Sensors Based on OD-1D p-n Heterojunctions Composed of CuO Nanoparticles and ZnO Nanorods (Seung Hyun Hur)	Modified Tension Model in Feeder and Printing Spans of Roll-to-roll Printing System (Chung Hwan Kim)
14	Bio-inspired Plasmonic Active Surfaces (Sehyun Park)	Ground Contact Shear Force Estimation During Treadmill Walking (Seungbum Koo)	Experimental Thermal Behavior Analysis of Ultra-precision Positioning Nut / Screw Air Cooling Ball Screw System (Sung-Ki Lyu)	Rating Lowering of Inverter Module using PFC (Joondong Lee)
15	Thermal / Mechanical Durability of Thermal Barrier Coatings Evaluated by Thermal Shock and Post-indentation tests (Kee Sung Lee)	Fabrication of Hydroxyapatite Targets in RF-sputtering for Surface Modification of Titanium Dental Implants (Lai Hong Chen)	The Seismic Performance of Coupling Beams with Different Types of Failure (Wan-Shin Park)	Replication of Solar Concentration Lens using Spin Coating Method (Sun-Kyu Lee)
16	Hydrogen Production Over the Band Gap-tuned Micro Sheet-like Snx-1Ti <sub>x</sub> S <sub>2</sub> Photocatalytic System (Yujin Park)	Strain Measurement of Shoulder Capsule using Computer Vision System (Haea Lee)	Development of Positioning System using Ultrasound and Infrared Ray (In-Mook Choi)	Transparent Conducting ZnO Nanorods for Nanoelectrodes as a Reverse Tunnel Junction of Optoelectronics Applications (Sung Jin An)
17	Luminescence of LaAlO <sub>3</sub> Phosphors Doped with Mixed-valence State Europium (Min-Ho Lee)	Influence of Heat Treatment on Responses in Simulated Body Fluids for the Plasma-sprayed Hydroxyapatite Coatings of Titanium Implants (Pin-Chang Wang)	Electrolyte Management for Electro Polishing Semiconductor-piping UHP Tubes (Seung Hye Ahn)	Nano-composite Manufacturing by Using the Electro-orientation Method of Micro / Nano-particles in a Liquid Polymer (Hee Keun Cho)
18	Photocatalytic Activity of ZnO Crystals Upon Their Crystal Growth Direction (Sun-Hwa Seo)	Fabrication of Detachable Hydrogel Microplates for Separably Patterned Cell Culture (Jin Ho Choi)	Equipment Interface Testing Module by Emulating the Signal of Equipment (Jai Kyung Lee)	Development of Spray dryer Nozzle by Rapid Sintering method (Dong Ki Kim)
19	Natural Fibers for Hemodialysis: Characterization, Material Selection and Cellulose Extraction (Blessie Basilia)	Label-free Detection of Viruses on Polymeric Surfaces with Periodic Nanostructures using Liquid Crystals (Chang-Hyun Jang)	Dynamic Simulation and Vibration Control of the Hybrid Type Solar Cell Substrate Handling Robot (Dong Il Park)	Destruction of HCFC-22 using CVD TiO <sub>2</sub> Film Photocatalyst Balls with Microwave Discharge Electrodeless Lamp (Seong-Gyu Seo)
20	Analyses of the Multifractal Measure for Absorbing Ions on a Charged Lipid Membrane (Kyungsik Kim)	Evaluation of Detectable Defect Size Limitation for Pressure Vessel with Internal Defects using Shearography (Hyunchul Jung)	Accuracy Evaluation of Five-axis Machine Tool by Modeling Dual Sphericity at Double Ball-bar Measurement (Kwang-Il Lee)	One Step Synthesis of Cobalt Hydroxides, Oxides and their Electrochemical Properties Research (Wenbin Hu)

## Poster Session II

Wednesday 26, 18:00~20:00, Maui Room

*Chairs: Suk Won Cha, Seung-Hwan Chang, Sung-Tae Hong, Heon Lee, Zhongde Shan*

	M	N	O	P
	Non-Traditional Manufacturing/Molding	Grinding/Energy/Fuel Cell	Environmental Impact/Energy Saving	Vehicle/LED
1	Visualization of Mechanical Damage of Graphene Film Fabricated by Dry Transfer Process (Kim Kyung Shik)	Determination of Efficient Superfinishing Conditions for the Mirror Surface Finishing of Fine Ceramics (Kim Sang Kyu)	Particle Collection Performance of Oil Mist Eliminators for Manufacturing Industries (Kyoung Taik Park)	Fundamental Research of Power Train System Layout for Electric Vehicle (Kee Joo Kim)
2	Fabrication and Actuation of Smart Functional Nanostructure by Focused Ion Beam with 4-Axes Nanomanipulator (Chung-soo Kim)	Study on Ultra-precision Grinding of EL-Max Material for Hot Press Molding (Soon Sub Park)	Electrolytic Oxyhydrogen (EOH) Gas as a Green Fuel Additive in Thermal Processing (Gyu Hee Lee)	Application of New Sensor for Diagnostics of Weld Defect in Railway Bogie Frame (Seok Jin Kwon)
3	Ultra-short Pulsed UV Laser Annealing of Solution-deposited ITO Thin Films and Their Optical, Electrical, and Mechanical Properties (Heuseok Kang)	Surface Smoothing of the Blasted Glass Micro-fluidic Channels using Abrasive Water Jet (Sung-Gyun Son)	Development of an Intelligent ERM System and its Application for Reducing Energy Consumption in Manufacturing Processes (MinJae Ko)	Development of Multi-channel IR Sensor System for Rear-side Collision Avoidance (Jungkwang Choi)
4	Study on the Resin Layer Thickness Variation during UV Imprinting Process (Siyoul Jang)	Effect of Large-sized Horn in Ultrasonic Assisted Grinding (Young-Jae Choi)	Intelligent Renewable Energy Systems using Neural Network Methodologies (Jun-Hyung Ryu)	Integrated Dynamics Control Method based upon Stability Region Analysis (Moonyoung Yoon)
5	Characteristic Behaviors of Clad Layer by a Multi-layer Laser Cladding with Powder Mixture of Ni-based Alloy and Tungsten Carbide (Yanhua Zhao)	One Step Synthesis of Cobalt Hydroxides, Oxides and their Electrochemical Properties Research (Chao Feng)	Study of Electrochemical Redox of Gold for Refining in Non-aqueous Electrolyte (Jae-O Lee)	Robust Control of Railway Vehicles equipped with a Semi-active Suspension System (Yu Jeong Shin)
6	Thermal Deformation of Glass Backplanes for Large-scale Displays during Flash Lamp Crystallization Process of Amorphous Silicon (Wonbum Jin)	Raman Scattering Studies of LiFe1-xMnxPO4 (In-Sang Yang)	Development of Separation Process for REE with Ion Chromatography and Extraction Chromatography (Jeong Gon Kim)	A Study on Fatigue Test of Soundproof Wheels (Young Sam Ham)
7	Development of Ultra Precision R2R Micro-gravure Coating System For Printed Organic Photovoltaics (Sung Woo Bae)	xLi2MnO3-(1-x)LiNi1 / 3Co1 / 3Mn1 / 3O2 Electrodes Synthesized by Electrospinning for Lithium Secondary Batteries (Cheong Kim)	Separation and Purification of Rare Earth Elements in Spent Nd-Fe-B Magnets using Adsorbent Materials with Functional Groups (Jae-Kil Han)	The Effect of Semi-active Suspension on Derailment Coefficient in Railway Vehicle (Wonhee You)
8	Development of Ultra Precision Printing R2R Manufacturing System For Printed Transparent Electrode Film (Jungsu Kim)	Enhanced Electrochemical Performance of Surface-modified LiMn2O4 Cathode Materials by Indium Tin Oxide (ITO) Coating (Jong-Won Yoon)	Catalytic Hydrogenolysis of Glycerol to Propylene Glycol over Cu/Zn/Al Mixed Oxides Prepared Using Microwave Process (Seong Soo Hong)	An Experimental Study for Weight Balance Evaluation using Rail Vehicle Weighting System (Hyuk-Jin Yoon)
9	Design of Heating Roller for Large Area Printed Electronics Solar Applications in R2R Thermal Microimprinting (Jun An Han)	Effect of Polypyrrole Coating on Li Powder Anode for Lithium-Sulfur Secondary Batteries (Soo Jung Oh)	Steam Reforming of LPG Over Ni-Ru / Al2O3-MgO Catalysts Loaded on Metallic Monolith (Jong Dae Lee)	Reliability Evaluation of Bogie Frame in Deteriorated Electric Multiple Units (Jungwon Seo)
10	Study on the Characteristics of Residual Stress according to Degree of Curing in the LSR Injection Molding (Jeongyeon Park)	Synthesis of Lithium Phosphate Powder with High Purity by Microwave-hydrothermal Method (Jae-Kil Han)	Synthesis of (La, Sr) MnO3 Powder for Oxygen-electrode Material of HTES (Seon Young Park)	Diagnostic Evaluation for Structural Deformation of Overage Railway Vehicles (Yeon-Su Kim)



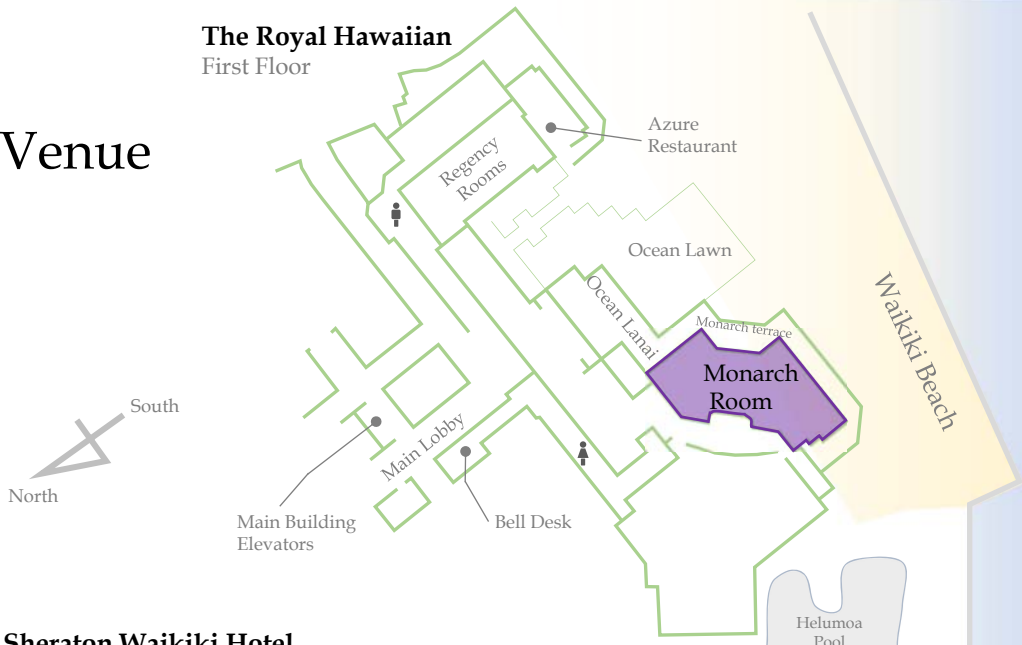
Wednesday 26, 18:00~20:00, Maui Room

# Poster Session II

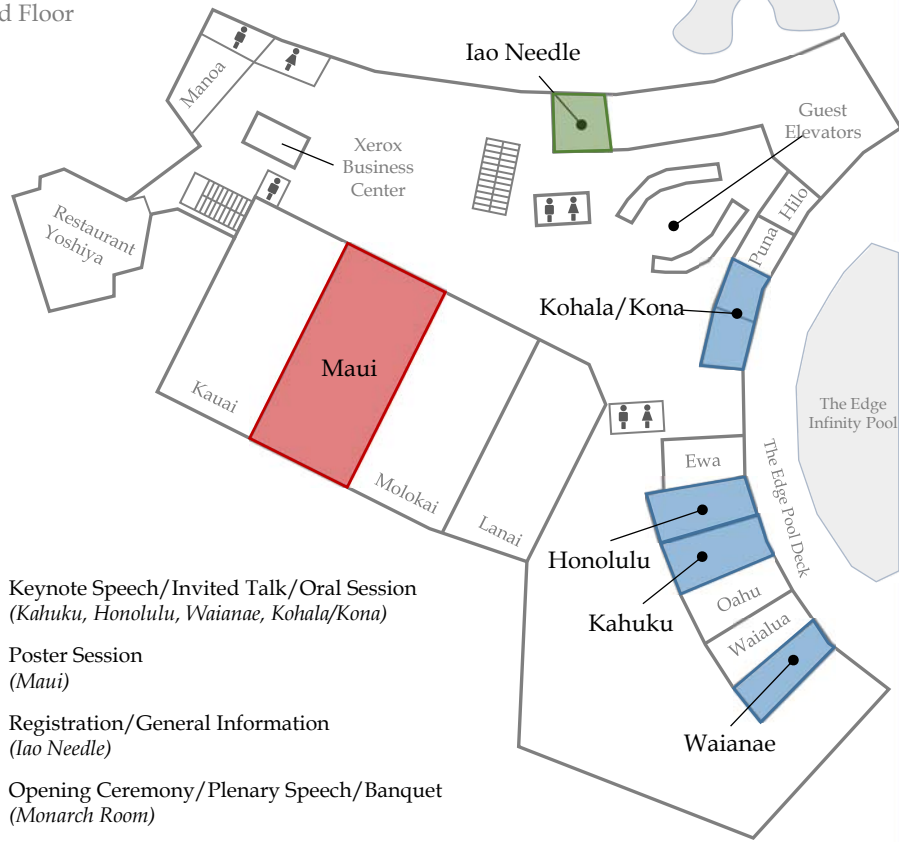
	M Non-Traditional Manufacturing/Molding	N Grinding/Energy/Fuel Cell	O Environmental Impact/ Energy Saving	P Vehicle/LED
11	Development of Optimum Injection Molding Technology and Mold Design of Sheet Housing of AWG type WDM for Optical Communication (Myoung Ho Kim)	Effects of AlN Blocking Layer on Stability of ZTO/AlN/Ag/AlN/ZTO Film for Low-emissivity (Guneik Jang)	Transesterification of Canola Oil with Methanol over Heteropoly Acids (Seong Soo Hong)	Finite Element Analysis of LED Ceramic Sub-mount Forming Process (Myeong-Sik Jeong)
12	Experimental Study on HIP Applied DMLS Mold for the Improvement of Cooling Efficiency (Hyungpil Park)	Smart In-wheel Generator Using Adaptive DC-DC Converter for Rechargeable Batteries in Electrical Vehicles (Ngoc Nguyen)	Catalytic Pyrolysis of Biomass Component over SAPO (Young-Kwon Park)	Heat Radiation of LED Light Using Cu Plated Engineering Plastics (Young-Tae Cho)
13	Fuzzy PID Control of Low-speed Heavy Press with Dynamic Friction Compensation using Modified LuGre Model (Yibo Li)	Preparation of Coaltar Pitch-based Carbon Electrodes and Their Electrochemical Characteristics for Supercapacitor (Min Kang Seo)	A Study on Supported CuO and ZnO Based Catalysts for Hydrogenation of Carbon Dioxide into Methyl Alcohol (Won Ju Ahn)	Analysis on Dispensing Parameters for Manufacturing Dome Lenses of Chip-on-board Type LED System (Eun-Chae Jeon)
14	Study on H Beam of Infusion from Inside and Outside at the Same Time (Rui Chen)	Highly Reduced KOH Treated Graphene Oxide as an Efficient Material for Supercapacitor Electrode (Jin Suk Chung)	Low Emissivity Coating of Amorphous SZTO / Ag / Amorphous SZTO Multilayer (Sang Yeol Lee)	The Synthesis and Characteristics of Platinum (II) Complexes with 4 - (N,N-bis(pyridyl)amino)stilbene (Seok Hwan Son)
15	Estimation of Flow Stress and Ductile Damage Index After Necking by FE Simulation (Seong-Hoon Kang)	Characterization of Titanium diboride (TiB <sub>2</sub> ) Composite Bipolar Plates for PEMFC (Jong Moon Park)	Energy Harvesting of Foamed Ionic Polymer-metal Composites Strips (Kyung Soo Lee)	High Luminescent White LED with Quantum Dot Film prepared by 2D-patterned Imprinting (Hyun-Guk Hong)
16	A Manufacturing of Highly Durable Suspension with Rubber Spring by using Actuating Injection Molding (Chun Lee)	Plasma-enhanced Atomic Layer Deposition of Ytria-stabilized Zirconia (Young-Beom Kim)	An Optimal Design and Performance Evaluation of Korean Traditional Ondol System in varying Gorae Geometry Application of Goguryeo Style Jjok Gudeul (Gil-Yong Lee)	
17	Microinjection Mold Design Technology for Green Manufacturing (Gyunmyoung Park)	Preparation of Micro-channel Catalytic Reactor Coated with Macro-Porous Al <sub>2</sub> O <sub>3</sub> for Fuel Reformer (No-Kuk Park)	An Assessment of the Environmental Impacts of End-of-Life Pathways for Electronics (Jennifer Mangold)	
18	Ultrasonic Nanocrystal Surface Modification (UNSM) Effects of Hot Steel Tools(H13) on Tribological and Fatigue Characteristic (Hak Doo Kim)	Atomic Layer Deposited Cermet Interlayer for Low-temperature SOFC (Jihwan An)	Zr-based Alloy Membrane for Hydrogen Separation (Sung Bum Park)	
19	Integrated Process-Planning Framework for Hybrid Nano-scale Manufacturing using NPDS and FIB (Heonjeong Chu)	A Study of Thermochemical Decomposition of Molten Carbonate Anode-Media for Direct Carbon Fuel Cell Application (Jun Ho Yu)	Biodegradability of pH-sensitive Silica Nanorods (Young Ho Joo)	
20	Design, Growth, and Characterization of Group II-doped GaZnOUV TCO Films Prepared by RF Magnetron Sputtering (Byung-Teak Lee)	Proton Conductivity of the Phosphate Glass Thin Films with Increasing Water Concentration (Suk Hee Lee)		

# Venue

## The Royal Hawaiian First Floor



## Sheraton Waikiki Hotel Second Floor



- Keynote Speech/Invited Talk/Oral Session  
(Kahuku, Honolulu, Waianae, Kohala/Kona)
- Poster Session  
(Maui)
- Registration/General Information  
(Iao Needle)
- Opening Ceremony/Plenary Speech/Banquet  
(Monarch Room)

# Registration Award Journal

## Registration/Award/Journal

### Registration

Registration desk will be located at the second floor.

Category	On-Site Registration
Regular (include banquet)	800 USD / KRW 840,000
Student	400 USD / KRW 420,000
Banquet (option to Student or Accompanying person)	120 USD / KRW 126,000

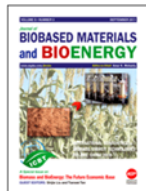
### Award

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 scheduled on May 2014)
- Journal of Biobased Materials and Bioenergy (SCIE, IF 1.037, special issue)
- Journal of Composite Materials (SCI, IF 1.068, each paper will be published in the regular issue)
- Journal of Intelligent Material Systems and Structures (SCIE, IF 1.953)
- Journal of the Korean Society for Precision Engineering and Manufacturing (KCI)



## Conference Info.

### Poster Presentation

Poster will be displayed in the 'Maui Ballroom'. Each poster of 'Poster Presentation I' should be posted by 15:00 and dismantled after 17:00 on June 26. Each poster of 'Poster Presentation II' should be posted by 17:50 and dismantled after 20:00 on June 26. All poster presenters are encouraged to be at their poster panels for discussion with participants during the poster presentation time.

Poster Session	Date / Time
Poster Presentation I (A ~ H)	June 26 / 15:10 ~ 17:00
Poster Presentation II (I ~ P)	June 26 / 18:00 ~ 20:00

### Banquet

Date and Time	Place
June 27 / 18:00 ~ 21:00	Monarch (Royal Hawaiian)

Banquet will be offered to regular registrants and student/accompanying people who purchased banquet option.



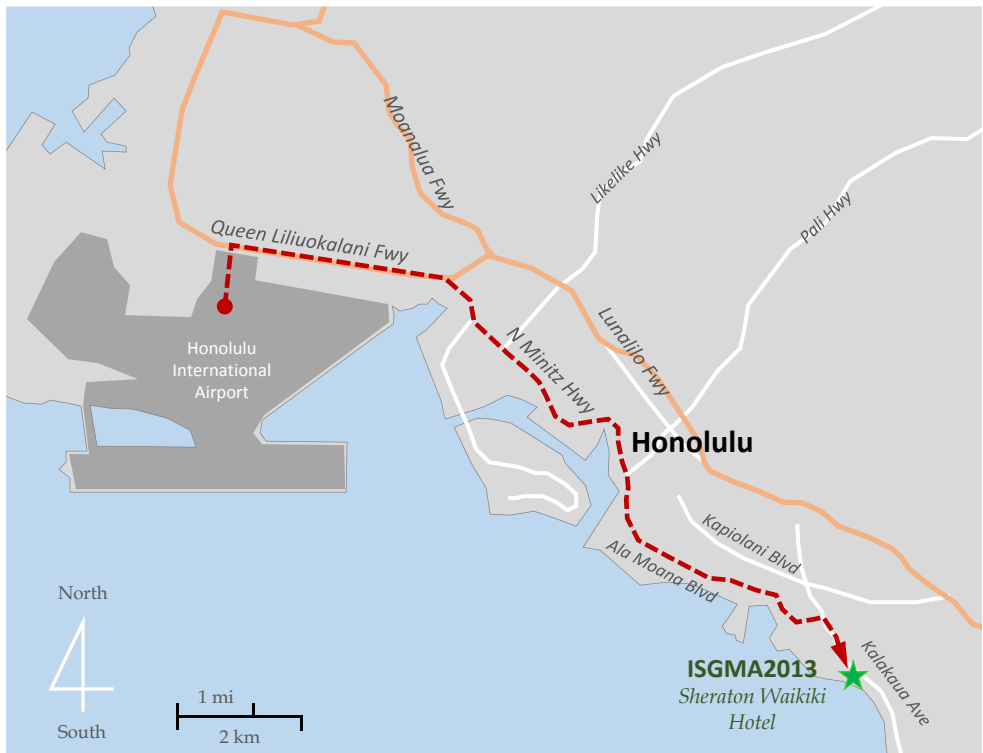
### Coffee Break

Coffee and tea will be served on the conference site during the coffee break time.



### Information Desk

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



**From Honolulu International Airport** (13.6 km (8.4 mi), 20 min.)

Take Nimitz Highway to Ala Moana Boulevard, turn right onto Kalakaua Avenue, and then turn right onto Royal Hawaiian Avenue.

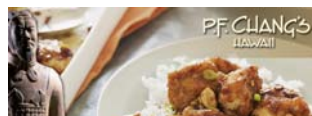
# Restaurant

Following restaurants receive ISGMA Lunch Coupon.

## List of restaurants (conference lunch with coupon)

P. F. Chang's | 2201 Kalakaua Ave., 808-628-6760

The P.F. Chang's experience is a unique combination of **Chinese** cuisine, attentive service, wine, and tempting desserts all served in a stylish, high-energy bistro.



Doraku Sushi Restaurants | 2233 Kalakaua Ave Bldg B, 3rd,  
808-922-3323

Doraku strives to be inventive on its cuisine by combining traditional **Japanese** ingredients with Pan Asian and Latin flavors. All dishes are made from fresh ingredients.



Todai Sea Food Restaurants | 1910 Ala Moana Blvd.,  
808-947-1000

Todai is an upscale All-You-Can-Eat **Japanese** Seafood Buffet Restaurant.



Kang Ho Dong 678 (강호동 678) | 1726 Kapiolani Blvd.,  
808-941-6678

Kang Ho Dong offers **Korean** cuisine.



Seoul Garden Yakiniku | 1679 Kapiolani Blvd., 808-944-4803  
Seoul Garden Yakiniku offers authentic **Korean** cuisine to the Honolulu, HI area.



Makitti Hawaii Buffet | 2380 Kuhio Ave., 808-923-2260

**Japanese** seafoods and steaks buffet restaurant in the Hawaiian atmosphere.



# Restaurant

## Restaurant

**Seoul Garden Yakiniku**  
 1679 Kapiolani Blvd.  
 808-944-4803

**Kang Ho Dong 678**  
 1726 Kapiolani Blvd  
 808-941-6678

**Todai Sea Food Restaurants**  
 1910 Ala Moana Blvd.  
 808-947-1000



**Doraku Sushi Restaurants**  
 2233 Kalakaua Ave. Bldg B, 3rd  
 808-922-3323

**P. F. Changs**  
 2201 Kalakaua Ave.  
 808-628-6760

**Makitti Hawaii Buffet**  
 2380 Kuhio Ave.  
 808-923-2260

## Plenary Lecture

Time	June 26 (Wednesday)	
	Monarch Room at Royal Hawaiian	
11:30~12:20	PL-1	<b>David Dornfeld</b> Production Technologies to Meet Challenges of the Future <i>Chair : Jong-Won Kim</i>



## Keynote Speech

Time	June 26 (Wednesday)	
9:25~9:55	<b>Keynote Speech 1 (Kahuku)</b>	
	<i>Chair: Jaewhan Kim</i>	
	K-1	<b>Daniel J. Inman</b> Energy Harvesting Applications
	<b>Keynote Speech 2 (Waianae)</b>	
	<i>Chair: Doo-Man Chun</i>	
	K-2	<b>Dong-Yol Yang</b> Light Weight Technology for Green Manufacturing and Environment
13:10~13:40	<b>Keynote Speech 3 (Honolulu)</b>	
	<i>Chair: Woochul Kim</i>	
	K-3	<b>Kenneth D. Kihm</b> Thermoelectric Energy Conversion by Graphene Layers
	<b>Keynote Speech 4 (Kahuku)</b>	
	<i>Chair: Suk Won Cha</i>	
	K-4	<b>Friedrich B. Prinz</b> Designing and Synthesizing Materials for Energy Conversion
13:10~13:40	<b>Keynote Speech 5 (Waianae)</b>	
	<i>Chair: Scott Miller</i>	
	K-5	<b>Woo Il Lee</b> Processing of Biodegradable Thermoplastic Composite Reinforced with Long Fibers
	<b>Keynote Speech 6 (Waianae)</b>	
<i>Chair: Gyu-Bong Lee</i>		
K-6	<b>Taghi Tawakoli</b> Environmentally Friendly Precision Grinding	

## Keynote Speech

Time	June 27 (Thursday)	
9:40~10:10	<b>Keynote Speech 7 (Kahuku)</b>	
	<i>Chair: Jingjing Li</i>	
	K-7	<b>Jonathan Colton</b>
		Net Zero Energy Vaccine Warehousing Systems for Developing and Transitional Countries
	<b>Keynote Speech 8 (Waianae)</b>	
	<i>Chair: Cullen Buie</i>	
K-8	<b>Thomas Hahn</b>	
	Electrolytic Oxyhydrogen (EOH) Gas for Green Thermal Processing	
<b>Keynote Speech 9 (Honolulu)</b>		
<i>Chair: Heon Lee</i>		
K-9	<b>Shinji Matsui</b>	
	Innovative Nanoimprint Lithography	

Time	June 28 (Friday)	
10:00~10:30	<b>Keynote Speech 10 (Kahuku)</b>	
	<i>Chair: Young Beom Kim</i>	
	K-10	<b>Rajit Gadh</b>
		Smart Grid - Integrating Renewables, Electric Vehicles and Micro Grids in the Creation of the Energy Infrastructure of the Future
	<b>Keynote Speech 11 (Waianae)</b>	
	<i>Chair: Chang-Doo Kee</i>	
K-11	<b>Byung Man Kwak</b>	
	A Story of Developing New Technologies from a New Concept of Mobile Harbor for the 21st Century Maritime Logistics	
<b>Keynote Speech 12 (Waianae)</b>		
<i>Chair: Jitendra K. Pandey</i>		
K-12	<b>Amar K. Mohanty</b>	
	Green Plastics and Sustainability: Challenges and Opportunities in the Emerging Bioeconomy	

## Oral Session - June 26 (Wednesday)

### Session A-1 PLM

*Chairs : Panos Prevadouras, Dong-Ho Lee*

**Wednesday, June 26, 8:00 - 9:15, Room : Kahuku**

- A-1-1      **Integration of PLM Information Model and Energy Simulation for Green Manufacturing**  
*Wen-Bin Zhao, Jin-Woo Jeong, Sang Do Noh (SungKyunKwan Univ.)*
- A-1-2      **Decision Tree Based Real Time Scheduling: A Decision Tree Construction Method**  
*Yong-Ju Kwon, Jae-Min Yu, Hyoung-Ho Doh, Dong-Ho Lee (Hanyang Univ.), Sung-Ho Nam (Korea Institute of Industrial Technology)*
- A-1-3      **Dynamic Lot Sizing for Disassembly and Reprocessing in Remanufacturing Systems**  
*Hyoung-Ho Doh, Dong-Ho Lee (Hanyang Univ.)*
- A-1-4      **MT Connect Based Real Time Monitoring Framework for FMS Control and Operation**  
*Jae-Yong Baek, Sung-Ho Nam, Jeong-Hoon Shin, Seok-Woo Lee (Korea Institute of Industrial Technology), Byeong-Cheol Ryu (CoChain Solutions Co., Ltd.)*
- A-1-5      **A Branch and Bound Algorithm to Minimize the Total Family Tardiness for Job Shop Scheduling with Job Families**  
*Jae-Min Yu, Dong-Ho Lee (Hanyang Univ.)*

### Session B-1 Forming I

*Chairs : Tae-Wan Ku, Hitoshi Ohmori*

**Wednesday, June 26, 8:00 - 9:15, Room : Waianae**

- B-1-1      **Application of Mechanical Trimming to Hot Stamped 22MnB5 Parts for Energy Saving**  
*Hong-Seok Choi, Sung-Guuy Kim, Byung-Min Kim, Dae-Cheol Ko (Pusan National Univ.)*
- B-1-2      **Prediction of Microstructure Evolution during Hot Forging using Physically Based Dynamic Recrystallization Model**  
*Ho Won Lee, Seong-Hoon Kang, Younseon Lee (Korea Institute of Materials Science)*

- B-1-3 **Tool Design and Experimental Verification for Multi-Stage Cold Forging Process of the Outer Race**  
*Tae-Wan Ku, Beom-Soo Kang (Pusan National Univ.)*
- B-1-4 **Microstructure and Mechanical Properties of AZ61 Mg Alloy Processed by Half Channel Angular Extrusion (HCAE)**  
*KyungJin Kim (Kyungil Univ.), Jong-Hun Yoon (Korea Institute of Materials Science)*
- B-1-5 **Formability Evaluation of Ferritic Stainless Steel with Anisotropic Yield Criteria at Elevated Temperature**  
*Hyuk Jong Bong, Frederic Barlat, Myoung-Gyu Lee (Pohang Univ. of Science and Technology), Deok Chan Ahn (POSCO technical research laboratories), Heon-young Kim (Kangwon National Univ.)*

### Session C-1 Advanced Material I

*Chairs : Seung-Hwan Chang, Hak-Sung Kim*

**Wednesday, June 26, 8:00 - 9:15, Room : Honolulu**

- C-1-1 **Modeling Strategies for Triaxial Braided Carbon/Epoxy Composites**  
*Tobias Wehrkamp-Richter, Jörg Cichosz, Roland Hinterhölzl (Technische Universität München), Woong Ki (Korea institute of Carbon convergence Technology), Klaus Drechsler (Technische Universität München)*
- C-1-2 **Carbon Fiber Preparation Study by Solvent- Free Thermal Extrusion of Copolymer**  
*Minhye Jung, Hyunkyu Shin (Korea institute of Carbon convergence Technology), Ben L. Batchelor, Wenjin Deng, Samsuddin F. Mahmood, Rajneesh Verma, Dennis W. Smith Jr., Duck J. Yang (Univ. of Texas at Dallas)*
- C-1-3 **Carbon Fiber Life-Cycle Analysis Issues**  
*Yuriy Romaniw, Bert Bras (Georgia Institute of Technology)*
- C-1-4 **Volatilization Properties of Pt-Au-ODS at High Temperature**  
*Sang-yeon Won, Dong-ki Kim, Soong-keun Hyun, Mok-soon Kim (Inha Univ.), Seun-ho Yang, Won-kyu Yoon (Heesung Metal)*
- C-1-5 **Investigation on Repairable Damage Tolerance for Structural Design of Aircraft Composite Structure**  
*Hyunbum Park (Howon Univ.), Haseung Lee, Gwanglim Park (Chosun Univ.)*

## Session D-1 Automobile/Electrical Vehicle

*Chairs : Kwangsuck Boo, Jay I. Jeong*

**Wednesday, June 26, 8:00 - 9:15, Room : Kohala/Kona**

- D-1-1      **Evaluation of the Automatic Lane Keeping Control based upon a Perception Action Network (PAN)**  
*Seunghwan Baek, Heungseob Kim, Kwangsuck Boo (Inje Univ.)*
- D-1-2      **Dynamic Modeling and Simulation Study of Shift Mechanism for Dual Clutch Transmission**  
*Kyoung-hoon Kim, Jay I. Jeong (Kookmin Univ.)*
- D-1-3      **The Quick Top Pick-Up Application to the Smart E-Bus**  
*Yunsik Shin, Jay I. Jeong (Kookmin Univ.)*
- D-1-4      **Stability of Electric Vehicle with Respect to Chassis System**  
*Seong Jong Park, Jay I. Jeong (Kookmin Univ.)*

## Session A-2 Energy Harvesting

*Chairs : Cheol Kim, Jaehwan Kim*

**Wednesday, June 26, 10:00 - 10:45, Room : Kahuku**

- A-2-1      **Ocean Surface Wave Lens for Wave Energy Focusing**  
*Donghyup Youn, Yeunwoo Cho, Hyun Chung (KAIST)*
- A-2-2      **Analysis of Piezoelectric Cantilever Energy Harvester Vibrates in Vortex**  
*Cheol Kim, Seongmin Yun, Yonghwan Kwon (Kyungpook National University)*
- A-2-3      **Electromechanically Coupled Analytical Model of Energy Harvesting Skin**  
*Heonjun Yoon, Chulmin Cho, Byeng-Dong Youn (Seoul National Univ.)*

**Wednesday, June 26, 10:45 - 11:05, Room : Kahuku**

- Invited Talk 1      **Development of Cubic Fresnel Lens Structure for Solar Heat Collector**  
*Hitoshi Ohmori (RIKEN)*

## Session B-2 3D Printing/Additive Manufacturing

*Chairs : Doo-Man Chun, Chung-Soo Kim*

**Wednesday, June 26, 10:00 - 11:05, Room : Waianae**

- B-2-1      Towards Greener Additive Manufacturing**  
*David A. Roberson, Ryan B. Wicker (Univ. of Texas at El Paso)*
- B-2-2      Electrical Property of Cu/Ag Nano-Composite Circuits Fabricated by Direct Printing Technology**  
*Kwang-Seok Kim, Bum-Geun Park, Seung-Boo Jung (Sungkyunkwan Univ.)*
- B-2-3      Study of Geometry of Molded Surface Structure on Polydimethylsiloxane (PDMS) for Super-Hydrophobic Surface**  
*Gaasuren Davaasuren, Chi-Vinh Ngo, Hyun-Seok Oh, Doo-Man Chun (Univ. of Ulsan)*
- B-2-4      Novel Fabrication of Porous Structure via Co-deposition using Nano Particle Deposition System**  
*Hyungsub Kim, Seungkyu Yang, Caroline Sunyong Lee (Hanyang Univ.)*

## Session C-2 Thermal Device

*Chairs : Woochul Kim, Kee Sung Lee*

**Wednesday, June 26, 10:00 - 11:05, Room : Honolulu**

- C-2-1      Optimization for Higher Efficiency of Thermoelectric Devices by Separating Energy Paths**  
*Hoon Kim, Woochul Kim (Yonsei Univ.)*
- C-2-2      Thermal Performance of Breathing Wall in Winter Conditions**  
*Zhiqiang John Zhai, Robert Slowinski (Univ. of Colorado Boulder)*
- C-2-3      A Study on the Thermal Performance Optimization, according to the Form of Heat Sink**  
*Eon-Chan Jeon, Swl Gi Kim , Sung Hwan Jee, Byung Hun Park, Jung Do Jeon, Jang Hyun Seong (Dong A Univ.)*
- C-2-4      Development of Thermal Gradient Prediction Method for Thermal Barrier Coating**  
*Yongseok Kim, Chang-Sung Seok , Si-Young Lee, Jae-Mean Koo (Sungkyunkwan Univ.), Sang-Hoon Kim, Sung-Ho Yang (KPS Gas Turbine Technology Service Center)*

## Session D-2 Automobile

*Chairs : Myung-Whan Bae, Dong Pyo Hong*

**Wednesday, June 26, 10:00 - 11:05, Room : Honolulu**

- D-2-1      **A Study on Robust Estimation of Rear Side Vehicle Recognition on Curved Road by using Rear Side View Vision System**  
*Seunghwan Baek, Heungseob Kim (Inje Univ.), Won Moo Hur, Jae Eop Jung (Cheil Electronics Co. Ltd.), Kwangsuck Boo (Inje Univ.)*
- D-2-2      **Study on Micro Deformation of Automobile Roof with Mastic Sealer after Oven Process**  
*Jiseop Kim, Jihoon Hwang (Sogang Univ.), Hogie Chung (Hyundai-Kia Motors), Naksoo Kim (Sogang Univ.)*
- D-2-3      **Development of Efficient Deburring Process by Brushing at Window Intersection**  
*Phan Quoc Bao, An Dong Hyun, Kim Kyung Hwan, Shin Sung Guen, Ko Sung Lim (Konkuk Univ.)*
- D-2-4      **Sample Sustainability Assessment for Automobiles by Type of Propulsion**  
*Panos. D. Prevedouras, Lampros. K. Mitropoulos (University of Hawaii at Manoa)*

## Session A-3 Energy Storage and Conversion

*Chairs : Suk Won Cha, Zhiqiang J. Zhai*

**Wednesday, June 26, 13:45 - 15:00, Room : Kahuku**

- A-3-1      **Numerical Study of Ice Formation in Ice Thermal Storage System using Thin Layer Ring**  
*Junling Xie, Chris Yuan (Univ. of Wisconsin at Milwaukee)*
- A-3-2      **Preparation of High C-rate Characteristics of Carbonaceous Anode Material by Liquid Phase Plasma**  
*Kang-Seop Yun, Bo-Ra Kim, Eul Noh, Hee-Jun Jung, Hyo-Jin Oh (Sejong Univ.), Woo-Seung Kang (Inha Technical College), Sang-Chul Jung (Sunchon National Univ.), Seung-Taek Myung, Sun-Jae Kim (Sejong Univ.)*
- A-3-3      **Supercritical CO<sub>2</sub> Foam Stabilization for Enhanced Oil Recovery using Nanoparticles from Industrial By-products**  
*Daeyang Lee, Heechan Cho (Seoul National Univ.), Chun Huh (Univ. of Texas at Austin)*

A-3-4 **Numerical and Experimental Studies on the Performance of Wave Energy Converting System**  
*Kyuhan Kim, Sungwon Shin, Bumshick Shin, Kyutae Shim (Kwandong Univ.)*

A-3-5 **High-Effectiveness Low-Cost Micro-Channel Heat Exchanger: Concept, Prototype and Manufacturing**  
*David C. Denkenberger, Zhiqiang John Zhai, Michael J. Brandemuehl, Joshua M. Pearce (Univ. of Colorado at Boulder)*

### Session B-3 Innovative Process 1

*Chairs : Scott Miller, Sang-Chul Jung*

**Wednesday, June 26, 13:45 - 15:00, Room : Waianae**

B-3-1 **Microinjection Molding of Polymeric Micro-Cantilevers using Variotherm Mold**  
*Wook-Bae Kim (Korea Polytechnic Univ.), Won-Woo Kim (Hirose Korea Co, Ltd.)*

B-3-2 **Study on Multi-Stage Deep Drawing Process for Rectangular Cup using SUS439 Thin Sheet Material**  
*Ji-Woo Park, Yu-Beom Kim, Beom-Soo Kang, Tae-Wan Ku (Pusan National Univ.)*

B-3-3 **Fabrication of Functionally Graded Materials using Biodegradable Polymer by Laser Material Processing**  
*Pil-Ho Lee (Sungkyunkwan Univ.), Taebong Lee (Hongik Univ.), Kyounga Cho (Soongsil Univ.), Sang Won Lee (Sungkyunkwan Univ.), Il Won Kim (Soongsil Univ.), Haseung Chung (Hongik Univ.)*

B-3-4 **Mechanical Behavior on a New Low Cost Manufacturing Process of Carbon Fiber Composites using Microwave Curing**  
*Minhye Jung, Hyunkyu Shin (Korea institute of Carbon convergence Technology), Jounghwan Lee, Richard Scaife (The Univ. of Sheffield)*

B-3-5 **Development of Waste Automatic Sorting System for Climate Protection**  
*Woo Zin Choi (The Univ. of Suwon)*



### Session C-3 Energy Saving in Manufacturing Processes

*Chairs : Gyu-Bong Lee, You-Jin Park*

**Wednesday, June 26, 13:45 - 15:00, Room : Honolulu**

- C-3-1      **Utilization of Resources for Eco-efficiency by Reducing Environmental Impacts of Unit Processes in PCB Manufacturing**  
*Gyu-Bong Lee, Soo-Bin Park (KITECH)*
- C-3-2      **Optimization of Energy-Related Measures in Dry Process of PCB Manufacturing**  
*You-Jin Park (Chung-Ang Univ.), Gyu-Bong Lee (Korea Institute of Industrial Technology), Hyun-Young Park (Chung-Ang Univ.)*
- C-3-3      **A Study on Combinatorial Dispatching Decision of Hybrid Flow Shop: Application to Printed Circuit Board Process**  
*Sungwook Yoon (Kwangwoon Univ.), Yong-Ju Cho, Gyu-Bong Lee (Korea Institute of Industrial Technology), Sukjae Jeong (Kwangwoon Univ.)*
- C-3-4      **4M Integration for Energy Management in Manufacturing**  
*Suk-keun Cha (ACS corp.)*
- C-3-5      **Life Cycle Assessment of Smart Split Partial Second Pass RO System**  
*Sung-Hyuk Park, Gyu-Bong Lee (KITECH), Yong-Gyun Park (GS Engineering & Construction Research Institute), Ju-Dong Lee (KITECH)*

### Session D-3 Damage Detection

*Chairs : Seung-Han Yang, Young Choi*

**Wednesday, June 26, 13:45 - 15:00, Room : Kohala/Kona**

- D-3-1      **Multiple Quad-Copter Tracking with Multi-Cameras**  
*Longhai Jin, Mun-Ho Jeong, KeySeo Lee (KwangWoon Univ.), Dong-Joong Kang (Pusan Univ.)*
- D-3-2      **Edge Detection and Three Dimensional Volume Reconstruction of Objects using Multiple X-ray Images**  
*Sang-Chul Hwang, Young Choi, Seung-Bum Koo (Chung-Ang Univ.)*

- D-3-3 **Detection of Mechanical Damage in Fruits using Infrared Thermography Techniques**  
*Ghiseok Kim (Korea Basic Science Institute), Byoung-Kwan Cho (Chungnam National Univ.), Dong-Ik Kim, Geon-Hee Kim (Korea Basic Science Institute)*

#### Session A-4 Fuel Cell/Bio Fuel

*Chairs : Zhengjun Zhang, Young Beom Kim*

**Wednesday, June 26, 15:10-15:30, Room : Kahuku**

- Invited Talk 2 **Fabrication and Characterisation of Thin Film Electrolyte and Catalyst for Fuel Cells**  
*Suk Won Cha (Seoul National Univ.)*

**Wednesday, June 26, 15:30 - 17:00, Room : Kahuku**

- A-4-1 **Effects of Carbon Contamination of Yttria-Stabilized Zirconia Film by Atomic Layer Deposition**  
*Gu Young Cho, Suk Won Cha, Joon ho Park (Seoul National Univ.), Sun Ho Lee (Greenville Inc.), Ikwhang Chang, Taehyun Park, Jun Yeol Paek (Seoul National Univ.), Soon Wook Hong, Young Beom Kim (Hanyang Univ.)*
- A-4-2 **Thickness Influence of Y-doped BaZrO<sub>3</sub> on Performance of Thin Film Solid Oxide Fuel Cell**  
*Jun Yeol Paek, Joonho Park, Ikwhang Chang, Sanghoon Ji, Noo Li Jeon (Seoul National Univ.), Moonju Park (Univ. of Incheon), Suk Won Cha (Seoul National Univ.)*
- A-4-3 **Research on Thin Film Single Chamber Solid Oxide Fuel Cells**  
*Yoon Ho Lee, Suk Won Cha, Gu Young Cho (Seoul National Univ.)*
- A-4-4 **Comparison of Performances of Flexible Polymer Electrolyte Fuel Cell Based on PDMS Coated with Sputtered Metal and Ag Nanowires**  
*Taehyun Park, Ikwhang Chang, Jinhwan Lee (Seoul National Univ.), Seung Hwan Ko (Korea Advanced Institute of Science and Technology), Suk Won Cha (Seoul National Univ.)*
- A-4-5 **Bio-Fuel Cells Composed by using Glucose Oxidase on Chitosan Coated Carbon Fiber Cloth**  
*Hsiharng Yang, Chia-Hung Kuo, Wei-Hsiang Huang, Chwen-Jen Shieh (National Chung Hsing Univ.)*
- A-4-6 **The Efficient Production of High Cetane Number Biodiesel from Animal Fats**  
*Janchiv Azjargal, Youngtaig Oh (Chonbuk National Univ.), Seunghun Choi (Vision Univ. of Jeonju)*

## Session B-4 Non-Traditional Manufacturing

*Chairs : Choon-Man Lee, Cullen Buie*

**Wednesday, June 26, 15:10-15:30, Room : Waianae**

Invited Talk 3 **High Precision Tool Path Planning in 5-Axis Flank Machining by Global Optimization**  
*Chih-Hsing Chu (National Tsing Hua Univ.)*

**Wednesday, June 26, 15:30 - 17:00, Room : Waianae**

B-4-1 **Dry Electrical Discharge Machining on SS 316L**  
*Rony Thomas Murickan, Kuppan P, Lakshmiathi. J (VIT Univ.)*

B-4-2 **Characterizing the Machining Effects of Lateral Electrodes in Electrical Discharge Machining**  
*A-Cheng Wang, Lung Tsai (Chien Hsin Univ. of Science and Technology), Yan-Cherng Lin (Nankai Univ. of Technology)*

B-4-3 **A Study on Fretting and Sliding Wear Improvement of CVT Bearings by Nanoskin Modification**  
*Young Sik Pyun, Jun Hyong Kim, Gab Su Choi (Sun Moon Univ.), Kyung Ho Min, Ki Hong Kim (Hyundai Motor Group)*

B-4-4 **Preparation of Magnesium Thin Film by Non-Aqueous Electrolysis at Room Temperature**  
*Jesik Park, Heon-Seok Roh, Churl Kyoung Lee (Kumoh National Institute of Technology), Kyoungjung Kwon (Sejong Univ.), Hansu Kim (Hanyang Univ.)*

B-4-5 **A Simplified Thermal Transition Model for Linear Motion Guides**  
*Yeongeol Park, Jay I. Jeong (Kookmin Univ.)*

## Session C-4 Green Composite I

*Chairs : Hitoshi Takagi, Jung Il Song*

**Wednesday, June 26, 15:10-15:30, Room : Honolulu**

Invited Talk 4 **Flexible Zinc Oxide-Cellose Hybrid Nanocomposite as a Green Smart Material**  
*Jaehwan Kim (Inha Univ.)*

Wednesday, June 26, 15:30 - 17:00, Room : Honolulu

- C-4-1      **Development of Waste Vegetable Based Composites Reinforced by Bamboo Fiber**  
*Teruo Kimura, Aram Keum (Kyoto Institute of Technology)*
- C-4-2      **Electrical and Optical Properties of Nano-Cellulose and Its Application**  
*Hyeok-Jin Kwon, Sera-Jeon, Ji-Won Park, Hyun-Joong Kim (Seoul National Univ.)*
- C-4-3      **Characterization of Cellulose Nanofiber Extracted from Waste Bio-Resource**  
*Hitoshi Takagi, Antonio N. Nakagaito, Masahiro Katoh, Yuya Muneta (The Univ. of Tokushima),  
Jitendra K. Pandey (Seoul National Univ.)*
- C-4-4      **Effect of Plasticizing Starch/Fiber Processing on the Mechanical Properties of Biomass Cushion Packaging Material**  
*Kaikai Guan, Fangyi Li, Gang Li, Peng Liu, Anfu Guo, Jianfeng Li (Shandong Univ.)*
- C-4-5      **Properties of Treated Abaca Fabric Composite Processed by VARTM**  
*Marissa Paglicawan, Blessie Basilia (Industrial Technology Development Institute), Byung Sun Kim (Korea Institute of Materials Science), Brigida Visaya, Carlo Emolaga, Jo Ann Sy (Industrial Technology Development Institute)*
- C-4-6      **Flame Retardancy and Mechanical Properties of Natural Fiber Composites Containing Nanoclay**  
*Dong-Woo Lee, Cheon Won, P. Sudhakara (Changwon National Univ.), Byung-Sun Kim (Korea Institute of Materials Science), Jung-Il Song (Changwon National Univ.)*

## Oral Session - June 27 (Thursday)

### Session A-5 Recycle

*Chairs : Hwa-Cho Yi, Teruo Kimura*

**Wednesday, June 26, 8:00 - 9:30, Room : Kahuku**

- A-5-1      **Modification of Bitumen Characteristic by Using Recycled Polypropylene**  
*Faliza Mohd Bejimin, Ching Yern Chee, Mohd Rehan Karim (Univ. of Malaya)*
- A-5-2      **Recyclability of Fiber Wastes as Reinforcement of Composite Materials**  
*Takayuki Ishise, Teruo Kimura (Kyoto Institute of Technology), Katsunori Osako (L&R Co., ), Satoshi Matsuyama (Ishiki Gousei Co., Ltd), Koji Nakanishi (Kasii Recovered Fibers Cooperative)*
- A-5-3      **Creation of Pet Bottle Recycling Society in Small Scale**  
*Takanori Negoro (NEGORO SANGYO CO., LTD), Hiroyuki Inoya (Kyoto Institute of Technology), Tomoko Ota (Chuo Business Group), Kazushi Yamada, Hiroyuki Hamada (Kyoto Institute of Technology)*
- A-5-4      **Verification of the Effect to Reduction of Emission of Carbon Dioxide by Using Recycled Materials and Dope-Dyeing Method**  
*Takanori Negoro (Negoro Sangyo Co., Ltd), Hiroyuki Inoya, Hiroyuki Hamada (Kyoto Institute of Technology)*
- A-5-5      **Hydration Properties According to the Degree of Crystallinity of LFS Cooled by High-Pressure Air**  
*Sun-Mi Choi, Ji-Ho Kim, Young-Jae Bock, Jin-Man Kim (Kongju National Univ.)*
- A-5-6      **Development of a Safety Helmet MMI with Wireless Communication**  
*Taek-Jun Nam, Hwa-Cho Yi, Jung-Whan Park (Yeungnam Univ.)*

## Session B-5 Machining I

*Chairs : Patrick Kwon, Bo-Hyun Kim*

**Thursday, June 27, 8:00 - 9:30, Room : Waianae**

- B-5-1      **A Micro Cutter Auto-alignment System with On-machine Positioning Error Measurement and Compensation Methods**  
*Shih-Ming Wang, Ji-Jun Lin , Zhe-Zhi Ye (Chung Yuan Christian Univ.)*
- B-5-2      **Tool Selection Based on Machining Feature and Chatter Vibration in Rough Machining**  
*Cheol-Soo Lee, Eun-Young Heo (Sogang Univ.), In-Hugh Choi (CSCAM Co., Ltd), Dong Yoon Lee (KITECH)*
- B-5-3      **A Study on Ball Endmill Cutting Force for Inclined Surface Angles using CAM**  
*Eon-Chan Jeon, Gi-Ho Yoon, Se-Min Kim, Dong-Hoo Kim (Dong A Univ.) Tae-Ho Kim (OBP ENG Corp.,)*
- B-5-4      **Ultrasonic Nanocrystal Surface Modification (UNSM) Effects of Cold Steel Tools(D2) on Tribological and Fatigue Characteristic**  
*Hak-Doo Kim, Ki-Bea Hong, Young-Sik Pyun, Jun-Hyong Kim (Sunmoon Univ.)*
- B-5-5      **The Development of Module for 5-axis Drilling of Closed Type Impeller**  
*Hwang-Jin Son, Sang-Kyu Kim, Yoon-Gyo Jung, Young-Tae Cho (Changwon National Univ.)*
- B-5-6      **Preliminary Study on the Effect of Spray Slurry Nozzle in CMP for Environmental Sustainability**  
*H. S. Lee, Y. B. Park, Y. K. Lee (Pusan National Univ.), S. J. Lee (Korea Institute of Industrial Technology), H. D. Jeong (Pusan National Univ.)*

## Session C-5 Smart Material and Structure

*Chairs : Byeng-Dong Youn, Seoung Su Kim*

**Thursday, June 27, 8:00 - 9:30, Room : Honolulu**

- C-5-1      **Thermal and Mechanical Characteristics of the Micro/Nano-Particles Reinforced Phenolic Foams Prepared by Microwave Processing**  
*Seung-A Song, Hyun-Chul Lee, Seong-Su Kim (Chonbuk National Univ.)*

- C-5-2 **Effect of Zinc Addition on Fabrication of Lotus-type Porous Copper**  
*H. T. Kim, J. W. Lee, M. G. Kim, S. K. Hyun (Inha Univ.)*
- C-5-3 **Magnetic Hybrid Colloid Decorated with Ligand-Free Ag Nanoparticles as a Potent Antimicrobial Agent**  
*Kyoungja Woo, Hye Hun Park (Korea Institute of Science and Technology), GwangPyo Ko, SungJun Park (Seoul National Univ.)*
- C-5-4 **Electro Active Actuator Based on Tempo-mediated Oxidized Bacterial Cellulose and Graphene**  
*Ji-Sieup Kim, Hyun-Il Kim, Chang-Doo Kee (Chonnam National Univ.)*
- C-5-5 **A Study on the Electromechanical Behavior of Silicone-OMMT Composites as Artificial Muscles**  
*Ji-Hun Bae, Kyung-Chae Jung, Han-Young Lee, Seung-Hwan Chang (Chung-Ang Univ.)*

#### Session D-5 Process Control and Execution I

*Chairs : Kwangyeol Ryu, Minseok Song*

**Thursday, June 27, 8:00 - 9:30, Room : Kohala/Kona**

- D-5-1 **Equipment Supporting Platform to Develop the MES**  
*Seung-Woo Lee, So-Jeong Nam, Jai-Kyung Lee (Korea Institute of Machinery & Materials)*
- D-5-2 **Simulation-based Analysis for Benefits of MES Implementation in Green Manufacturing**  
*Wen-Bin Zhao, Ting Shi, Sang-Do Noh (Sungkyunkwan Univ.), Hyun-Jei Jo, Yong-Ju Jo, Seog-Ou Choi (Korea Institute of Industrial Technology)*
- D-5-3 **Development of Production Scheduler Specialized for Small and Medium Sized Sustainable Manufacturing Company**  
*Moonsoo Shin, Sung-Min Bae, Taebeum Ryu (Hanbat National Univ.), Saeyeob Jang, Jeanho Kim (SPACE Solution, Ltd.), Seogou Choi (KITECH), Kwangyeol Ryu (Pusan National Univ.)*
- D-5-4 **Capturing Green Information and Mapping with MES Functions for Increasing Manufacturing Sustainability**  
*Hwaseop Lee, Kwangyeol Ryu (Pusan National Univ.), Moonsoo Shin (Hanbat National Univ.), Hyunjei Jo, Yongju Cho (KITECH)*

- D-5-5 **The Use of an Integrated Monitoring System Based on Machine-status and Process-Status to Enhance Product Quality in c-MES**  
*Yong Sik Cho, Hwa Young Kim, Jung Hwan Ahn (Pusan National Univ.)*
- D-5-6 **Constructing Statistical Process Control System as a Simplified, Price-reduced Web-based System**  
*Young-Whun Chang, Seong-Ho Kim, Jaehoon Myung, Yoon-Hwa Suh, Soo-Hong Lee (Yonsei Univ.)*

### Session A-6 Zero Energy Building and Factory

*Chairs : Jingjing Li, Suk Won Cha*

**Thursday, June 27, 10:15 - 11:15, Room : Kahuku**

- A-6-1 **Sustainable Warehouses and Industrial Shed Structures After 2012 Earthquake in Northern Italy**  
*G.P. Cimellaro (Politecnico Di Torino), A. M. Reinhorn, M. Bruneau (State Univ. of New York)*
- A-6-2 **Optimization of Energy Consumption Using Building Energy Performance Analysis and Energy Consumption Measured Values**  
*Seung-Hee Park, Dong-Hwan Lee and Kee-Jung Kwon (Sungkyunkwan Univ.)*
- A-6-3 **The Study of Construction Waste Management System Process Utilizing BIM/GIS For Low-Carbon Green Growth**  
*Hye-Mi Kim, Won-Hwa Hong (Kyungpook National Univ.), Seung-Yeob Lee (Gyeongju Univ.)*

### Session B-6 Innovative Process II

*Chairs : Doo-Man Chun, Won-Shik Chu*

**Thursday, June 27, 10:15 - 11:15, Room : Waianae**

- B-6-1 **Development of Prediction System of Sealing Process Parameters for Obtaining the Desired Shape of Geometry**  
*Youngshin Kim, Euysik Jeon (Kongju National Univ.)*
- B-6-2 **Enabling of Local Value Creation via Openness for Emergent Synthesis**  
*Steffen Heyer (Institute for Machine Tools and Factory Management), Nariaki Nishino (Univ. of Tokyo), Bernd Muschard, Gunther Seliger (Institute for Machine Tools and Factory Management)*



- B-6-3 **Water Purification Technique Using the Mist Flow Generated by A Rotating Cone**  
*Takahiro Adachi (Akita Univ.)*
- B-6-4 **The Effect of Surface Roughness on the Pressure Drop in a Hydro-Thermal Tube of the Pressurized Water Reactors**  
*Gyun-Ho Gim, Se-Myong Chang, Sin-Young Lee (Kunsan Univ.)*

### Session C-6 Advanced Material II

*Chairs : Hyun-Joong Kim, Heon Lee*

**Thursday, June 27, 10:15 - 11:15, Room : Honolulu**

- C-6-1 **Residual Stress Manipulation of R.F. Sputtered ZnO Thin Film with Nano-Particle Seed Layer**  
*Soon-Kwan Kwon, Tae-Hwan Ahn, Seung-Hwan Yi (Korea National Univ.)*
- C-6-2 **Facile Route Toward Mechanically Stable Superhydrophobic Copper Using Oxidation-reduction Induced Morphology Changes**  
*Seung-Mo Lee, Kwang-Seop Kim, Eckhard Pippel, Sangmin Kim, Jae-Hyun Kim, Hak-Joo Lee (Korea Institute of Machinery & Materials)*
- C-6-3 **TiO<sub>2</sub> Nanotubes Formed by Two-step Anodization for Drug Loading**  
*P. Wang, H. Li, Z. T. Liu, H. Z. Liu, L. Q. Wang, S. P. Zhao, Y. P Wang, Y. F. Yan (Shanghai Jiao Tong)*
- C-6-4 **Novel Dispersion Method for Carbon Black by Applying the Direct Friction Force**  
*Seung-Yoon On, Seong-Su Kim, Hyun-Ju Oh (Jeonbuk National Univ.)*

### Session D-6 Process Control and Execution II

*Chairs : Seung Woo Lee, Mujin Kang*

**Thursday, June 27, 10:15 - 11:15, Room : Kohala/Kona**

- D-6-1 **Analysis of Manufacturing Processes with Process Mining in Configurable Manufacturing Execution Systems**  
*Minseok Song, Bernardo N. Yahya (Ulsan National Institute of Science and Technology), Hyeon-Jae Cho, Yong Ju Cho (Korea Institute of Industrial Technology), Kwang-Yeol Ryu (Pusan National Univ.)*

- D-6-2 **The Study of Data Interface Between MES and DES for an Agile Production Planning**  
*Hyunjei Jo, Yong-Ju Cho, Seogou Choi (Korea Institute of Industrial Technology)*
- D-6-3 **Development of a Process Planning System for Machining and Assembly**  
*Myon-Woong Park, Jae-Kwan Kim (Korea Institute of Science and Technology), Mujin Kang, Kwangho Eum, Taemoon Lee (Sungkyunkwan Univ.), Hong-Seok Park, Jin-Woo Park (Univ. of Ulsan)*
- D-6-4 **On Classification of Multi-axis Features Based on Machining Process**  
*Mujin Kang, Gyung-Ha Kim (Sungkyunkwan Univ.), Myon-Woong Park, Jae-Kwan Kim (Korea Institute of Science and Technology)*

## Session A-7 Wind Energy

*Chairs : Kwang-Hee Im, Ki-Weon Kang*

**Thursday, June 27, 13:00 - 13:20, Room : Kahuku**

- Invited Talk 5 **Vibration-Based Fault Diagnostics for a Gearbox in Offshore Wind Turbines**  
*Byeng-Dong Youn (Seoul National Univ.)*

**Thursday, June 27, 13:20 - 14:50, Room : Kahuku**

- A-7-1 **Health Data Definition for Health Diagnostics of Wind Turbine Gearbox**  
*Jong Moon Ha , Byung Chul Jeon, Seung Hyuk Choi, Byeng Dong Youn (Seoul National Univ.), Jooho Choi (Korea Aerospace Univ.), Yoong Ho Jung (Pusan National Univ.), Bongtae Han (Univ. of Maryland), Changwoon Han (Korea Electronics Technology Institute)*
- A-7-2 **Light Weight Design of Direct-Drive Generator for Large-Scaled Wind Turbine**  
*Yun-Cheol Rho, Dae-Gyun Ahn, Da-Woon Choi, Yun-Hyun Cho, Seung-Ho Han (Dong-A Univ.)*
- A-7-3 **Aerodynamic design for the Rotor of a Savonius Turbine using CFD**  
*Jong-Hyun Shin, Se-Myong Chang (Kunsan National Univ.)*

## Session B-7 Machining II

*Chairs : Dong-Yoon Lee, Jingjing Li*

**Thursday, June 27, 13:00 - 13:20, Room : Waianae**

Invited Talk 6 **Machining Titanium Alloys: Critical Reviews and New Directions**

*Patrick Kwon (Michigan State Univ.)*

**Thursday, June 27, 13:20 - 14:50, Room : Waianae**

B-7-1 **Static Stiffness Analysis of a 5-axis Stage for Electron Beam Finishing**

*Jongkyu Jeong, Jayil Jeong (Kookmin Univ.)*

B-7-2 **Cutting Theory of the Peripheral Edge of Brush Blade, and Test of Its Effectiveness**

*Young-Doo Kwon (Kyungpook National Univ. & IEDT), Weon-Kook Choi, Sang-In Bang (Kyungpook National Univ.), Hyun-Wook Kwon (Research Institute of Industrial Science & Technology)*

B-7-3 **Development of the FE Analysis Method to Predict the Burr Formation in the Shearing Process of Zircaloy-4 Sheet**

*Jihoon Hwang, Hyunsoo Jung (Sogang Univ.), Seokmoo Hong (Samsung Electronics), Naksoo Kim (Sogang Univ.)*

B-7-4 **Integrated Analysis Method of Thin-walled Turbine Blade Precise Manufacturing**

*Hui Wang (Tsinghua Univ.), Li-Jiang Huang (Northwestern Polytechnical Univ.), Xiao-long Li, Yi-Ming Rong (Tsinghua Univ.)*

B-7-5 **Study of An Efficient Real-time Monitoring and Control System for BUE and Cutter Breakage for CNC Machine Tools**

*Shih-Ming Wang, Chien-Da Ho, Po-cheng Tsai (Chung Yuan Christian Univ.), Chuntai Yen (Institute for Information Industry)*

B-7-6 **Effect of Scale of Machining Hardware on Energy Consumption**

*Hae-Sung Yoon, Jang-Yeob Lee, Min-Soo Kim, Eun-Seob Kim, Sung-Hoon Ahn (Seoul National Univ.)*

**Session C-7 Advanced Material III**

*Chairs : Jaehwan Kim, Yern Chee Ching*

**Thursday, June 27, 13:00 - 13:20, Room : Honolulu**

Invited Talk 7 **Electrophoretic Deposition for Environmentally Friendly Superhydrophobic Fabrics**  
*Cullen Buie (MIT)*

**Thursday, June 27, 13:20 - 14:50, Room : Honolulu**

C-7-1 **Preparation and Characterization of Copper/Copper Coated Silicon Carbide Composites**  
*Azida Azmi, Ching Yern Chee (Univ. of Malaya)*

C-7-2 **The Effect of Viscosity and Surface Tension of Forming Agents on the Permeability of Foamed concrete**  
*Jeong Ji Yong, Kim Jin Man, Choi Ji Ho, Sun Joung Soo (Kongju National Univ.)*

C-7-3 **An Evaluation of the Physical Properties of Bottom ash Discharged from the Dry Process and Its Applicability as Light-weight Aggregate Concrete**  
*Joung-Soo Sun, Jong-Hyun Sung, Jin-Man Kim (Kongju National Univ.)*

C-7-4 **Mechanical Properties of Light weight Concrete at Elevated Temperature**  
*Gyuyong Kim, Gyeongcheol Choe, Minho Yoon, Taegy Lee (Chungnam National Univ.)*

C-7-5 **Sound Absorption Property of Porous Concrete using Bottom Ash with Various Size**  
*Duck-Jin Choi, Hwan-Dae Jeong, Joung-Soo Sun, Jin-Man Kim (Kongju National Univ.)*

C-7-6 **Comparative Analysis of Mechanical and Thermal Properties According to Laminated Orientation of CFRP Through Bending Test**  
*Hee Jae Shin, Lee Ku Kwac, Jae Sung Kim, Sun Ho Ko, Young Jun Kim, Ka Eul Kim, Hong Gun Kim (Jeonju Univ.)*

## Session D-7 Design and Optimization

*Chairs : Baeksuk Chu, Heungseob Kim*

**Thursday, June 27, 13:20 - 14:50, Room : Kohala/Kona**

- D-7-1      **Structural Design and Shape Optimization for Folding Head Restraint Module of Rear Folding Seat**  
*Yunsik Yang, Euysik Jeon (Kongju National Univ.)*
- D-7-2      **Design of a High-efficiency Multi-phase Pump using Numerical Optimization Techniques**  
*Joon-Hyung Kim (Hanyang Univ., KITECH), Young-Seok Choi, Kyoung-Yong Lee (KITECH), Joon-Yong Yoon (Hanyang Univ.), Yong-Kab Lee (ANFLUX CO., Ltd.)*
- D-7-3      **Development of Integrated Shop Operation System in Multiple FMC Environments with Real-Time Re-scheduling Architecture**  
*Sung-Ho Nam, Jeong-Hoon Shin (KITECH), Dong-Ho Lee (Hanyang Univ.), Jae-Yong Baek, Seok-Woo Lee (KITECH)*
- D-7-4      **Numerical Simulations of Ingot Cracking in Forging Furnace**  
*Filip Tikal (COMTES FHT a.s.)*
- D-7-5      **Real-time Adjustment and Optimization of Remote Laser Welding Parameters by using ANN in Eco-automotive Factories**  
*Kezia Amanda Kurniadi, Kwangyeol Ryu (Pusan National Univ.), Minseok Song (Ulsan National Institute of Science and Technology)*
- D-7-6      **Eco-friendly Process Generation and Restructuring for Self-reconfigurable Manufacturing Systems**  
*Sangil Lee, Kwangyeol Ryu (Pusan National Univ.), Sungho Nam (KITECH)*

## Session A-8 Solar Energy

*Chairs : Shinjiro Umezu, Blessie Basilia*

**Thursday, June 27, 15:00 - 15:20, Room : Kahuku**

- Invited Talk 8    **Amorphous Si Solarcells on Nano-patterned Substrate**  
*Heon Lee (Korea Univ.)*

**Thursday, June 27, 15:20 - 16:50, Room : Kahuku**

- A-8-1 **Atomic-scale Imaging of TiO<sub>2</sub>(101) Anatase Surface by Simultaneous AFM/STM**  
*César Moreno, Oleksandr Stetsovych, Oscar Custance (National Institute for Materials Science)*
- A-8-2 **TiO<sub>2</sub>-TiN Composite Thin Films as Photo-catalyst in the Visible Light with Tunable Optical Bandgap**  
*Peng Zhan, Weipeng Wang, Zhengjun Zhang (Tsinghua Univ.)*
- A-8-3 **Dye-Sensitized Solar Cell (DSSC) Utilizing Dichroic Mirrors**  
*Shinjiro Umezu(Tokai Univ., Riken), Shingeto Kawata, Yuki Shimoyama, Yoshihito Kunugi (Tokai Univ.), Hitoshi Ohmori (Riken)*
- A-8-4 **Bio-inspired Deposition of Nano-particles on the Glass Surface for Dye Sensitized Solar Cell (DSSC)**  
*Jitendra K.Pandey, Chung-Soo Kim, Jung-Oh Choi, Hyun-Taek Lee, Won-Shik Chu, Sung-Hoon Ahn (Seoul National Univ.)*
- A-8-5 **Methanol Artificial Photosynthesis using Iron Doped TiO<sub>2</sub>**  
*Amir Abidov, Bunyod Allabergenov, Oybek Tursunkulov, Sangyuop Kim, Lili He, Jeonghwan Lee, Sungjin Kim (Kumoh National Institute of Technology)*
- A-8-6 **Community Solar Steam Cooking System - A case Study of Shri Sai baba Sansthan Trust**  
*Vinod D. Gondkar, Dilip R. Pangavhane (Univ. of Pune)*

## Session B-8 Machinery

*Chairs : Sun-Kyu Lee, Gyu Man Kim*

**Thursday, June 27, 15:00 - 15:20, Room : Waianae**

- Invited Talk 9 **Current Research Trends in Laser Assisted Machining**  
*Choon-Man Lee (Changwon National Univ.)*

**Thursday, June 27, 15:20 - 16:50, Room : Waianae**

- B-8-1 **Multi-Resolution Simulation of Robot Machining**  
*Yonghua Chen (The Univ. of Hong Kong)*

- B-8-2 **The Strength Analysis and Array according to the Pillar Paste Compositions for Supporting Vacuum Glazing Gap**  
*Jaekyung Kim, Euysik Jeon (Kongju National Univ.)*
- B-8-3 **Study on Kinematic Characteristics of Asymmetric Schönflies Motion Generators**  
*Sung Mok Kim (Korea Univ.), Byung-Ju Yi (Hanyang Univ.), Wheekuk Kim (Korea Univ.)*
- B-8-4 **Friction Experiment of LM Roller Guide THK SRG25**  
*De-Jun Cheng, Wan-Suk Yang, Je-Hong Park, Tae-Jo Park, Su-Jin Kim (Gyeongsang National Univ.), Gyung-Ho Kim, Chun-Hong Park (Korea Institute of Machinery & Materials)*
- B-8-5 **A study on the Vibration Control for Magnetic Bearing-Shaft of Turbo Blower**  
*Hoon Hyung Jung, Chaesil Kim, Min Jae Shin (Changwon National Univ.), Soo Yong Cho (Gyeongsang National Univ.)*
- B-8-6 **Servo Control Performance Analysis of a Precision Roll Lathe using the Finite Element Method**  
*Chang-Ju Kim, Jeong Seok Oh, Jun Yeob Song (Korea Institute of Machinery & Materials)*

## Session C-8 Metal Matrix Composite

*Chairs : Tongxiang Fan, Manju Misra*

**Thursday, June 27, 15:00 - 15:20, Room : Honolulu**

- Invited Talk 10 **Morphology Genetic Materials Template From Nature Species**  
*Di Zhang (China Academy of Machinery Science & Technology)*

**Thursday, June 27, 15:20 - 16:50, Room : Honolulu**

- C-8-1 **An Approach to Enhanced Tensile Ductility in Particulate Reinforced Ultrafine-grained Metallic Composite by Nano-dispersion Toughening**  
*Hua Gong, Di Zhang (Shanghai Jiao Tong Univ.)*
- C-8-2 **Improved Thermal Conductivity of Diamond/Aluminum Composites by a Tungsten Interface Nanolayer**  
*Honghua Wang, Di Zhang (Shanghai Jiao Tong Univ.)*
- C-8-3 **In-situ Synthesized TiC Reinforced Magnesium Matrix Composites**  
*Tongxiang Fan (Shanghai Jiao Tong Univ.)*

- C-8-4 **A Study on HVOF Coating of WC-metal Powder Coated on Incone718 Substrate of Magnetic Bearing Shaft Material**  
*Tongyul Cho, Yunkon Joo, Jaehong Yoon (Changwon National Univ.), Huigon Chun (Univ. of Ulsan)*
- C-8-5 **Newly Test Method Distribution of Fly Ash in Aluminum Matrix Composites by Stir Casting**  
*Shuei-Wan Henry Juang, Liang-Jing Fan, Hung Po Ou Yang (National Taiwan Ocean Univ.)*
- C-8-6 **Material Properties of Graphene/Aluminum Metal Matrix Composites Fabricated by Friction Stir Processing**  
*Yong-Ha Jeong, Sung-Tae Hong, Young-Jin Yum, Seung-Hyun Hur (Univ. of Ulsan), Kwang-Jin Lee (Korea Institute of Industrial Technology)*

## Session D-8 Forming II

*Chairs : Zhongde Shan, Haedo Jeong*

**Thursday, June 27, 15:00 - 15:20, Room : Kohala/Kona**

- Invited Talk 11 **3D Forming Technology and Equipment Research of Woven Composites**  
*Zhongde Shan (China Academy of Machinery Science & Technology)*

**Thursday, June 27, 15:20 - 16:50, Room : Kohala/Kona**

- D-8-1 **Forming of Medium-Carbon Steel Around Ac1 Temperature (ASR)**  
*Daniela Hauserova, Jaromir Dlouhy, Zbysek Novy (COMTES FHT a.s.)*
- D-8-2 **Analysis of Mechanism of Backflow Defect of the Aluminum Wheel Flow Forming**  
*Wan-Gi Cha, Soyoung Hwang, Naksoo Kim, Cheol-Soo Lee (Sogang Univ.)*
- D-8-3 **A Study on Multiple Die Stretch Forming for Curved Surface of Sheet Metal**  
*Ji-Woo Park, Yu-Beom Kim, Jeong Kim, Beom-Soo Kang (Pusan National Univ.)*
- D-8-4 **Study on Flexible Roll Forming Process for Multi-Curved Surface of Sheet Metal**  
*Jun-Seok Yoon, So-Eun Son, Woo-Jin Song, Jeong Kim, Beom-Soo Kang (Pusan National Univ.)*
- D-8-5 **Friction Effect and Surface Treatment of Tool on Warm Forming of Mg Alloy Sheet**  
*Youngseon Lee, Sangwoo Kim (Korea Institute of Materials Science), Younghoon Moon (Pusan National Univ.)*



D-8-6

**Development of Non-lubricated Die for Magnesium Sheet Forming of Car Body Part**

*Jae Du Nam, Seung Hoon Cha, Min Su Ahn, Pan Ki Seo, Kwang Woo Won (Shinyoung Co., Ltd.), Chung Gil Kang (Pusan National Univ.)*

## Oral Session - June 28 (Friday)

### Session A-9 Robot/Robotics

*Chairs : Kyu-Jin Cho, Won-Shik Chu*

**Friday, June 28, 8:00 - 9:30, Room : Kahuku**

- A-9-1      **Energy Savings of a 2-DOF Parallel Manipulator with Redundant Actuation**  
*Giuk Lee (Seoul National Univ.), Jay I. Jeong (Kookmin Univ.), Jongwon Kim (Seoul National Univ.)*
- A-9-2      **Development of Artificial Wing of Dragonfly Utilizing Micro-Fabrication**  
*Shinjiro Umezu, Yoshi Tanaka, Hiromu Hashimoto (Tokai Univ.)*
- A-9-3      **Green Robotics, Automation, and Machine Intelligence; a New Engineering College Course in Sustainable Design**  
*Joseph Wunderlich (Elizabethtown College)*
- A-9-4      **The Effect of a Bio-inspired Variable Stiffness Mechanism in a Robotic Fish**  
*Yong-Jai Park, Kyu-Jin Cho (Seoul National Univ.)*
- A-9-5      **Underwater Robot based on Biomimetic Swimming Motion using Smart Soft Composite Actuator**  
*Sung-Hoon Ahn, Won-Shik Chu, Sung-Hyuk Song, Hyung-Soo Kim, Jang-Yeob Lee, Min-Soo Kim, Jae-Eul Shim (Seoul National Univ.)*
- A-9-6      **Building Maintenance Tool Unit System for Irregular Surface Façade**  
*Sung-Min Moon, Jaemyung Huh, Daehie Hong (Korea Univ.)*

**Friday, June 28, 9:30 - 9:50, Room : Kahuku**

- Invited Talk 12 **Biomimetic Robotic Fish "Ichthus" for Environmental Surveillance**  
*Young-Sun Ryuh (KITECH)*

### Session B-9 Forming III

*Chairs : Wheekuk Kim, Yonghua Chen*

**Friday, June 28, 8:00 - 9:30, Room : Waianae**

- B-9-1      **Experimental Approach to Evaluate Formability Improvement of Electromagnetic Forming Process**  
*Hak-Gon Noh, Hyeong-Gyu Park, Woo-Jin Song, Beom-Soo Kang, Jeong-Kim (Pusan National Univ.)*
- B-9-2      **Effect of Annealing Temperature on Formation of Intermetallic at Interface of Al/Cu Clad Fabricated by Hydrostatic Extrusion**  
*Jong-beom Lee, Ha-guk Jeong, Yi-ha Kim (Korea Institute of Industrial Technology)*
- B-9-3      **Numerical Simulation Procedure to Evaluate Formability Enhancement of Fiber Metal Laminates**  
*Byoung-Eon Lee, Tae-Wan Ku, Jeong Kim, Beom-Soo Kang, Woo-Jin Song (Pusan National Univ.)*
- B-9-4      **Design of Multi-stage Profile Ring Rolling Process for Excavator Idler Rims with both Radial Surface Contours using UVDET and Extremum Rolling Ratio**  
*Kyung-Hun Lee, Dae-Cheol Ko (Pusan National Univ.), Seon-Bong Lee (Keimyung Univ.), Byung-Min Kim (Pusan National Univ.)*
- B-9-5      **Springback of Magnesium Alloy AZ31 Sheets at Elevated Temperatures**  
*Ji Hoon Kim, Daeyong Kim, Young-Seon Lee (Korea Institute of Materials Science), Myoung-Gyu Lee (Pohang Univ. of Science and Technology)*

### Session C-9 LCA/Environmental Impact Assessment/Cleaning

*Chairs : Bert Bras, Guillermo Obregon-Pulido*

**Friday, June 28, 8:00 - 9:30, Room : Honolulu**

- C-9-1      **LCA Estimation of Environmental Burden Reduction Technique Considering Human Learning Curve in Decision Making of Reasonable End-milling Conditions**  
*Hiroyuki Kodama, Toshiki Hirogaki, Eiichi Aoyama (Doshisha Univ.), Keiji Ogawa (Univ. of Shiga Prefecture), Junichi Sakamoto (Doshisha Univ.)*
- C-9-2      **Water Consumption and Impact of Vehicle Manufacturing**  
*John Semmens, Bert Bras, Tina Guldborg (Georgia Institute of Technology)*

- C-9-3 **Environmental Impact of PEM Fuel Cell Manufacturing for Automotive Applications**  
*Joshua Chien, David Dornfeld (The Univ. of California, Berkeley)*
- C-9-4 **Review of the End-of-life Phase for Consumer Electronics and its Associated Impacts, Implications, and Management**  
*Jennifer Mangold, David Dornfeld (Univ. of California, Berkeley)*
- C-9-5 **Leaching Behavior of CMSX-4 Ni-Based Superalloy in Acid Solutions**  
*Min-seuk Kim, Jae-chun Lee, Jinki Jeong, Byung-su Kim (Korea Institute of Geoscience and Mineral Resources)*
- C-9-6 **Selective Leaching of Mo in MoS<sub>2</sub>-slag by use of Ultrasound**  
*Keyong Woo Chung, Shun Myung Shin (Korea Institute of Geoscience and Mineral Resources)*

**Friday, June 28, 9:30 - 9:50, Room : Honolulu**

- Invited Talk 13 **Novel Green Materials from Lignin: Manufacturing And Applications**  
*Manju Misra (Univ. of Guelph)*

#### Session D-9 Joining

*Chairs : Tae-Wan Ku, Timotius Pasang*

**Friday, June 28, 8:00 - 9:30, Room : Kohala/Kona**

- D-9-1 **Estimation of Fatigue Life and Prediction of Caulking Press Joining**  
*Suk-Woo Hong, Jae-Mean Koo, Chang-Sung Seok (SungKyunkwan Univ.), Jeong-Hoon Kang, In-Cheol Jang (Samsung Electronics co.)*
- D-9-2 **Design of Hole Clinching Process for Joining of CFRP-Aluminum**  
*Chan-Joo Lee, Jung-Min Lee, Ho-Yeun Ryue (Korea Institute of Industrial Technology), Seon-Bong Lee (Keimyung Univ.), Dae-Cheol Ko (Pusan National Univ.)*
- D-9-3 **Optimization of GMA Overlay Welding Bead Shape using Mathematical Model**  
*Ji-Sun Kim, In-Ju Kim (Korea institute of industrial technology)*
- D-9-4 **Weldability of a New Titanium Alloy for Aerospace Applications**  
*Timotius Pasang (AUT Univ.), Joseph Sabol, Wojciech Misiolek (Lehigh Univ.), Jose Amaya (Universidad de Cadiz), Osamu Kamiya (Akita Univ.), Y. Tao (AUT Univ.)*

- D-9-5      **Microstructure and Mechanical Properties of Friction Stir Welded Mg-Al-CaO alloy**  
*Don-Hyun Choi (Sungkyunkwan Univ.), Yun-Mo Yeon (Suwon Science College), Seung-Boo Jung (Sungkyunkwan Univ.)*
- D-9-6      **B4Cp Reinforced AA2024 Aluminum Alloy Composite using Friction Stir Welding**  
*Byung-Wook Ahn, Seung-Boo Jung (Sungkyunkwan Univ.)*

## Session A-10 Electric Power

*Chairs : Young Beom Kim, Chung-Soo Kim*

**Friday, June 28, 10:35 - 11:50, Room : Kahuku**

- A-10-1      **Hybridization of Multiple Renewable Power Sources for Remote Village Electrification**  
*Binayak Bhandari, Kyung-Tae Lee (Seoul National Univ.), Young-Man Cho (La Lassie Inc.), Caroline S. Lee (Hanyang Univ.), Chul-Ki Song (Gyeongsang National Univ.), Sung-Hoon Ahn (Seoul National Univ.)*
- A-10-2      **An Adaptive Control to Perform Tracking in DC to DC Power Converters with Energy Considerations**  
*Guillermo Obregon-pulido, Carlos Esteban Gurrola-corrall (Universidad de Guadalajara), Jesus Alberto Meda-campaña (Instituto Politecnico Nacional)*
- A-10-3      **Kinematic Modeling and Position Compensation based on Mecanum Wheeled Omni-directional Mobile Robot**  
*Baeksuk Chu, Young Whee Sung (Kumoh National Institute of Technology)*
- A-10-4      **Analysis of Powertrain Sizing and Regenerative Braking Control in Electric Vehicles**  
*Chang Woo Shin, Jongryeol Jeong, Jongdai Choi, Suk Won Cha (Seoul National Univ.), Wonsik Lim (Seoul National Univ. of Science and Technology)*

## Session B-10 Medical Device/QoLT

*Chairs : Chang-Doo Kee, Jong-Ho Won*

**Friday, June 28, 10:35 - 11:50, Room : Waianae**

- B-10-1      **Novel Design of Lighting for Endoscopy**  
*Jae Young Joo, Wan Ho Kim (Korea Photonics Technology Institute), Sun Sub Park (Korea Institute of Industrial Technology), BoHyun Cho, Sangbin Song (Korea Photonics Technology Institute)*
- B-10-2      **Analysis of Musculoskeletal System of Human during Lifting Task with Arm using Electromyography**  
*Sungyoan Lee, Hyunsuk Kim (Handong Univ.), Heon Jeong (Chodang Univ.), Jaehyo Kim (Handong Univ.)*
- B-10-3      **Development of the New Biomechanical Design of the Field Sport Wheelchair with the Separated Seat and the Folding Leg Rest**  
*JinBock Yi (HanSeo Univ.)*
- B-10-4      **Development of Cost Effective Hand Exercise Devices for Post Stroke Patients**  
*Bong-Keun Jung, Sang-Heon Lee, Se-Dong Min (Soon Chun Hyang Univ.)*
- B-10-5      **EMG Normalization using Multiple Contraction Levels for Human-Machine Interface**  
*Masato Watanabe, Duk Shin (Tokyo Institute of Technology), Jaehyo Kim (Handong Univ.), Yasuharu Koike (Tokyo Institute of Technology)*

## Session C-10 Green Composite II

*Chairs : Jitendra K. Pandey, Pietro Russo*

**Friday, June 28, 10:35 - 11:50, Room : Honolulu**

- C-10-1      **Electron Beam Curing of Poly(ethylene glycol) Diglycidyl Ether (PEGGE) Functionalized MWNTs/Epoxy Composites**  
*Yanyan Lu, Hua Li, Hezhou Liu (Shanghai Jiao Tong Univ.)*
- C-10-2      **Fully Biodegradable Blown Films Reinforced with Halloysite Nanotubes: Tensile and Tear Properties**  
*Pietro Russo (Institute of Chemistry and Technology of Polymers), Barbara Vetrano, Domenico Acierno (Univ. of Naples Federico II)*

- C-10-3 **Effect of Compatibilizers on Properties of Wood / Polylactic Acid Composites**  
*Denni Kurniawan (Universiti Teknologi Malaysia), Byung Sun Kim (Korea Institute of Materials Science), Ho Yong Lee, Joong Yeon Lim (Dongguk Univ.)*
- C-10-4 **Development of High Heat-Resistant Cellulose Fiber Contributing to Green Products**  
*Si. Ha, Haruhiro Ino, Teruo Kimura, Akihiro Suzuoka (Kyoto Institute of Technology)*
- C-10-5 **Mechanical Properties of High Performance Biomass Plastic With 51wt% Wood Powder**  
*Ying Yu (Kyoto Institute of Technology), Yuqiu Yang (Donghua Univ.), Tomoko Ota (Green plaisir), Toshikazu Umemura (Ryoko chemical Co. Ltd), Shinya Fukui (Hexa Chemical Co. Ltd), Manabu Nomura, Hiroyuki Hamada (Kyoto Institute of Technology)*

## Session D-10 Advanced Material IV

*Chairs : Di Zhang, Honghua Wang*

**Friday, June 28, 10:35 - 11:50, Room : Kohala/Kona**

- D-10-1 **Effects of Al<sub>2</sub>Ca on Microstructure Formation and Tensile Properties of Al-Mg Alloys**  
*Seong-Ho Ha, Nam-Seok Kim, Gil-Yong Yeom, Young-Ok Yoon, Shae K. Kim (Korea Institute of Industrial Technology)*
- D-10-2 **Green Manufacturing for Al-Mg Alloys**  
*Young-Ok Yoon, Bong-Hwan Kim, Seong-Ho Ha, Gil-Yong Yeom, Hyun Kyu Lim, Shae K. Kim (Korea Institute of Industrial Technology)*
- D-10-3 **Effects of Sr Addition and Heat Treatment on the Morphology of Eutectic Si in the Al-12Si Die Casting Alloys**  
*Gil-Yong Yeom, Bong-Hwan Kim, Seong-Ho Ha, Shae K. Kim (Korea Institute of Industrial Technology), Soong-Keun Hyun (Inha Univ.), Young-Ok Yoon (Korea Institute of Industrial Technology)*
- D-10-4 **Comparative Study of Fe<sub>2</sub>O<sub>3</sub> Spheres and Cubes-Like Nanostructures Synthesized using Chemical Method for Photocatalytic Degradation of Rhodamine B Dye**  
*Rajendra C. Pawar, Caroline S. Lee (Hanyang Univ.)*
- D-10-5 **Compact Magnetorheological Control Valve Design with Multiple Annular and Radial Gaps**  
*Fitriah Imaduddin, Saiful Amri Mazlan, Hairi Zamzuri (Universiti Teknologi Malaysia)*

## Poster Session I - Wednesday 26, 15:10~17:00, Maui Room

**Chairs:** *Won-Shik Chu, Doo-Man Chun, Hak-Sung Kim, Choon-Man Lee, Jitendra K. Pandey, Seung-Han Yang, Jihwan An, Cullen Buie, Woochul Kim, Young Beom Kim, Chung-Soo Kim*

### Poster Session A (Material I)

- P-A-01      **Effect of Electric Current Density on the Mechanical Property of Advanced High Strength Steels under Quasi-Static Tensile Loads**  
 Min-Sung Kim, Nguyen Thai Vinh, Hyeong-Ho Yu, Sung-Tae Hong (Univ. of Ulsan), Hyun-Woo Lee (MS-Autotech Company), Moon-Jo Kim, Heung Nam Han (Seoul National Univ.), John T. Roth (Penn State Erie)
- P-A-02      **Structural Behaviors and Curling Influence of Single Shear Bolt Connections with Aluminum Alloys(7075-T6)**  
 YongHyun Cho, TaeSoo Kim (Hanbat National Univ.)
- P-A-03      **The Flow Behavior Modeling of AZ61 Magnesium Alloy at Elevated Temperatures Considering the Effects of Strain Rate and Grain Size**  
 Ki-Hoon Shin, Yong-Sung Lee, Hong Seok Kim (Seoul National Univ. of Science and Technology)
- P-A-04      **Evolution of Goss Orientation during Thermal Heating with Different Heating Rate for the Primary Recrystallization in Fe-3.1%Si Grain-oriented Electrical Steel**  
 Sung-Ji Choi, Eun-Jin Lee (Kumoh National Institute of Technology), Hyung-Don Joo, Jong-Tae Park (POSCO), No-Jin Park (Kumoh National Institute of Technology)
- P-A-05      **Estimation of Fatigue Crack Propagation Model of Mg-Al-Zn Alloys under Different Specimen Thickness Conditions by using of Interpolation of Random Variable**  
 Seon Soon Choi (Sahmyook Univ.)
- P-A-06      **Numerical and Empirical Study of Butting Process for AZ31B Magnesium Alloy Tube**  
 Soo Sik Han (Kumoh National Institute of Technology), Mok Young Lee (Research Institute of Industrial Science & Technology)
- P-A-07      **Dynamic Properties of Austenitic Stainless Steels by Hydrogen Charging**  
 Dong-Su Bae, In-Soo Son, Sang-Pill Lee, Jin-Kyung Lee (Dong-Eui Univ.), Seung-Kuk Hwang (Korea Polytechnic VII), Un-Bong Baek, Seung-Hoon Nahm (Korea Research Institute of Standards and Science)



- P-A-08 **Study on Aluminum Matrix Composites Reinforced with Continuous Carbon Fibers Manufactured by Vacuum Pressure Impregnation**  
Qiubao Ouyang (Shanghai Jiao Tong Univ.)
- P-A-09 **Synthesis of Carbon Nanotube / Aluminium Composite Powders by Polymer Pyrolysis Chemical Vapor Deposition**  
Xiaocui Li, Di Zhang (Shanghai Jiao Tong Univ.)
- P-A-10 **Composite Patch Repair to Aluminum Alloy Plate by Induction Curing**  
Minho Kim (Seoul National Univ.), Hansang Kim (Gachon Univ.), Woo Il Lee (Seoul National Univ.)
- P-A-11 **Study on the Strength Properties of Non-cement Matrix Mixed with Waste Resources**  
Sun-Gyu Park (Mokwon Univ.), Ha-Young Song, Sang-Soo Lee (Hanbat National Univ.)
- P-A-12 **Tribological Behaviors of Ceramic Substrate Coated with PU/SiO<sub>2</sub> Composite Coating**  
Garlie Liew, Ching Yern Chee, Iskandar Yaacob (Univ. of Malaya)
- P-A-13 **Fracture Properties of Carbon Coated LPS-SiCf/SiC Composites**  
Sang-Pill Lee, Jin-Kyung Lee, In-Soo Son, Dong-Su Bae (Dong-Eui Univ.)
- P-A-14 **Effect of Phosphate to Water Resistance of Magnesium-Oxychloride Cement**  
Jingming Zhao, Kyu Hong Hwang (Gyeongsang National Univ.), Jong Kook Lee (Chosun Univ.)
- P-A-15 **Characterization and Electrochemical Corrosion Behavior of Biology Ceramic Coatings on Magnesium Alloy by Micro-arc Oxidation**  
Xiong Ying, Lu Chao (Zhejiang Univ. of Technology), Wang Chao, Song Ren Guo (Changzhou Univ.)
- P-A-16 **A Study on the Mechanical Properties of AM60B With MgO-CNT**  
Myeong Han Yoo (Korea institute of Carbon convergence Technology), Shin Jae Kang, Hee Yong Kang (Chonbuk Univ.), Minseok Moon, Joon Hyuk Song, Jeha Oh (Korea institute of Carbon Convergence Technology)
- P-A-17 **Preparation and Properties of Surface Modified Graphene by Grafting of Polymers**  
Norio Tsubokawa, Kazuhiro Nagata (Niigata Univ.), Kazuhiro Fujiki (Niigata Institute of Technology), Takeshi Yamauchi (Niigata Univ.)
- P-A-18 **Multi-Functionalized Bio-polymer Microspheres**  
Sungkwon Yoon, William T. Nichols (Hanyang Univ.)

- P-A-19      **Spreading Kinetics of Poly (diisobutylene maleic acid) at the Air-Water Interface**  
Nam Jeong Kim (Sahmyook Univ.)
- P-A-20      **Thermal Properties and Rheological Behavior of Thermoreversible Crosslinking Supramolecular Polymers with Multiple Hydrogen-bonding**  
Yujie Chen, Wei Wu (East China Univ. of Science and Technology)

## **Poster Session B (CAE/Analysis/Machinery)**

- P-B-01      **Comparison of Inverse Matrix Method and Polynomial Curve Fitting for Aspheric Surface Equation Reconstruction**  
Dong-Ik Kim, Geon Hee Kim, Ghiseok Kim (Korea Basic Science Institute)
- P-B-02      **Design and Analysis of Wire Rope Type Wheel Carrier System**  
Seong Beom Lee, Heungseob Kim, Wonseok Jo (Inje Univ.), Jeonghun Han (Sampung Hitech)
- P-B-03      **Analysis of Positioning of Permanent Magnets for Large Scale Surge Relief Valve using the Finite Element Method**  
Sang-Don Ye, Kwan-Do Hur, Jin-Soo Ha (Dong-eui Univ.)
- P-B-04      **Analysis of Torque Bias Ratio of A Helical Gear Type Limited Slip Differential**  
Gwang Yong Shin, Ki Yong Lee (Korea Institute of Industrial Technology)
- P-B-05      **Analysis on the Capacitive Pressure Sensor with Ring Mesa Structure**  
Soon-Kwan Kwon, Hee-Chan Cho, Seung-Hwan Yi (Korea National Univ. of Transportation)
- P-B-06      **Implementation of c-MES and Analysis of its Effects in Small-sized Manufacturing Enterprises**  
Gyeong-Mi Park, Gyu-Bong Lee, Yong-Ju Cho (KITECH)
- P-B-07      **Configurable MES: Developing and its Implication for SMEs**  
Seogou Choi, HyeJin Lee, SungUk Bae (KITECH), SungMin Bae (Hanbat National Univ.)
- P-B-08      **Scatter Artifact Correction Using GPU-based Monte Carlo Dose Calculation**  
Kyung-Chan Jin (Korea Institute of Industrial Technology), Yoon-Ho Song (Electronics and Telecommunications Research Institute)
- P-B-09      **Fatigue Analysis for Flexible Tube Subjected Lateral Deflection**  
Jinbong Kim (Hanseu Univ.)

- P-B-10      **Stress Analysis of Bellows Subjected to Various Displacement Conditions**  
Jinbong Kim (Hanseu Univ.)
- P-B-11      **FEA-based Design Enhancement of a Large Pressure Vessel**  
Hyeonsik Kim, Iltaek Lee, Namyoung Choi, Changon Park, Dongpyo Hong (Chonbuk National Univ.)
- P-B-12      **Estimation of Positioning Error of Precision Linear Stages**  
Gyungho Khim, Jeong-Seok Oh, Chun-Hong Park (Korea Institute of Machinery and Materials)
- P-B-13      **Finite Element Analysis, Considering Viscoelastic Property of Periodontal Ligament**  
Ji-In Heo, Bong-Su Sin, Kwon-Hee Lee(Dong-A Univ.)
- P-B-14      **A Study on the Fiber Orientation Control Method of Glass Fiber Reinforced Plastic Gear using CAE Analysis**  
Jeongyeon Park, Gil-Sang Yoon, Young-Moo Heo (Korea Institute of Industrial Technology),  
Hyoung-Joon Jin (Inha Univ.), Jeong-Won Lee (Korea Institute of Industrial Technology)
- P-B-15      **Fault Diagnostics of Auto-focus Module for Phone Camera using Resonant Frequency Shift**  
Tae Ho Ha, Jun Yeob Song, Jae Hak Lee, Chang Woo Lee, Hyung Jun Kim (Korea Institute of Machinery and Materials), Young Jun Kim (Joongang Precision Co., Ltd)
- P-B-16      **A Study on Permanent Magnet Spherical Motors by Analytical Method**  
Han-Woong Ahn, Se-Young Oh, Hyun-Jong Park, Ho-Joon Lee, Ju Lee (Hanyang Univ.)
- P-B-17      **Design Optimization of Support Structure for Long-range Telescopic Boom Lift**  
In Gyu Ahn, Henry Panganiban, Woncheol Kim, Tae Jin Chung (Kunsan National Univ.)
- P-B-18      **Effect of Shape and Optical Property of Plastic Single Lens to Optical Performance of Phone Camera Lens Module**  
Tae Ho Ha, Jun Yeob Song, Chang Woo Lee, Jae Hak Lee, Hyung Jun Kim, Dong Hun Kim (Korea Institute of Machinery and Materials), Won Taek Jeon, Jong Jeon (N2A Co., Ltd.)
- P-B-19      **Long-lived Accurate Dispenser for Fine Powder**  
Changwoo Lee, Junyeob Song, Taeho Ha, Jaehak Lee, Hyoungjoon Kim (KIMM)
- P-B-20      **Design of Bridgeless IPMSM to Reduce the Amount of the Rare Earth Permanent Magnet**  
Jin-Young Park (Korea Institute of Industrial Technology), Jae-Nam Bae (Hyundai Heavy Industries, Co., Ltd.), Jae-Wook Lee, Dae-Young Shin (Korea Institute of Industrial Technology)

**Poster Session C (Machining)**

- P-C-01      **Energy Consumption Model using Electrical Load in Milling Machine**  
Min-Soo Kim, Hae-Sung Yoon, Jang-Yeob Lee, Jong-Cheon Lee, Jong-Seol Moon, Sung-Hoon Ahn  
(Seoul National Univ.)
- P-C-02      **Chatter Prevention by Vibration Between Tool and Work-piece in Milling Process**  
Jang-Yeob Lee, Min-Soo Kim, Hae-Sung Yoon, Jong-Cheon Lee, Jong-Seol Moon, Sung-Hoon Ahn  
(Seoul National Univ.)
- P-C-03      **Optimum Design of the Internal Flushing Channel of a Drill Bit using RSM and CFD Simulation**  
Chang-Heon Song, Ki-Beom Kwon, Jin-Young Park, Shinok Lee, Jung-Woo Cho (Catholic Univ. of Daegu)
- P-C-04      **Development of an Optimum Cutting Condition Decision System for Micro Patterns in Ultra Precision Diamond Turning**  
Thanh-Hung Duong, Hyun-Chul Kim (Inje Univ.), Dong-Yoon Lee (Korea Institute of Industrial Technology)
- P-C-05      **(MQL) Lubrication for Better Surface Quality and More Safe Environments in End-Milling**  
Nik Masmiati Nik Pa, Ahmed Aly Diaa Sarhan, Mohd Hamdi Abd Shukor, Mohsen Abdelnaeim Hassan Mohamed (Univ. of Malaya)
- P-C-06      **Surface Texturing by a Turning Process using a Circular Driven Rotary Tool with Multiple Cutting Edges**  
Sy Quy Nguyen, Bo Hung Kim, Sung-Tae Hong, Kyu Yeol Park (Univ. of Ulsan)
- P-C-07      **Investigation of Cutting Conditions on Surface Roughness Characteristics in Titanium Machining**  
Myung-Whan Bae (Gyeongsang National Univ.), Hyeong-yeol Park, Hwa Jung (Korea Polytechnic College), Jung Sup Song (SMH Co., Ltd.)
- P-C-08      **Experimental investigation of Eco-friendly Machining for Titanium Alloy**  
Kyung-Hee Park, Myung-Gyu Lee, Hoon Jeong, Sung-Ho Nam, Seok-Woo Lee, Dong Yoon Lee (Korea Institute of Industrial Technology)
- P-C-09      **Improvement of Chip Thickness Model in 2-flutes Slot End Milling**  
Ki Yong Lee, Gwang Yong Shin, Yang Hee, Jung Yang (Korea Institute of Industrial Technology)

- P-C-10 **A New Tool Holder Design of Two-dimensional Motion for Fabricating of Micro Dimple and Groove Pattern**  
Rendi Kurniawan, Tae Jo Ko (Yeungnam Univ.), Ho Chan Kim (Andong National Univ.), In Hwan Lee (Chungbuk National University)
- P-C-11 **Evaluation of Energy Efficiency in Cutting Aerospace Materials with High-Pressure Cooling Lubricant Supply**  
F. Klocke, H. Sangermann, D. Lung, T. Cayli, B. Döbbeler (Laboratory for Machine Tools and Production Engineering (WZL))
- P-C-12 **The Experimental Research about the Deformation of Airfoil after 5-Axis Machining**  
Kyeong-Woon Ra, Je-Hong Park, Su-Jin Kim (Gyeongsang National Univ.), Jin-Seok Byeon, Sung-Yoon Yang, Sung-Bum Ji (Samwoo Metal IND., LTD)
- P-C-13 **Instability of High Speed Interference Fit Tool-Spindle System with Internal Friction**  
Yusong Wang, Weixiao Tang, Qinghua Song, Hongqing Lv (Shandong Univ.)
- P-C-14 **Simulation of Energy Consumption due to Cutting Process Motion in a Machine Tools**  
Chan-Hong Lee (Korea Institute of Machinery and Materials)
- P-C-15 **Research on Aerodynamically Assisted Sand Removing for Sand Mold Milling**  
Feng Liu, Zhongde Shan, Jie Li (China Academy of Machinery Science & Technology)
- P-C-16 **A Study on the Development of a New Variable Preload System using Giant Magnetostrictive Material**  
Dong-Hyeon Kim, Choon Man Lee (Changwon National Univ.)
- P-C-17 **The Selection of the Optimal Machining Condition of High-hardness Resin using the 5-axis Machine**  
Namhun Kim, Seoksun Kang (Research Institute of Medium & Small Shipbuilding)
- P-C-18 **Improved Tapping Torque Estimation in Rigid Tapping Processes**  
Syh-Shiuh Yeh (National Taipei Univ. of Technology), Jin-Tsu Sun (Industrial Technology Research Institute)
- P-C-19 **Investigation of Drilling Efficiency using Percussion Test of Drill Bit**  
Ki-Beom Kwon, Chang-Heon Song, Jin-Young Park, Dae-Young Shin, Jung-Woo Cho (Catholic Univ. of Daegu)
- P-C-20 **Estimation of Volumetric Errors and Electric Power Consumption for Different Configurations of the 5-axis Machine Tools**  
Jooho Hwang, Chinh B. Bui, Chan-Hong Lee (Korea Institute of Machinery and Materials)

**Poster Session D (Machining/EDM/Laser machining/Joining)**

- P-D-01      **Modeling and Dynamic Simulation of a 4-Axes Machine Tool**  
Chang Kyu Song, Byung-Sub Kim, Sangwon Kwon (Korea Institute of Machinery and Materials)
- P-D-02      **Analysis of Tool Wear Factors in Sand Mold Milling**  
Dong Xiaoli, Shan Zhongde, Liu Feng (China Academy of Machinery Science & Technology)
- P-D-03      **Research on Reconstruction and Numerical Control Machining of Free-form Surface Parts**  
Xiulan Wen, Maofa Hua, Yibing Zhao (Nanjing Institute of Technology)
- P-D-04      **Investigation of Machining Characteristics using the Hybrid Process of EDM with Ultrasonic Vibration and Assisted Magnetic Force**  
Yan-Cherng Lin (Nan Kai Univ. of Technology), A-Cheng Wang (Chien Hsin Univ. of Science and Technology), Han-Ming Chow, Yuan-Feng Chen (Nan Kai Univ. of Technology)
- P-D-05      **Fabrication of Lenticular Pattern Mold using Wire EDM and Electrolytic Polishing with Deionized Water**  
Jong Wuk Park, Won Young Jee (Seoul National Univ.), Do Kwan Chung (Dongyang Mirae Univ. ), Bo Hyun Kim(Soongsil Univ.), Hong Shik Shin (Korea National Univ. of Transportation), Chong Nam Chu (Seoul National Univ.)
- P-D-06      **Experimental Study of Micro Machining by EDMed Tools**  
In Yong Moon, Sun Keel Kim, Pyeong An Lee, Bo Hyun Kim (Soongsil Univ.), Min Soo Park (Seoul National Univ. of Science and Technology)
- P-D-07      **One Step Fabrication of Bio-inspired Hierarchical Structure by Wire EDM and Their Roll to Roll Application for Self-cleaning Film**  
Won-Gyu Bae, Doogon Kim, K. Y. Song, C. N. Chu, K. Y. Suh (Seoul National Univ.)
- P-D-08      **Evaluation of Delamination in Tungsten Specimen by using Laser Ultrasonic Technology with High Frequency**  
Kyung-Min Hong, Young-June Kang, Seong-Jong Kim, In-Young Choi, Weon-Jae Ryu (Chonbuk National Univ.)
- P-D-09      **Direct Writing of Graphene Pattern using Laser-induced Chemical Vapor Deposition**  
Jongbok Park, Jaeyoung Joo, Sangbin Song (Korea Photonics Technology Institute), Yongfeng Lu (Univ. of Nebraska Lincoln)

- P-D-10**      **A Study of Manufacturing of High Efficiency Cooling Channel Core by Laser aided Direct Metal Tooling (DMT) Technology**  
Ji Hyun Sung, Sung-Hee Lee (Korea Institute of Industrial Technology), Ye Hwan Lee (NDF Co., LTD), Yang Gon Kim, Sang-Kon Lee, Myeong-Sik Jeong, Kang-Eun Kim, Sang-Yong Lee, Sang-Chul Lee, Moon-Soo Kang (Korea Institute of Industrial Technology), Tae-Hoon Choi (Korea-Israel Industrial R&D Foundation)
- P-D-11**      **Sintering of Copper Nano Ink using a DPSS Laser**  
JunHo Yu, Kyungtae Kan, JunYoung Hwang, Heuseok Kang (Korea Institute of Industrial Technology)
- P-D-12**      **Temperature Calculation of the Laser-Sintered Silver Nanoparticle Ink**  
Yoon Jae Moon, Heuseok Kang, Sang Ho Lee, Kyungtae Kang, Jun Young Hwang, (Korea Institute of Industrial Technology), Seung Jae Moon (Hanyang Univ.)
- P-D-13**      **Micro-cutting with Diamond Tool Micro-patterned by Femtosecond Laser**  
Jaegu Kim, Tae-Jin Je, Sung-Hak Cho, Eun-Chae Jeon, Kyung-Hyun Whang (Korea Institute of Machinery & Materials)
- P-D-14**      **Remanufacture of the Machine Components by Coaxial High Power Fiber Laser Cladding**  
Chonghao Zhang, Anmin Liu, Jian Yang (Jiangsu Hehao Laser Tech. Co., Ltd), Jingwen Luo (ShangHai Unity Prima Laser Machinery Co.,Ltd)
- P-D-15**      **A New Approach of the Weld Seam Tracking for Multi-layer Welding with Weaving Motion**  
Seunghwan Baek, Heungseob Kim, Kwangsuck Boo (Inje Univ.)
- P-D-16**      **Void Closure Behavior by Incremental Upsetting and Diffusion Bonding for 1.5 wt%C High Carbon Workroll**  
Seong-Hoon Kang, Howon Lee, Young-Seon Lee (Korea Institute of Materials Science)
- P-D-17**      **Effect of W Substitution for Mo on Secondary Phase Formation of Super Duplex Stainless Steels Welds**  
H. J. Park, H. W. Lee, J. M. Kim, D. W. Kang, J. S. Kim, S. W. Kim, M. J. Park (Dong-A Univ.)
- P-D-18**      **Assembly Strategy of the Square Peg using Force Torque Sensor**  
Dong Il Park, Chanhoo Park, Hyunmin Do, Taeyong Choi, Jinho Kyung (Korea Institute of Machinery and Materials)
- P-D-19**      **Drying Characteristics of Printed Silver Paste**  
Kwang-Young Kim, Jeongdai Jo, Seong-Man Yoon (Korea Institute of Machinery & Materials), Su-Yong Nam (Pukyong National Univ.)

- P-D-20      **Welding Line Seam Tracking S/W Which Use CCD Camera**  
Jeng-O Kim, Jae-Hoon Lee ( Korea Institute of Machinery & Materials)

## Poster Session E (Forming/Forging)

- P-E-01      **Development of Hybrid Clinched Structure by using Multi Cohesive Zone Model**  
Chan-Joo Lee, Jung-Min Lee (Korea Institute of Industrial Technology), Byung-Min Kim (Pusan National Univ.)
- P-E-02      **Strips Cold Rolling: Material Model and Numerical Analyses by CAE Systems**  
Filip Tikal, Ivana Poláková, Michal Zemko (COMTES FHT)
- P-E-03      **Effect of Rolling Direction on the Development of Microstructure, Texture, and Mechanical Properties of AZ31B Alloys**  
Chang-Wan Ha, No-Jin Park (Kumoh National Institute of Technology)
- P-E-04      **Deformation Behavior of AZ31 Mg Alloy Sheets Containing CaO Component by Strain-rate and Its Microstructure Change**  
Jong-Beom Lee, Ho-Jun Bang, Ha-Guk Jeong (Korea Institute of Industrial Technology)
- P-E-05      **Precision Balance Forming Technology Using Artificial Neural Network**  
Dong Hwan Kim, Se Je Park (International Univ. of Korea)
- P-E-06      **3D Woven Forming Technology Research of Composites Parts**  
Zhongde Shan, Sisi Chen, Qun Zhang, Juanjuan Qiao (China Academy of Machinery Science & Technology)
- P-E-07      **Research on a Weaving Forming Technology for Composites with High Fiber Volume Ratio**  
Shaoyan Qin, Zhongde Shan, Feng Liu, Dun Lan (China Academy of Machinery Science & Technology)
- P-E-08      **Experimental Investigation on Galling Performance of Tool Steel in Stamping of UHSS**  
Sung-Guuy Kim, Hong-Seok Choi (Pusan National Univ.), Pan-Ki Seo (Shinyoung Co. Ltd), Byung-Min Kim, Dae-Cheol Ko (Pusan National Univ.)
- P-E-09      **Development of Green Extrusion Process for Producing Aluminum Cylinder Tube**  
Sang-Kon Lee, Seong-Yun Lee, Myeong-Sik Jeong, Da Hye Kim, Ji-Hyun Sung, Yong-Jae Cho, Hun-Jae Park (Korea Institute of Industrial Technology), Dae-Cheol Ko, Byung-Min Kim (Pusan National Univ.)



- P-E-10**      **The New Friction Stir Forming Process for Joining Dissimilar Materials**  
Sladjan Lazarevic, Scott F. Miller (Univ. of Hawaii at Manoa)
- P-E-11**      **Quantitative Evaluation of Shape Accuracy in Sheet Metal Forming of a Hat-type Product with UHSS**  
Seho Kim (Daegu Univ.), Byeunghyeun Choi,( Hwashin Co. Ltd), Heungkyu Kim (Kookmin Univeristy), Youngmoo Heo (KITECH)
- P-E-12**      **The Analysis of Roll Contact Angles to the Plastic Flow Instability in Flow Forming**  
Kai Jin, Naksoo Kim (Sogang Univ.)
- P-E-13**      **Analytical Evaluation of Formability of Magnesium Alloy Sheet Material based on the Plastic Instability and Inherent Geometrical Instability Conditions**  
Woojin Song , Byoungeon Lee , Junseok Yoon , Jeong Kim, Beomsoo Kang (Pusan National Univ.)
- P-E-14**      **Study on Parameters of Infusion from Inside and Outside at Same Time**  
Du Weixiao, Shan Zhongde, Liu Feng, Zhang Qun (China Academy of Machinery Science & Technology)
- P-E-15**      **Research on Forming Force Model of Automobile UHSS Door Beam Hot Stamping**  
Cai Wan-hua, Shan Zhong-de , Zhuang Bai-liang (China Academy of Machinery Science & Technology), Ye Yong-sheng (China Academy of Machinery Science & Technology, Univ. of Science and Technology Beijing), Jiang Chao, Liu Meng (China Academy of Machinery Science & Technology)
- P-E-16**      **Tracking Control of Hydraulic Forging Press Machine using Model-based Friction Compensation**  
Qing Pan, Minghui Huang, Yibo Li, Wenju Song (Central South Univ.)
- P-E-17**      **Study on Gear Forging Process for Manufacturing the Clutch Drum**  
Bong-Joon Kim (Korea Institute of Materials & Science), Won-Yong Byeon, Eun-Soo Park, Dal-Joon Cha (Kyungchang Industrial Corp.)
- P-E-18**      **Development of the Progressive Press-Forging Process for Manufacture of a Nut Plate Without Welding**  
Kee Poong Kim, Hyun Woo Kim (Korea Institute of Industrial Technology)
- P-E-19**      **Mg Scroll Forging at Warm Forming Condition**  
Jonghun Yoon, Junghwan Lee (Korea Institute of Material Science)

- P-E-20      **Development of Magnesium CCM using High-Pressure Diecasting Process**  
 Joon Hyuk Song, Eunsung Kim, Jeha Oh, Kyung-Jae Kim (Korea institute of Carbon Convergence Technology), Shinjae Kang, Sung Mo Yang (Choubuk National Univ.)

## Poster Session F (Recycle/Energy Management/Marine)

- P-F-01      **Methodology for Calculating Recyclability of Consumer Electronic Products: A New Approach**  
 Jennifer Mangold, David Dornfeld (Univ. of California, Berkeley)
- P-F-02      **A Study on Novel Collector of Underwater Dissolved Air using Centrifugation**  
 Jung-Ho Park , In-Sub Park , So-Nam Yun , Young-Bog Ham , Pil-Woo Heo (Korea Institute of Machinery & Materials), Sung-Cheol Jang (Korea Aviation Polytechnic College)
- P-F-03      **Collaborative Development of Water Purifier for Green Product using SCM-A Case Study of Coway**  
 Sunyoung Kim (Econetwork Co., Ltd), Heekyung An (Korea Institute of Industrial Technology), Youngsam Kim, Bongseob Kim (Coway Co. Ltd)
- P-F-04      **R Recycling Technology for Phenol Resin(Bakelite) Waste using Supercritical Fluid**  
 Hang-kyu Cho, Jong Sung Lim (Sogang Univ.)
- P-F-05      **Characterization of Thermo-Plastic Vulcanizate (TPV) Composite Prepared by Waste Tire Powder And Polypropylene(PP)**  
 Ju-Young An, Myung-Hoon Oh, Jong-Moon Park, Hyeon-Jun Jang, Jin-Ui Park, Ki-Hoon Park, Dae-Suk Bang (Kumoh National Institute of Technology), Bong-Seok Kim (Thinker route Co., LTD)
- P-F-06      **Recycle of Spent Iron based Catalyst Modified with Nano Size Palladium for the Removal of Toluene**  
 Sang Chai Kim, Seung Won Nahm (Mokpo National Univ.), Seong Gyu Seo (Chonnam National Universtiy), Sang Chul Jung (Suncheon National Universtiy)
- P-F-07      **Purification and Separation of Rare Earth Elements from CCFL with Extraction Chromatography**  
 Jeong-Gon Kim, Bae-Yeon Kim (Univ. of Incheon)
- P-F-08      **Methanol Production from Gasification of Municipal Solid Waste**  
 Jong Wan Lim, Kyung Won Lee, Jong-In Dong (Univ. of Seoul), Sung Hoon Park (Suncheon National Univ.), Jong-Ki Jeon (Kongju National Univ.), Young-Kwon Park (Univ. of Seoul)
- P-F-09      **Increasing Yields of Waste-cooking-oil Biodiesel using Ionic Liquids as Catalysts with a Microwave System**  
 Yuan-Chung Lin, Po-Ming Yang, Shang-Cyuan Chen, Jia-Fang Lin (National Sun Yat-sen Univ.)

- P-F-10 Pyrolysis of Wood Polymer Composite**  
Hyung Won Lee (Univ. of Seoul), Jeong Wook Kim, Sung Ho Jin, Eun Hwa Lee, Sung Hoon Park (Sunchon National Univ.), Jung Min Shon (Chonbuk National University), Jong-Ki Jeon (Kongju National Univ.), Young-Kwon Park (Univ. of Seoul)
- P-F-11 Control the Growth of Barnacles in Water Intakes at Electric Power Plants**  
Saad Potrous (Univ. of Basra)
- P-F-12 A Study on Electricity Demand Forecasting per Green BIM-based Building Design for Application of Smart-Grid**  
Jae-Wook Lee, Kweon-Hyoung Lee, Hyung-Ju Lee, Yeol Choi, Seung-Yeon Choo (Kyungpook National Univ.)
- P-F-13 A Study On Energy Simulation-Based Low-Carbon Design Methods for Development of Green BIM Guidelines**  
Kweon-Hyoung Lee, Seung-Bae Kim, Jae-Wook Lee, Yeol Choi (Kyungpook National Univ.), In-Han Kim (Kyung Hee Univ.), Seung-Yeon Choo (Kyungpook National Univ.)
- P-F-14 A Study of the Corrosion Behavior of the STS304 and the STS430, Depending on Surface Pre-treatment Conditions, in PEMFC under Operating Status**  
MinSeok Moon (Korea institute of Carbon convergence Technology), KeeDo Woo, ShinJae Kang, JoonHyuk Song, JeHa Oh, SungMo Yang (Chonbuk Univ.)
- P-F-15 Integrating Lidar and BIM Technology with GIS for Efficient Operation and Management of Wastewater Treatment Plant**  
Jae-ho Choi, Dong-Yeong Um ( Dong-A Univ.)
- P-F-16 Installation of Off-grid Hybrid Power Generation System and Smart Grid in Remote Mountainous Village of Nepal**  
Kyung-Tae Lee, Binayak Bhandari, Won-Shik Chu, Gil-Yong Lee, Hae-Sung Yoon, Jang Yeob Lee, Erkhés Bilegt, Jae-Il Park, Min-soo Kim, Kyung-Wook Min, Gee-Hoon Park, Young-Suk Kang, Ji-Hyeon Song, Eun-ji Yoo, Min-Hee Kim, Aphas Maskey, Bum Ho Kim (Seoul National Univ.), Dan-Ee Cho, Hyung-Sub Kim, Da-Hyun Choi, Dong-Hwee Kim, Cheol-Hwan Park, Chan-Dong Park, Hyeon-Seok Park (Hanyang Univ.), Jae-Hwan Shim, Ji-Hwan Kim, Jin-Kyu Lee, Won-Hee Cho, Jun-Young Moon (Gyeongsang National Univ.), Thapa Khagendra (Chonbuk National Univ.), Pratibha Bhandari (Ewha Womans Univ.), Se-Yong Song (Korea Advanced Institute of Science and Technology), Hyeon-Min Shin (Sungkyunkwan Univ.), Caroline S. Lee (Hanyang Univ.), Chul-Ki Song (Gyeongsang National Univ.) and Sung-Hoon Ahn (Seoul National Univ.)
- P-F-17 Direct Teaching and Playback Method based Robotic Finishing System**  
Seunghoon Lee, Dong-Hyung Kim, Min-Sung Kang, Jung-Soo Han, Chang-Soo Han (Hanyang Univ.)

P-F-18 Performance Investigation of Super Artificial Reef for Fish Habitat Purpose  
Kyuhan Kim, Bumshick Shin, Sungwon Shin (Kwandong Univ.)

P-F-19 Experimental Study on Wave Impact Pressure on Slit Caisson Breakwater  
Kyuhan Kim, Bumshick Shin, Sungwon Shin, Kyutae Shim (Kwandong Univ.)

## Poster Session G (Wind/Solar Energy)

P-G-01 Terahertz Radiation Nde of Composite Materials for A Use of Wind Energy  
Kwang-Hee Im (Woosuk Univ.), Je-Woong Park, In-Young Yang (Chosun Univ.), David K. Hsu (Iowa State Univ.)

P-G-02 Probabilistic Fatigue Life Prediction of Small Wind Turbine Composite Blade  
Yun-Jung Jang, Ki-Weon Kang (Kunsan National Univ.)

P-G-03 Angular Stability Analysis of a Power System Connected to Wind Generation System  
Ji-Ho Park (Kyungpook National Univ.), Gyu-Seok Seo (Geoje College)

P-G-04 Effects of Drivetrain Parameters on the Performance of a Wind Turbine using the Multibody Dynamics  
Wei Shi, Hyunchul Park (Konkuk Univ.)

P-G-05 Investigations on Carbon/platinum Hybrid Counter Electrodes for Stable and Efficient Dye-sensitized Solar Cells  
Sung Chul Hong (Sejong Univ.)

P-G-06 Analysis on the Paint-type Si Quantum Dot-sensitized Solar Cells  
Hyunwoong Seo, Yuting Wang, Daiki Ichida, Giichiro Uchida, Kunihiro Kamataki, Naho Itagaki, Kazunori Koga, Masaharu Shiratani (Kyushu Univ.)

P-G-07 Investigation of Laser Sintering Treatment on Flexible Dye-sensitized Solar Cell Fabricated by Nano Particle Deposition System  
Seungkyu Yang (Hanyang Univ.), Jung-Oh Choi, Sung-Hoon Ahn (Seoul National Univ.), Caroline Sunyong Lee (Hanyang Univ.)

P-G-08 Photovoltaic Performance of Quasi-Solid State Dye-Sensitized Solar Cells Composed of Organic Dyes including Multi-Acceptors/Anchors in their Chromophores  
Young Rock Kim, Young Ji Yoon, Sok Kyun Choi, Jae Hong Kim (Yeungnam Univ.)

- P-G-09      **Effects of the Concentrations of  $\text{NH}_4\text{F}$  of Electrolyte and Reaction Time in Anodic Oxidation Process on the Photovoltaic Property of Back-illuminated DSSC**  
Ho Chang, Mu-Jung Kao, Cheng-Yi Chou (National Taipei Univ. of Technology)
- P-G-10      **Fabrication of Glass Fresnel Lens for High Concentrate Photovoltaic System**  
Jonghyun Ju, Young-Kyu Kim, Seok-Min Kim (Chung-Ang Univ.), Byungwook Kim, Jang-Kyun Kim (AnyCasting Co., Ltd.)
- P-G-11      **Numerical analysis of heat transfer characteristics of high power LED light with 2-stage heat sink**  
Hyun Jang, Chung Seob Yi (Gyeongsang National Univ.), Sang Dong Moon (Energy & Machinery Korea) Hyoung Cheon Kim (Youngdong Tech.), Chul Ki Song, Jeong Se Suh (Gyeongsang National Univ.)
- P-G-12      **The Study on the CIGS Solar Cells with the ZnS Films by Newly Designed Sputtering System**  
Jae-Hee Lee (Kyungil Univ.)
- P-G-13      **Photovoltaic Properties of Dendritic Photosensitizers containing Multi-functional chromophores for Dye-sensitized Solar Cells**  
Sok Kyun Choi, Byeong Cheol Jeon, Chi hwan Lee, Jae Hong Kim, Kwang Soon Ahn (Yeungnam Univ.)
- P-G-14      **Organic Photo-Sensitizers based on Triphenylamine with Multi-anchoring Chromophore for Dye Sensitized Solar Cells**  
Chi hwan Lee, Quoc Bao Le, Jae Hong Kim (Yeungnam Univ.)
- P-G-15      **Improvement of Photovoltaic Performance of Fluorescence Materials added  $\text{TiO}_2$  Electrode in Dye-sensitized Solar Cells**  
Byeong Cheol Jeon, Young Rock Kim, Sok Kyun Choi, Jae Hong Kim (Yeungnam Univ.)
- P-G-16      **Application of Transparent Graphene Materials for Electrode of Flexible Photovoltaic Cell**  
Sang-Yeop Kim, Abidov Amir, Tae-Yong Kim, Dae-Woo Park, Gyeong-Beom Jeon, Gi-Tae Kim, Hee-Won Kim, Heung-Woo Jeon, Sung Jin Kim (Kumoh National Institute of Technology)
- P-G-17      **Fabrication of Graphene Modified  $\text{TiO}_2$  Paste for Utilization in Dye-sensitized Solar Cells**  
Amir Abidov, Bunyod Allabergenov, Oybek Tursunkulov, Lili He, Sangyup Kim, Jeonghwan Lee, Taeyoung Kim, Daewoo Park, Feiyi Xiao and Sungjin Kim (Kumoh National Institute of Technology)

## Poster Session H (Automobile)

- P-H-01      **A Study on the Structural Design of Carbody by Stress Measurement**  
Sung-Cheol Yoon, Jeong-Guk Kim, Sung-Hyuk Park, Yeon-Su Kim (Korea Railroad Research Institute)
- P-H-02      **NDT Evaluation on Motor Block and Driving Gear of Bogie using Infrared Thermography Technique**  
Chan-Woo Lee (Korea Railroad Reserch Institute)
- P-H-03      **Searching and Discovering Niche Technology Area using Patent Information Analysis: Focus on Korea Automobile Industry**  
Chul-Young Kim (KwangGaeTo Laboratory Co. Ltd), Sung-Jun Park (Korea National Univ. of Transportation), Hye-Jin Lee (KITECH), Sung-Uk Bae (Korea National Industrial Convergence Center), Sung-Min Bae (Hanbat National Univ.)
- P-H-04      **A Study on the Performance Improvement of the IPMSM for Electric Power Steering**  
Han-Woong Ahn, Se-Young Oh, Gwang-Hyeon Ryu, Hyun-Jong Park, Su-Yeon Cho, Huaichong Liu, Ju Lee (Hanyang Univ.)
- P-H-05      **Modeling and Validation of a Hydraulic Control System for Wheel-loader's A/T**  
Joo-Young Oh, Jung-Woo Cho, Dae-Young Shin (Korea Institute of Industrial Technology), Jeong-Gil Kim, Geun-Ho Lee (Korea Institute of Machinery and Materials)
- P-H-06      **Structural Optimization of Outer Tie Rod for Electrical Vehicle**  
Seung-Kul Baek, Bukyo Seo, Jong-Kyu Kim (Dong-A Univ.), Kwon-Hee Lee (Central Corporation), Young-Chul Park (Dong-A Univ.)
- P-H-07      **Vibration Analysis of Cooling Pump for Commercial Vehicles**  
Yoo-In Shin (Gyeongsang National Univ.), Hee-Cheol Kim (Youngdong Tech Co.), Jong-Kyu Jeong, Kwang-Hyun Kim (S&T Dynamics), In-Wook Lee (Schaeffler Korea Corp.), Jeong-Se Suh, Chul-Ki Song (Gyeongsang National Univ.)
- P-H-08      **Optimal Design and Crash Analysis of an Automotive Bumper Back Beam using Response Surface Method**  
Kwan-Ho Ko, Shin-Jae Kang (Chonbuk Univ.), Eun-Sung Kim, Je-Ha Oh, Hak-Sung Lee (Korea institute of Carbon convergence Technology)
- P-H-09      **A Study on a Vehicle Modeling with a Suspension System and Analysis for the Improvement of the Ride Comfort**  
Yong-Ju Chu, Koo-Tae Kang (Sogang Univ.)

- P-H-10      **Reduction of Mechanical Loss of EPS System by Assist Unit Redesigning**  
Min-Chul Shin, Seong-Han Kim, Gwang-Hee Jo, Chong-Nam Chu (Seoul National Univ.)
- P-H-11      **A Study on Finite Element Methods for Lightweight and Life Prediction of Bus Emergency Step**  
Sun-Ho Ko, Hong-Gun Kim, Hee-Jae Shin, Jae-Sung Kim, Hyun-Woo Kim, Hyung-Jun Park, Lee-Ku Kwac (Jeonju Univ.)
- P-H-12      **Benefit of e-Transmission for NEV**  
Bum-Joon Kim, Il-Seon Sohn (Osan Univ.)

## Poster Session II - Wednesday 26, 18:00~20:00, Maui Room

**Chairs:** *Young Choi, Jay I. Jeong, Bo Hyun Kim, Jaehwan Kim, Dong-Yoon Lee, Jung-Il Song, Suk Won Cha, Seung-Hwan Chang, Sung-Tae Hong, Heon Lee, Zhongde Shan*

### Poster Session I (Material II)

- P-I-01 **Biomimetic Structure of the Guide Sleeve for 3D Weaving Composites**  
Xiaochuan Wu, Zhongde Shan, Feng Liu, Zheng Wang (China Academy of Machinery Science & Technology)
- P-I-02 **Improving Thermal Conductivity of Bio-based PCMs Composites using Carbon Nanomaterials**  
Seulgi Yu, Su-Gwang Jeong, Okyoung Chung, Sumin Kim (Soongsil Univ.)
- P-I-03 **Improvement of Physical Property by Carbonation Reaction of Non-cement Mortar using Fly Ash and Blast Furnace Slag**  
Junyoung Park, Yootaek Kim, Changsub Jang (Kyonggi Univ.)
- P-I-04 **Efficient Reduction of Graphite Oxide by Various Reduction Agents and Its Effect on Electrical Conductance**  
Sung Jin An (Kumoh National Institute of Technology)
- P-I-05 **Compressive Strength Properties According to the Conditions of Inorganic Composite using Industrial By-product**  
Sangsoo Lee, Hayoung Song (Hanbat National Univ.)
- P-I-06 **Properties of Paste Based on Mixing Ratios of Ternary System Inorganic Composites and Addition Percentage of Alkali Accelerator**  
Hayoung Song, Sangsoo Lee (Hanbat National Univ.)
- P-I-07 **Electromechanical Behavior of Cellulose-ZnO Hybrid Nanocomposites**  
Byung-Woo Kang, Seongcheol Mun, Hyun-U Ko, Lindong Zhai, Jaehwan Kim (Inha Univ.)
- P-I-08 **Study on Impact Toughness of Composite with Three Dimensional Flexible Guide Weaving**  
Zheng Wang, Zhongde Shan, Feng Liu, Xiaochuan Wu (China Academy of Machinery Science & Technology)
- P-I-09 **Synthesis of Glycerol Carbonate from Glycerol and Urea with Cobalt-containing Metal Oxide as Catalysts**  
Hyuntae Kang, Aram Kim, Miran Kim, Chohye Yoon, Kang Hyun Park (Pusan National Univ.)



- P-I-10 **Development of a Lightweight GFRP Composite Bogie: Fatigue and Running Stability Tests**  
Jung Seok Kim, Hyuk Jin Yoon (Korea Railroad Research Institute), Woo Geun Lee, Il Kyum Kim (Univ. of Science & Technology)
- P-I-11 **A study of Detecting Defect Carbon-Carbon Composites by Infrared Thermography**  
Jae Sung Kim, Hong Gun Kim, Hee Jae Shin, Sun Ho Ko, Young Min Kim, Yun Ju Cha, Lee Ku Kwac (Jeonju Univ.)
- P-I-12 **Damping Property of MWCNTs Reinforced Nanocomposites**  
Shiuh-Chuan Her, Chun-Yu Lai (Yuan Ze Univ.)
- P-I-13 **Influence of the Manufacturing Process on the Mechanical Properties of Flax/Epoxy Composites**  
Ihab El Sawi, Habiba Bougherara, Zouheir Fawaz (Ryerson Univ.), Redouane Zitoune (Université de Toulouse)
- P-I-14 **Bio-Inspired Plasmonic Active Surfaces**  
Sehyun Park, Sun Yong Kwon, William T. Nichols (Hanyang Univ.)
- P-I-15 **Thermal/Mechanical Durability of Thermal Barrier Coatings Evaluated by Thermal Shock and Post-Indentation Tests**  
Kee Sung Lee, Bin Jang, Tae Woo Kim (Kookmin Univ.)
- P-I-16 **Hydrogen Production over the Band Gap-tuned Micro Sheet-like  $\text{Sn}_{x-1}\text{Ti}_x\text{S}_2$  Photocatalytic System**  
Yujin Park, Misook Kang (Yeungnam Univ.)
- P-I-17 **Luminescence of  $\text{LaAlO}_3$  Phosphors Doped with Mixed-valence State Europium**  
Min-Ho Lee, Woo-Sik Jung (Yeungnam Univ.)
- P-I-18 **Photocatalytic Activity of ZnO Crystals Upon Their Crystal Growth Direction**  
Sun-Wha Seo, Bo-Mi Kim, Aha-Ra Jeo, Eue-Soon Jang (Kumoh National Institute of Technology)
- P-I-19 **Natural Fibers for Hemodialysis: Characterization, Material Selection and Cellulose Extraction**  
Blessie A. Basilia, Marissa A. Paglicawan (Industrial Technology Development Institute), Erica D. Legal, Bienjalyn M. Boquiren, Genrev T. Novelo (Mapua Institute of Technology)
- P-I-20 **Analyses of the Multifractal Measure for Absorbing Ions on a Charged Lipid Membrane**  
Kyungsik Kim (Pukyong National Univ.)

**Poster Session J (Smart Material & Structure/Medical Device)**

- P-J-01      **Evaluation on Hydrogen Embrittlement of Material using Nondestructive Test**  
Dongsu Bae, Jinkyung Lee, Sangpill Lee, Insu Son (Donggeui Univ.), Unbong Baek, Seunghoon Nahm (Korea Research Institute of Standards and Science), Joonhyun Lee (Pusan National Univ.)
- P-J-02      **A Piezo-driven Parallel Compliant Stage using Antagonistic Arrangement of Piezo Actuators**  
Kee-Bong Choi, Jae Jong Lee, Gee-Hong Kim, Hyung Jun Lim (Korea Institute of Machinery and Materials)
- P-J-03      **Dynamic Impact Behaviour of NiTi Shape Memory Alloy**  
Sung Young (Korea Univ. of Technology and Education), J. Kim (Dong-A Univ.), Y. Kim (Kyemyung Univ.), T. Nam (Kyeongsang National Univ.), D. Jin, D. Chung (Korea Univ. of Technology and Education)
- P-J-04      **Design and Analysis of Displacement Amplification Mechanism using Stacked Piezoelectric Actuator**  
Young-Bog Ham (Korea Institute of Machinery and Materials), Eun-Joo Lee (Woosong Univ.), Hyeung-Tae Lim, Jung-Ho Park, So-Nam Yun, Eun-Che Jeon, Sang-Gyu Choi (Korea Institute of Machinery and Materials)
- P-J-05      **Development of a Dynamic Model for the Index Finger Exoskeleton Actuated by Polymer Actuators**  
Yoon Jeong Kim, Gwang Hun Jeong, Soo Jin Lee, Kyehan Rhee (Myongji Univ.)
- P-J-06      **Control Method for Centering Rolls in Radial-Axial Ring Rolling Process**  
K. H. Lee, D. C. Ko (Pusan National Univ.), S. B. Lee (Keimyung Univ.), S. H. Kim, B. M. Kim (Pusan National Univ.)
- P-J-07      **Superposition Method to Estimate the Characteristics of SMA Tool Clamping System**  
Sungcheul Lee, Seung-Kook Ro, Jong-Kweon Park (Korea Institute of Machinery and Materials)
- P-J-08      **Self-Assembly of Biomimetic Sponges**  
Jinyoung Choi, Sungkwon Yoon, William T. Nichols (Hanyang Univ.)
- P-J-09      **Effect of SMA Powder / Fiber on Dynamic Properties of Carbon Fiber Reinforced Polymer**  
Hyung-Soo Kim, Jang-Yeob Lee, Yeon June Kang, Sung-Hoon Ahn (Seoul National Univ.)
- P-J-10      **Biomimetic Underwater Robot Using Smart Soft Composite: a Ray-like Robot**  
Won-Shik Chu, Hyung-Soo Kim, Jang-Yeob Lee, Sung-Hoon Ahn (Seoul National Univ.)

- P-J-11 **Morphing Car-Spoiler using Woven Type Smart Soft Composite (SSC) Actuator**  
Min-Woo Han, Won-Shik Chu, Hugo Rodrigue, Jang-Yeob Lee, Sung-Hyuk Song, Daniel Lee, Sung-Hoon Ahn (Seoul National Univ.)
- P-J-12 **Performance Evaluation of A Pseudo-Aural-to-vibrotactile Display System**  
Hyun Suk Oh, Juno Cheong, Wheekuk Kim (Korea Univ.)
- P-J-13 **The Process Design of a Ball Joint Using the DOE, Considering Caulking and Pull-Out Strength**  
Byung-Hun Jang, Bong-Su Sin, Kwon-Hee Lee (Dong-A Univ.)
- P-J-14 **Ground Contact Shear Force Estimation During Treadmill Walking**  
Yihwan Jung, Seungbum Koo (Chung-Ang Univ.)
- P-J-15 **Fabrication of Hydroxyapatite Targets in RF-sputtering for Surface Modification of Titanium Dental Implants**  
H. C. Lai, K. Y. Hung, H. P. Feng (Ming Chi Univ. of Technology)
- P-J-16 **Strain Measurement of Shoulder Capsule using Computer Vision System**  
Haea Lee, Sung Bin Im, Soo Min Kim, Soo-Won Chae (Korea Univ.), Song-Yon Kim (Hallym Univ. Kangnam Sacred Heart Hospital), Minho Chang (Korea Univ.), Juneyoung Lee (Korea Univ. College of Medicine), Seung-Ho Han (The Catholic Univ. of Korea School of Medicine)
- P-J-17 **Influence of Heat Treatment on Responses in Simulated Body Fluids for the Plasma-Sprayed Hydroxyapatite Coatings of Titanium Implants**  
P. C. Wang, Y. C. Lin (Ming Chi Univ. of Technology), Y. C. Yang (National Taipei Univ. of Technology), K. Y. Hung, H. P. Feng (Ming Chi Univ. of Technology)
- P-J-18 **Fabrication of Detachable Hydrogel Microplates for Separably Patterned Cell Culture**  
Jin Ho Choi, Cheol Woo Park, Gyu Man Kim (Kyungpook National Univ.)
- P-J-19 **Label-free Detection of Viruses on Polymeric Surfaces with Periodic Nanostructures using Liquid Crystals**  
Chang-Hyun Jang, Gyeo-Re Han (Gachon Univ.)
- P-J-20 **Evaluation of Detectable Defect Size Limitation for Pressure Vessel with Internal Defects Using Shearography**  
Kyeongsuk Kim, Mangyun Na, Taeho Choi, Sangwoo Sun, Hyunchul Jung (Chosun Univ.)

**Poster Session K (CAD/CAM/Analysis/Machinery)**

- P-K-01      **A Study for the Effects of Geometry on the Mechanical Behavior of Flexible Tube**  
Jinbong Kim (Hanseο Univ.)
- P-K-02      **Molecular Dynamics Simulations of Thermal Resistance and Temperature Dependence of Kapitza Length on Silicon-water Interface**  
An Pham, BoHung Kim (Univ. of Ulsan)
- P-K-03      **Integrated Dynamic System Simulation for Control Design**  
Byung-Sub Kim, Jong-Kweon Park (Korea Institute of Machinery & Materials), Young-Pyo Kim (Hwacheon Machine Tool Co., Ltd.)
- P-K-04      **A Study of Structural Analysis on the Superficial Grooving Stainless Thin Plate**  
Seok Heum Baek (Dong-A Univ.), Jae Young Jeong, Wonseok Jo, Heungseob Kim, Seong Beom Lee (Inje Univ.)
- P-K-05      **Tolerance Optimization of Lower Arm by using Genetic Algorithm and Process Capability Index**  
Kwang-Ki Lee (VP Korea), Yun-Cheol Rho, Seung-Ho Han (Dong-A Univ.)
- P-K-06      **Dynamic Behavior of Timoshenko Beams Subjected to Sub-tangential Follower Force**  
In-Soo Son, Sang-Pill Lee, Jin-Kyung Lee, Dong-Su Bae (Dong-Eui Univ.)
- P-K-07      **Digital Manufacturing Gypsum Mould Technology Research**  
Zhennan Wang, Zhongde Shan, Wenjuan Rong (State Key Laboratory of Advanced Forming Technology & Equipment)
- P-K-08      **Based on the Digital Rapid Prototyping Research of Desulfurization Gypsum Formula**  
Yongwei Wang, Zhongde Shan, Li Zhan (State Key Laboratory of Advanced Forming Technology & Equipment)
- P-K-09      **Pixel-based Process Planning for Layered Manufacturing of Heterogeneous Objects**  
Hong Seok Kim, Ki-Hoon Shin (Seoul National Univ. of Science and Engineering)
- P-K-10      **Friction Measurement System of Linear Motion Bearings**  
Gyungho Khim, Jeong-Seok Oh, Chun-Hong Park (Korea Institute of Machinery and Materials)
- P-K-11      **Modeling and Simulation of Control Systems for Machinery Equipments**  
Chang Kyu Song, Seung-Kook Ro, Byung-Sub Kim, Sungcheul Lee (Korea Institute of Machinery and Materials)

- P-K-12 **Evaluation for Fracture Resistance Curve and Test Jig of the Compact Pipe Specimen**  
Keontae, Park, Ikhyun Kim, Jea-Mean Koo, Chang-Sung Seok (Sungkyunkwan Univ.)
- P-K-13 **Novel NO<sub>2</sub> Sensors Based on OD-1D p-n Heterojunctions Composed of CuO Nanoparticles and ZnO Nanorods**  
Le Thuy Hoa, Seung Hyun Hur (Univ. of Ulsan)
- P-K-14 **Experimental Thermal Behavior Analysis of Ultra-precision Positioning Nut/Screw Air Cooling Ball Screw System**  
Zhe-Zhu Xu, Sang-Ha Yu (Gyeongsang National Univ.), Hyun-Koo Kim (Tongil Industries Co., Ltd), Sung-Ki Lyu (Gyeongsang National Univ.)
- P-K-15 **The Seismic Performance of Coupling Beams with Different Types of Failure**  
Wan-Shin Park, Hyun-Do Yun, Sun-Woong Kim, Jeong-eun Kim, Nam-Young Eom, Song-hui Yun (Chungnam National Univ.)
- P-K-16 **Development of Positioning System Using Ultrasound and Infrared Ray**  
In-Mook Choi, Sung-Jun Lee, Yon-Kyu Park, Sam-Yong Woo (Korea Research Institute of Standards and Science)
- P-K-17 **Electrolyte Management for Electro Polishing Semiconductor-Piping UHP Tubes**  
Yong Sung Jun, Seung Hye Ahn, Jeong Hwi Kwon (Korea Institute of Industrial Technology), Soo Han Kim (Kwangwoon Univ.)
- P-K-18 **Equipment Interface Testing Module by Emulating the Signal of Equipment**  
Jai-Kyung Lee, Seung Woo Lee, So-Jeong Nam (Korea Institute of Machinery & Materials)
- P-K-19 **Dynamic Simulation and Vibration Control of the Hybrid Type Solar Cell Substrate Handling Robot**  
Dong Il Park, Cheolhoon Park, Hyunmin Do, Yijun Yoo, Kwangcho Chung (Korea Institute of Machinery and Materials)
- P-K-20 **Accuracy Evaluation of Five-axis Machine Tool by Modeling Dual Sphericity at Double Ball-bar Measurement**  
Kwang-II Lee, Seung-Han Yang (Kyungpook National Univ.)

## Poster Session L (Machinery/Non-Traditional Manufacturing)

- P-L-01      **Failure Analysis on Gripping Performance of an Automatic Tool Changer**  
Bo-Sik Kang, Jung-Hun Shin (Korea Institute of Machinery & Materials), Bo-Sung Shin (Pusan National Univ.)
- P-L-02      **Direct Equipment Interface to Build a Paperless Manufacturing Environment**  
So-Jeong Nam, Seung Woo Lee, Jai-Kyung Lee (Korea Institute of Machinery & Materials)
- P-L-03      **Effect of the Surfactant on Size of Nickel Nanoparticles Generated by Liquid-Phase Plasma Method**  
Hwan-Gi Kim, Heon Lee, Minchul Chung, Ho-Geun Ahn (Suncheon National Univ.), Sun-Jae Kim (Sejong Univ.), Sang-Chul Jung (Suncheon National Univ.)
- P-L-04      **In-situ Temperature Measurement of Copper Nano Ink during Flash Light Sintering Process**  
Wan-Ho Chung, Sung-Hyeon Park, Hak-Sung Kim (Hanyang Univ.)
- P-L-05      **Feature of Mechanical Properties of Stainless Steel Composites with TiCxNy Synthesized by Spark Plasma Sintering**  
Bunyod Allabergenov, Oybek Tursunkulov, Amir Abidov, Sang-Yeop Kim, He Li Li, Tae Yong Kim, Soon-Wook Jeong, Sungjin Kim (Kumoh National Institute of Technology)
- P-L-06      **Surface Roughness Improvement of Mold Materials by High Density Electron Beam Scanning with Low Energy**  
Jin-Seok Kim, Han-Soo Kim, Dong-Yoon Lee, Eun-Goo Kang (KITECH)
- P-L-07      **Analysis of Pile up Formation during AFM Nano Patterning of IZO Coated Pyrex Glasses**  
H. H. Lee, S. H. Lee (Hanyang Univ.)
- P-L-08      **AFM-based Nano Electrochemical Machining in a Tiny Electrolyte Droplet**  
Gil Jun Kim, Jong Sun Yu, Shi Hyoung Ryu (Chonbuk National Univ.)
- P-L-09      **Fabrication of Nanodome Array by Nano-Imprinting and Physical Vapor Deposition for Enhanced Fluorescence Substrate**  
Ho-Young Jang, Eui-Hyeon Byeon, Seok-Min Kim (Chung-Ang Univ.)
- P-L-10      **Ultrasonic Nano-crystal Surface Modification of Rolling Ball Screws on Performance Characteristics**  
Yasutoshi Tominaga, Young-Sik Pyun (Sunmoon Univ.), Hyoun-Gu Kim (Tongil Industries Co., Ltd)

- P-L-11      **Transparent Conductive Film using Roll Printed and Imprinted Grid Patterns**  
Kwang-Young Kim, Jeongdai Jo, Seong-Man Yoon, Jong Su Yu (Korea Institute of Machinery & Materials)
- P-L-12      **Bio-inspired Fibrillar Adhesives for Clean Transportation System with Switchable Adhesion Properties**  
Doogon Kim, Won-Gyu Bae, Kahp Y. Suh (Seoul National Univ.)
- P-L-13      **Modified Tension Model in Feeder and Printing Spans of Roll-to-roll Printing System**  
Chung Hwan Kim, Jong-Chan Park, Ki Sang Nam, Lei Lui, Sung Woong Jeon (Chungnam National Univ.)
- P-L-14      **Rating Lowering of Inverter Module using PFC**  
Taekyu Kim, Hokyun Ahn, Taesung Yoon, GyunPung Kwak, Seungkyu Park (Changwon National Univ.)
- P-L-15      **Replication of Solar Concentration Lens using Spin Coating Method**  
Sung-Ki Nam, Dong-Yoon Yoo (Gwangju Institute of Science and Technology), Chabum Lee (LG Display), Sun-Kyu Lee (Gwangju Institute of Science and Technology)
- P-L-16      **Transparent Conducting ZnO Nanorods for Nanoelectrodes as a Reverse Tunnel Junction of Optoelectronics Applications**  
Sung Jin An (Kumoh National Institute of Technology)
- P-L-17      **Nano-Composite Manufacturing by Using the Electro-Orientation Method of Micro/Nano-Particles in a Liquid Polymer**  
Hee Keun Cho (Andong National Univ.), Juhun Rhee (Korea Aerospace Research Institute)
- P-L-18      **Development of Spray Dryer Nozzle by Rapid Sintering Method**  
Dong-Ki Kim (Korea Institute of Carbon Convergence Technology), Shin-Jae Kang (Chonbuk National Univ.), Je-Ha Oh, Sang-Yeob Oh, JoonHyuk Song, Eun-Sung Kim (Korea Institute of Carbon Convergence Technology), In-Jin Shon (Chonbuk National Univ.)
- P-L-19      **Destruction of HCFC-22 using CVD TiO<sub>2</sub> Film Photocatalyst Balls with Microwave Discharge Electrodeless Lamp**  
Sang-Chul Jung, Heon Lee, Young-Sun Bae (Suncheon National Univ.), Sang-Chai Kim (Mokpo National Univ.), Seong-Gyu Seo (Chonnam National Univ.)
- P-L-20      **One Step Synthesis of Cobalt Hydroxides, Oxides and their Electrochemical Properties Research**  
Chao Feng, Yida Deng, Wenbin Hu (Shanghai Jiao Tong Univ.)

## Poster Session M (Non-Traditional Manufacturing/Molding)

- P-M-01**      **Visualization of Mechanical Damage of Graphene Film Fabricated by Dry Transfer Process**  
Kyung-Shik Kim, Kwang-Seop Kim, Sangmin Kim (Korea Institute of Machinery and Materials), Sejeong Won (Korea Advanced Institute of Science and Technology), Seungmin Cho (Samsung Techwin), Jae-Hyun Kim, Hak-Joo Lee, Byung-Ik Choi (Korea Institute of Machinery and Materials)
- P-M-02**      **Fabrication and Actuation of Smart Functional Nanostructure by Focused Ion Beam with 4-Axes Nanomanipulator**  
Chung-Soo Kim, Gil-Yong Lee, Jung-Oh Choi, Hyun-Taek Lee, Jae-Il Park, Hae-Sung Yoon, Sung-Hoon Ahn (Seoul National Univ.), Dong-Young Jang (Seoul National Univ. of Science and Technology)
- P-M-03**      **Ultra-short Pulsed UV Laser Annealing of Solution-deposited ITO Thin Films and Their Optical, Electrical, and Mechanical Properties**  
Yoonsoo Rho (Korea Institute of Industrial Technology), Daeho Lee, Costas P. Grigoropoulos (Univ. of California), Kyungtae Kang, Heuiseok Kang, Sang Ho Lee, Ki Young Kim, Jun Young Hwang (Korea Institute of Industrial Technology)
- P-M-04**      **Study on the Resin Layer Thickness Variation during UV Imprinting Process**  
Siyoul Jang (Kookmin Univ.), Cheolwoong Ko (Korea Institute of Industrial Technology)
- P-M-05**      **Characteristic Behaviours of Clad Layer by a Multi-layer Laser Cladding with Powder Mixture of Ni-based Alloy and Tungsten Carbide**  
Yanhua Zhao, Jie Sun, Fangyi Li, Peiqin Sun (Shandong Univ.)
- P-M-06**      **Thermal Deformation of Glass Backplanes for Large-Scale Displays during FLA Process of Amorphous Silicon**  
Seungho Park (Hongik Univ.), Dong Hyun Kim (Samsung Electronics Co), Hyoung June Kim (Hongik Univ.), Byung-Kuk Kim (Viatron Co.), Haseung Chung, Jinha Hwang, Wonbum Jin (Hongik Univ.)
- P-M-07**      **Development of Ultra Precision R2R Micro-Gravure Coating System for Printed Organic Photovoltaics**  
Sung Woo Bae, Dong Soo Kim (Hanbat National Univ.), Jung Su Kim (PEMS Co., Ltd.)
- P-M-08**      **Development of Ultra Precision Printing R2R Manufacturing System for Printed Transparent Electrode Film**  
Jung Su Kim (PEMS Co. Ltd.), Dong Soo Kim, Sung Woo Bae (Hanbat National Univ.)



- P-M-09      **Design of Heating Roller for Large Area Printed Electronics Solar Applications in R2R Thermal Microimprinting**  
JongHyun Kim, Dong-Jin Lee, Jun-An Han, Sun-Kyu Lee (Gwangju Institute of Science Technology)
- P-M-10      **Study on the Characteristics of Residual Stress according to Degree of Curing in the LSR Injection Molding**  
Jeongyeon Park, Gil-Sang Yoon (Korea Institute of Industrial Technology), Jong-Deok Kim, Jong-Myoung Choi (PROTEC co., LTD), Jeong-Won Lee (Korea Institute of Industrial Technology)
- P-M-11      **Development of Optimum Injection Molding Technology and Mold Design of Sheet Housing of AWG type WDM for Optical Communication**  
M. H. Kim (Korea institute of industrial technology), H. S. Yoon (Chonnam National Univ.)
- P-M-12      **Experimental Study on HIP applied DMLS Mold for the Improvement of Cooling Efficiency**  
Hyungpil Park, Baegsoon Cha, Jongdeok Kim, Youngbae Ko (Korea Institute of Industrial Technology), Seunghyun Cho (Dongyang Technical College), Heungkyu Kim (Kookmin Univ.), Byungohk Rhee (Ajou Univ.)
- P-M-13      **Fuzzy PID Control of Low-speed Heavy Press with Dynamic Friction Compensation using Modified LuGre Model**  
Yibo Li, Minghui Huang, Qing pan (Central South Univ.)
- P-M-14      **Study on H Beam of Infusion from Inside and Outside at the Same Time**  
Rui Chen, Zhongde Shan, Feng Liu, Qun Zhang (Advanced Manufacture Technology Center China Academy of Machinery Science & Technology)
- P-M-15      **Estimation of Flow Stress and Ductile Damage Index after Necking by FE Simulation**  
Seong-Hoon Kang, Howon Lee, Young-Seon Lee (Korea Institute of Materials Science)
- P-M-16      **A Manufacturing of Highly Durable Suspension with Rubber Spring by using Actuating Injection Molding**  
Chun Lee (Gyeongbuk Hybrid Technology Institute), Youngchun Kim (Trelleborg Vibracoustic KUNHWA)
- P-M-17      **Microinjection Mold Design Technology for Green Manufacturing**  
Gyunmyoung Park (Korea Institute of Industrial Technology), Injong Song (P&Tecl Inc.)
- P-M-18      **Ultrasonic Nanocrystal Surface Modification(UNSM) Effects of Hot Steel Tools(H13) on Tribological and Fatigue Characteristic**  
Hak-Doo Kim, Ki-Bea Hong, Young-Sik Pyun, Jun-Hyong Kim (Sunmoon Univ.)

P-M-19 **Integrated Process-Planning Framework for Hybrid Nano-scale Manufacturing using NPDS and FIB**

Heonjeong Chu, Hyunseo Park, Chung-Soo Kim, Hae-Sung Yoon, Sung-Hoon Ahn, Kunwoo Lee (Seoul National Univ.)

P-M-20 **Design, Growth, and Characterization of Group II -Doped GaZnO UV TCO Films Prepared by RF Magnetron Sputtering**

Jang-Ho Park, Byung-Teak Lee (Chonnam National Univ.)

## Poster Session N (Grinding/Energy/Fuel Cell)

P-N-01 **Determination of Efficient Superfinishing Conditions for the Mirror Surface Finishing of Engineering Ceramics**

Sang-Kyu Kim, Hwang-Jin Son, Yoon-Gyo Jung, Young-Tae Cho (Changwon National Univ.)

P-N-02 **Study on Ultra-precision Grinding of EL-Max Material for Hot Press Molding**

Soon Sub Park, Myeong Jin Ko (Korea Institute of Industrial Technology), Jae Young Joo, Sang Do Kang (Korea Photonics Technology Institute), Jong Ho Won (Chungnam National Univ.)

P-N-03 **Surface Smoothing of the Blasted Glass Micro-fluidic Channels using Abrasive Water Jet**

Sung-Gyun Son, Wook-Bae Kim (Korea Polytechnic Univ.)

P-N-04 **Effect of Large-sized Horn in Ultrasonic Assisted Grinding**

Young-Jae Choi, Kyung-Hee Park, Yun-Hyuck Hong, Seok-Woo Lee, Hon-Zong Choi (Korea Institute of Industrial Technology)

P-N-05 **One Step Synthesis of Cobalt Hydroxides, Oxides and Their Electrochemical Proper Ties Research**

Chao Feng, Wenbin Hu (Shanghai Jiao Tong Univ.)

P-N-06 **Raman Scattering Studies of LiFe<sub>1-x</sub>Mn<sub>x</sub>PO<sub>4</sub>**

Joo-Hee Chung, Nguyen Thi Minh Hien (Ewha Womans Univ.), Xiang-Bai Chen (Konkuk Univ.), Woo Jun Kwon, Chul Sung Kim (Kookmin Univ.), In-Sang Yang (Konkuk Univ.)

P-N-07 **xLi<sub>2</sub>MnO<sub>3</sub>•(1-x)LiNi<sub>1/3</sub>Co<sub>1/3</sub>Mn<sub>1/3</sub>O<sub>2</sub> Electrodes Synthesized by Electrospinning for Lithium Secondary Batteries**

Cheong Kim, Chung Soo Kang, Tae Jun Park, Gi Won Yoo, Jong Tae Son (Korea National Univ. of Transportation)

- P-N-08**      **Enhanced Electrochemical Performance of Surface-modified LiMn<sub>2</sub>O<sub>4</sub> Cathode Materials by Indium Tin Oxide (ITO) Coating**  
Chang-Sam Kim (Korea Institute of Science and Technology), Jong-Won Yoon (Dankook Univ.)
- P-N-09**      **Effect of Polypyrrole Coating on Li Powder Anode for Lithium-Sulfur Secondary Batteries**  
Soo Jung Oh, Woo Young Yoon (Korea Univ.)
- P-N-10**      **Synthesis of Lithium Phosphate Powder with High Purity by Microwave-hydrothermal Method**  
Jae-Kil Han, In-Chul Kang (Technology Convergence Center), Chun Uong (Research Institute of Industrial Science and Technology)
- P-N-11**      **Effects of AlN Blocking Layer on Stability of ZTO/AlN/Ag/AlN/ZTO Film for Low-emissivity**  
Yong Jun Shin, Gun Eik Jang (Chungbuk National Univ.)
- P-N-12**      **Smart In-wheel Generator using Adaptive DC-DC Converter for Rechargeable Batteries in Electrical Vehicles**  
Ngoc Nguyen, Franklin Bien (Ulsan National Institute of Science and Technology)
- P-N-13**      **Preparation of Coal-tar Pitch-based Carbon Electrodes and Their Electrochemical Characteristics for Supercapacitor**  
Min-Kang Seo, Yun-Su Kuk, Won-Tae Kim, Shin Jae Kang (Korea Institute of Carbon Convergence Technology), Soo-Jin Park (Inha Univ.)
- P-N-14**      **Highly Reduced KOH Treated Graphene Oxide as an Efficient Material for Supercapacitor Electrode**  
Balasubramanian Rajagopalan, Viet Hung Pham, Jinhee Jang, Seung Hyun Hur, Jin Suk Chung (Univ. of Ulsan)
- P-N-15**      **Characterization of Titanium diboride(TiB<sub>2</sub>) Composite Bipolar Plates for PEMFC**  
Jong-Moon Park, Yong-Il Park, Myung-Hoon Oh (Kumoh National Institute of Technology)
- P-N-16**      **Plasma-enhanced Atomic Layer Deposition of Yttria-stabilized Zirconia**  
Soonwook Hong, Myeong-Seok Ban, Jiwoong Bae, Bongjun Koo (Hanyang Univ.), Ikhwang Jang (Seoul National Univ.), Young-Beom Kim (Hanyang Univ.), Suk Won Cha (Seoul National Univ.)
- P-N-17**      **Preparation of Micro-channel Catalytic Reactor Coated with Macro-Porous Al<sub>2</sub>O<sub>3</sub> for Fuel Reformer**  
No-Kuk Park, Tae Jin Lee (Yeungnam Univ.), Suk Ho Lee, Soo Young Ha (Ajin Industrial Co. Ltd.)

- P-N-18      **Atomic Layer Deposited Cermet Interlayer for Low-temperature SOFC**  
Jihwan An (Stanford Univ.), Young Beom Kim (Hanyang Univ.), Turgut M. Gür, Fritz B. Prinz (Stanford Univ.)
- P-N-19      **A Study of Thermochemical Decomposition of Molten Carbonate Anode-Media for Direct Carbon Fuel Cell Application**  
Jun Ho Yu, Byeung Su Chu, Kyungtae Kang, Heuseok Kang, Jun Young Hwang (Korea Institute of Industrial Technology)
- P-N-20      **Proton Conductivity of the Phosphate Glass Thin Films with Increasing Water Concentration**  
Suk Hee Lee, Sung Bum Park, Yong-il Park (Kumoh National Institute of Technology)

### **Poster Session O (Environmental Impact/Energy Saving)**

- P-O-01      **Particle Collection Performance of Oil Mist Eliminators for Manufacturing Industries**  
H. J. Kim, B. Han, Y. J. Kim, K. T. Park (Korea Institute of Machinery and Materials)
- P-O-02      **Electrolytic Oxyhydrogen (EOH) Gas as a Green Fuel Additive in Thermal Processing**  
Gyu Hee Lee, Jeong U Roh, Woo Il Lee, H. Thomas Hahn (Seoul National Univ.)
- P-O-03      **Development of an Intelligent ERM System and its Application for Reducing Energy Consumption in Manufacturing Processes**  
Min-Jae Ko, Gyu-Bong Lee (KITECH), Soo-Bin Kim (W&E Korea, Co., Ltd.)
- P-O-04      **Intelligent Renewable Energy Systems using Neural Network Methodologies**  
Jun-Hyung Ryu (Dongguk Univ.), Soobin Lee, In-Beum Lee (POSTECH)
- P-O-05      **Study of Electrochemical Redox of Gold for Refining in Non-aqueous Electrolyte**  
Jae-O Lee, Gwangwon Park, Jesik Park, Churl Kyoung Lee (Kumoh National Institute of Technology), Kyoungjung Kwon (Sejong Univ.), Hansu Kim (Hanyang Univ.)
- P-O-06      **Development of Separation Process for REE with Ion Chromatography and Extraction Chromatography**  
Jeong Gon Kim (Univ. of Incheon)

- P-O-07**      **Separation and Purification of Rare Earth Elements in Spent Nd-Fe-B Magnets using Adsorbent Materials with Functional Groups**  
Jae-Kil Han, In-Cheol Kang, Sun-A Ju (Incheon TechnoPark), Min-Hae Jung (Juwon Industry. Co., Ltd.), Eun-Hee Seo (Univ. of Incheon), Taek-Soo Kim (Research Institute of Industrial Science and Technology)
- P-O-08**      **Catalytic Hydrogenolysis of Glycerol to Propylene Glycol over Cu/Zn/Al Mixed Oxides Prepared using Microwave Process**  
Seong Soo Hong (Pukyong National Univ.)
- P-O-09**      **Steam Reforming of LPG over Ni-Ru/Al<sub>2</sub>O<sub>3</sub>-MgO Catalysts Loaded on Metallic Monolith**  
Jong Dae Lee, Jeong Min Yang (Chungbuk National Univ.)
- P-O-10**      **Synthesis of (La, Sr) MnO<sub>3</sub> Powder for Oxygen-Electrode Material of HTES**  
Seon Young Park, Hyun Jin Kim, Si Ok Ryu (Yeungnam Univ.), Ho Sang Choi (Kyungil Univ.)
- P-O-11**      **Transesterification of Canola Oil with Methanol over Heteropoly Acids**  
Seong Soo Hong (Pukyong National Univ.)
- P-O-12**      **Catalytic Pyrolysis of Biomass Component over SAPO**  
Hyung Won Lee, Hyun Koo Kang, Hyung Beom An, Bo Ram Jun (Univ. of Seoul), Sung Hoon Park (Suncheon National Univ.), Kwang-Eun Jeong (Korea Research Institute of Chemical Technology), Jong-Ki Jeon (Kongju National Univ.), Young-Kwon Park (Univ. of Seoul)
- P-O-13**      **A Study on Supported CuO and ZnO Based Catalysts for Hydrogenation of Carbon Dioxide into Methyl Alcohol**  
Won-Ju Ahn, Ho-Geun Ahn, Chul-Min Park, Woong-Kyu Jo, Jin-Hun Song, Hwan-Gyu Lee, Min-Chul Chung, Kwon-Pil Park (Suncheon National Univ.), Ki-Joong Kim (Oregon State Univ.), Woon-Jo Jeong (OT&T, INC.), Bo-Kyun Sohn, Sang-Chul Jung, Do-Jin Lee (Suncheon National Univ.), Byeong-Kwon Ahn (Chodang Univ.)
- P-O-14**      **Low Emissivity Coating of Amorphous SZTO/Ag/Amorphous SZTO Multilayer**  
Young Seon Lee, Sang Yeol Lee (Cheongju Univ.)
- P-O-15**      **Energy Harvesting of Foamed Ionic Polymer-metal Composites Strips**  
Kyung Soo Lee, Suk Bum Kwon (Yonsei Univ.), Chuljin Kim (Samsung Electro-Mechanics Co., Ltd.), Byung Chul Kweon, Hyun Keun Kim, Sang-Jo Lee and Sung Woon Cha (Yonsei Univ.)

- P-O-16**      **An Optimal Design and Performance Evaluation of Korean Traditional Ondol System in Varing Gorae Geometry Application of Goguryeo Style Jjok Gudeul**  
 Gil-Yong Lee, Won-Shik Chu, Kyung-Tae Lee, Bhandari Binayak, Min-Soo Kim, Hyung-Soo Kim, Jae-Il Park, Erkhes Bilegt, Jang-Yeob Lee, Hae-Sung Yoon, Gee-Hoon Park, Kyung-Wook Min, Yeong-Seok Kang, Ji-Hyun Song, Min-Hee Kim, Joo-Wan Kim, In-Ro Lee (Seoul National Univ.), Dan-Ee Cho, Hyung-Sub Kim, Da-Hyun Choi, Dong-Hwee Kim, Cheol-Hwan Park, Chan-Dong Park, Hyeon-Seok Park (Hanyang Univ.), Sung-Gil Han, Jun-Young Moon (Hanyang Univ.), Ji-Hwan Park, Won-Hee Cho, Jin-Gyu Lee (Gyeongsang National Univ.), Caroline Sunyong Lee (Hanyang Univ.), Chulki Song (Gyeongsang National Univ.), Sung-Hoon Ahn (Seoul National Univ.)
- P-O-17**      **An Assessment of the Environmental Impacts of End-of-Life Pathways for Electronics**  
 Jennifer Mangold, David Dornfeld (Univ. of California, Berkeley)
- P-O-18**      **Zr-Based Alloy Membranes for Hydrogen Separation**  
 Sung Bum Park, Sang Hyun Lee, Yong-il Park (Kumoh National Institute of Technology)
- P-O-19**      **Biodegradability of pH-Sensitive Silica Nanorods**  
 Young Ho Joo, Sang Hyun Lee, Sung Bum Park (Kumoh National Institute of Technology), Won Hyung Ryu (Yonsei University), Yong-il Park (Kumoh National Institute of Technology)

## Poster Session P (Vehicle/LED)

- P-P-01**      **Fundamental Research of Power Train System Layout for Electric Vehicle**  
 Kee Joo Kim (Seojeong College), Young-Cheol Lee (Korea Institute of Industrial Technology), Younsik Kang (POSCO Global R&D Center)
- P-P-02**      **Application of New Sensor for Diagnostics of Weld Defect in Railway Bogie Frame**  
 Seok Jin Kwon, Jung Won Seo, Dong Hyung Lee, Yong Sam Ham (Korea Railroad Research Institute)
- P-P-03**      **Development of Multi-Channel IR Sensor System for Rear-side Collision Avoidance**  
 Jungkwang Choi, Moonyoung Yoon, Kwangseok Boo, Seong Beom Lee, Heungseob Kim (Inje Univ.)
- P-P-04**      **Integrated Dynamics Control Method Based Upon Stability Region Analysis**  
 Moonyoung Yoon, Jungkwang Choi, Seunghwan Baek, Kwangseok Boo, Heungseob Kim (Inje Univ.)

- P-P-05      **Robust Control of Railway Vehicles Equipped with a Semi-Active Suspension System**  
Yu jeong Shin, Won Hee You, Hyun Moo Hur (Korea Railroad Research Institute)
- P-P-06      **A Study on Fatigue Test of Soundproof Wheels**  
Young-Sam Ham (Korea Railroad Research Institute)
- P-P-07      **The Effect of Semi-active Suspension on Derailment Coefficient in Railway Vehicle**  
Wonhee You, Yujeong Shin, Hyunmoo Hur, Joonhyuk Park, Yeongsam Ham (Korea Railroad Research Institute)
- P-P-08      **An Experimental Study for Weight Balance Evaluation Using Rail Vehicle Weighting System**  
Hyuk-Jin Yoon, Min-Soo Kim, Seok-Jin Kwon, Hee-Seung Na (Korea Railroad Research Institute)
- P-P-09      **Reliability Evaluation of Bogie Frame in Deteriorated Electric Multiple Units**  
Jung-Won Seo , Seok-Jin Kwon, Dong-Hyeong Lee, Young-Sam Ham (Korea Railroad Research Institute)
- P-P-10      **Diagnostic Evaluation for Structural Deformation of Overage Railway Vehicles**  
Yeon-Su Kim, Sung-Hyuk Park, Sung-Cheol Yoon (Korea Railroad Research Institute)
- P-P-11      **Finite Element Analysis of LED Ceramic Sub-Mount Forming Process**  
Myeong-Sik Jeong, Sang-Kon Lee (Korea Institute of Industrial Technology), Sung-Han Rhim (Korea Univ. of Technology and Education), Da Hye Kim, Ji Hyun Sung, Yang Gon Kim, Shinok Lee, Kang-Won Lee (Korea Institute of Industrial Technology)
- P-P-12      **Heat Radiation of LED Light Using Cu Plated Engineering Plastic**  
Young-Tae Cho, Choong-Ho Lee (Jeonju Univ.), Sang-Dong Ma (ATM Co.,)
- P-P-13      **Analysis on Dispensing Parameters for Manufacturing Dome Lenses of Chip-on-board Type LED System**  
Eun-Chae Jeon (Korea Institute of Machinery and Materials), Je-Ryung Lee (Korea Institute of Machinery and Materials),(Korea Univ.), Tae-Jin Je, Doo-Sun Choi, Young-Bog Ham, Eung-Sug Lee, Sang-Kyu Choi (Korea Institute of Machinery and Materials)
- P-P-14      **The Synthesis and Characteristics of Platinum (II) Complexes with 4 - (N,N-bis(pyridyl)amino) Stilbene**  
Seok Hwan Son, Hwan Gyu Lee, Ho Geun Ahn, Chee Hun Kwak, Sangchul Jung (Suncheon National Univ.), Ji Hoon Lee (Chungju National Univ.), Min Chul Chung (Suncheon National Univ.)

- P-P-15 **High Luminescent White LED with Quantum Dot Film Prepared by 2D-Patterend Imprinting**  
Hyun-Guk Hong, Min-Ho Shin, Hyun Chang Kim, Cheolsang Yoon, Kangtaek Lee, Young-Joo Kim  
(Yonsei Univ.)



# Authors INDEX

## A

Abd Shukor Mohd Hamdi	P-C-05
Abidov Amir	A-8-5, P-G-16, P-L-05
Acierno Domenico	C-10-2
Adachi Takahiro	B-6-3
Ahn Byeong-Kwon	P-O-13
Ahn Byung-Wook	D-9-6
Ahn Dae-Gyun	A-7-2
Ahn Deok Chan	B-1-5
Ahn Han-Woong	P-B-16, P-H-04
Ahn Ho Geun	P-L-03, P-O-13, P-P-14
Ahn Hokyun	P-L-14
Ahn In Gyu	P-B-17
Ahn Junghwan	D-5-5
Ahn Kwang Soon	P-G-13
Ahn Min Su	D-8-6
Ahn Seung Hye	P-K-17
Ahn Sung-Hoon	A-10-1, A-8-4, A-9-5, B-7-6, P-C-01, P-C-02, P-F-16, P-G-07, P-J-09, P-J-10, P-J-11, P-M-02, P-M-19, P-O-16
Ahn Tae-Hwan	C-6-1
Ahn Won-Ju	P-O-13
Allabergenov Bunyod	A-8-5, P-L-05
Amaya Jose	D-9-4
An Heekyung	P-F-03
An Hyung Beom	P-O-12
An Jihwan	P-N-18
An Ju Young	P-F-05
An Sung Jin	P-I-04, P-L-16
Aoyama Eiichi	C-9-1
Azmi Azida	C-7-1

## B

Bae Dong-Su	P-A-07, P-A-13, P-J-01, P-K-06
Bae Jae-Nam	P-B-20
Bae Ji-Hun	C-5-5
Bae Jiwoong	P-N-16
Bae Myung-Whan	P-C-07
Bae Sung Woo	P-M-07
Bae Sung-Min	D-5-3, P-B-07, P-H-03
Bae Sun-Guk	P-B-07, P-H-03
Bae Sungwoo	P-M-08
Bae Won-Gyu	P-D-07, P-L-12
Bae Young-Sun	P-L-19
Baek Jae-yong	A-1-4, D-7-3
Baek Seok Heum	P-K-04
Baek Seunghwan	D-1-1, D-2-1, P-D-15, P-P-04
Baek Seung-Kul	P-H-06
Baek Un-Bong	P-A-07, P-J-01
Bai-liang Zhuang	P-E-15
Ban Myeong Seok	P-N-16
Bang Dae Suk	P-F-05
Bang Ho-jun	P-E-04
Bang Sang-In	B-7-2
Barlat Frederic	B-1-5
Basilia Blessie	C-4-5, P-I-19
Batchelor Ben L.	C-1-2
Bejimin Faliza	A-5-1
Bhandari Binayak	A-10-1, P-O-16, P-F-16
Bhandari Pratibha	P-F-16
Bien Franklin	P-N-12

Bilegt Erkhes	P-F-16, P-O-16
Bock Youngjae	A-5-5
Bong Hyuk Jong	B-1-5
Boo Kwangseok	P-P-03, P-P-04
Boo Kwangsuck	D-1-1, D-2-1, P-D-15
Boquiren Bienjalyn	P-I-19
Boughera Habiba	P-I-13
Brandemuehl Michael J.	A-3-5
Bras Bert	C-1-3, C-9-2
Bruneau Michel	A-6-1
Bui Chinh B.	P-C-20
Buie Cullen	I-7
Byeon Eui-Hyeon	P-L-09
Byeon Jin-Seok	P-C-12
Byeon Won-Yong	P-E-17

## C

Cayli Tolga	P-C-11
Cha Baegsoon	P-M-12
Cha Dal-Joon	P-E-17
Cha Seung Hoon	D-8-6
Cha Suk Won	I-2, A-10-4, A-4-1, A-4-2, A-4-3, A-4-4, P-N-16
Cha Sukkeun	C-3-4
Cha Sung Woon	P-O-15
Cha Wan-Gi	D-8-2
Cha Yun Ju	P-I-11
Chae Soo- Won	P-J-16
Chang Ho	P-G-09
Chang Ikwhang	A-4-1, A-4-2, A-4-4
Chang Minho	P-J-16
Chang Se-myong	A-7-3, B-6-4
Chang Seung-Hwan	C-5-5
Chang Young Whun	D-5-6
Chao Jiang	P-E-15
Chen Rui	P-M-14
Chen Shang-Cyuan	P-F-09
Chen Sisi	P-E-06
Chen Xiang-bai	P-N-06
Chen Yonghua	B-8-1
Chen Yuan-Feng	P-D-04
Chen Yujie	P-A-20
Cheng De-Jun	B-8-4
Cheong Juno	P-J-12
Cheong Kwangcho	P-K-19
Chien Joshua	C-9-3
Ching Yern Chee	A-5-1, C-7-1, P-A-12
Cho BoHyun	B-10-1
Cho Byoung-Kwan	D-3-3
Cho Chulmin	A-2-3
Cho Dan-Ee	P-F-16, P-O-16
Cho Gu Young	A-4-1, A-4-3
Cho Hang Kyu	P-F-04
Cho Hee Keun	P-L-17
Cho Hee-Chan	A-3-3, P-B-05
Cho Hyeon Jae	D-6-1
Cho Jung-Woo	P-C-03, P-C-19, P-H-05
Cho Kyounga	B-3-3
Cho Kyu-Jin	A-9-4
Cho Seoungmin	P-M-01
Cho Seunghyun	P-M-12
Cho Soo Yong	B-8-5



# Authors INDEX

Grigoropoulos Costas	P-M-03	Hua Maofa	P-D-03
Guan Kaikai	C-4-4	Huang Li-Jiang	B-7-4
Guldborg Tina	C-9-2	Huang Minghui	P-E-16, P-M-13
Guo Anfu	C-4-4	Huh Chun	A-3-3
Gür Turgut M.	P-N-18	Huh Jaemyung	A-9-6
Gurrola-coral Carlos Esteban	A-10-2	Hui Ping Feng	P-J-15
<hr/>			
<b>H</b>			
Ha Chang-Wan	P-E-03	Hung Kuo Yung	P-J-15, P-J-17
Ha Jin-soo	P-B-03	Hung Wei-Hsiang	A-4-5
Ha Jong Moon	A-7-1	Hur Hyun Moo	P-P-05, P-P-07
Ha Seong-Ho	D-10-1, D-10-2, D-10-3	Hur Kwan-Do	P-B-03
Ha Si	C-10-4	Hur Seung-Hyun	C-8-6, P-K-13, P-N-14
Ha Soo Young	P-N-17	Hur Won Moo	D-2-1
Ha Tae Ho	P-B-18, P-B-15, P-B-19	Hwang Jihoon	B-7-3, D-2-2
Hahn H. Thomas	K-8, P-O-02	Hwang Jinha	P-M-06
Ham Yeong Sam	P-P-06, P-P-07, P-P-09	Hwang Jooho	P-C-20
Ham Young-Bog	P-F-02, P-J-04, P-P-13	Hwang Jun Young	P-D-11, P-D-12, P-M-03, P-N-19
Hamada Hiroyuki	A-5-3, A-5-4, C-10-5	Hwang Kyu Hong	P-A-14
Han Bongtae	A-7-1	Hwang Sang Chul	D-3-2
Han Chang-Soo	P-F-17	Hwang Seung-Kuk	P-A-07
Han Changwoon	A-7-1	Hwang Soyoung	D-8-2
Han Gyeo-Re	P-J-19	Hyun Soong-Keun	C-1-4, C-5-2, D-10-3
Han Heung Nam	P-A-01	<hr/>	
Han Jae-Kil	P-N-10, P-O-07	<b>I</b>	
Han Jeonghun	P-B-02	Ichida Daiki	P-G-06
Han Jun-an	P-M-09	Im Kwang-Hee	P-G-01
Han Jung-Soo	P-F-17	Im Sung Bin	P-J-16
Han Min-Woo	P-J-11	Imaduddin Fitriani	D-10-5
Han Seung-Ho	P-J-16, A-7-2, P-K-05	Inman Daniel J.	K-1
Han Soo Sik	P-A-06	Ino Haruhiro	C-10-4
Han Sung-Gil	P-O-16	Inoya Hiroyuki	A-5-3, A-5-4
Hashimoto Hiromu	A-9-2	Ishise Takayuki	A-5-2
Hassan Mohamed Mohsen Abdelnaeim	P-C-05	Itagaki Naho	P-G-06
Hauserova Daniela	D-8-1	<hr/>	
He Li Li	P-L-05, A-8-5	<b>J</b>	
Hee Yang	P-C-09	J Lakshmipathi	B-4-1
Heo Eun Young	B-5-2	Janchiv Azjargal	A-4-6
Heo Ji-In	P-B-13	Jang Bin	P-I-15
Heo Pil-Woo	P-F-02	Jang Byung-Hyun	P-J-13
Heo Young-Moo	P-E-11, P-B-14	Jang Chang-Hyun	P-J-19
Her Shih-Chuan	P-I-12	Jang Changsub	P-I-03
Heyer Steffen	B-6-2	Jang Dong-Young	P-M-02
Hinterhölzl Ronald	C-1-1	Jang Eue-Soon	P-I-18
Hirogaki Toshiki	C-9-1	Jang Gun Eik	P-N-11
Ho Chien-Da	B-7-5	Jang Ho-Young	P-L-09
Hoa Le Thuy	P-K-13	Jang Hyeon Jun	P-F-05
Hong Daehie	A-9-6	Jang Hyun	P-G-11
Hong Dongpyo	T-4, P-B-11	Jang Ikhwang	P-N-16
Hong Hyun-Guk	P-P-15	Jang In-Cheol	D-9-1
Hong Ki Bea	B-5-4, P-M-18	Jang Jinhee	P-N-14
Hong Kyung Min	P-D-08	Jang Saeyeob	D-5-3
Hong Seokmoo	B-7-3	Jang Siyoul	P-M-04
Hong Seong-Soo	P-O-08, P-O-11	Jang Sung-Cheol	P-F-02
Hong Soon Wook	A-4-1, P-N-16	Jang Yun-Jung	P-G-02
Hong Suk-Woo	D-9-1	Je Tae-jin	P-D-13, P-P-13
Hong Sung Chul	P-G-05	Jee Sung-hwan	C-2-3
Hong Sung-Tae	C-8-6, P-A-01, P-C-06	Jee Won Young	P-D-05
Hong Won-Hwa	A-6-3	Jeon Aha-Ra	P-I-18
Hong Yun-Hyuck	P-N-04	Jeon Byung Chul	A-7-1
Hsu David K.	P-G-01	Jeon Byeong Cheol	P-G-13, P-G-15
Hu Wenbin	P-L-20, P-N-05	Jeon Eon-Chan	B-5-3, C-2-3
		Jeon Eun-Chae	P-D-13, P-P-13
		Jeon Eun-Che	P-J-04



# Authors INDEX

Kim Bae-Yeon	P-F-07	Kim Hee-Won	P-G-16
Kim Bo Hung	P-C-06, P-K-02	Kim Heon-Young	B-1-5
Kim Bo Hyun	P-D-05, P-D-06	Kim Heungkyu	P-E-11, P-M-12
Kim Bo-Mi	P-I-18	Kim Heungseob	D-1-1, D-2-1, P-B-02, P-D-15, P-K-04, P-P-03, P-P-04
Kim Bong Seok	P-F-05	Kim Hong Gun	C-7-6, P-I-11
Kim Bong-Hwan	D-10-2, D-10-3	Kim Hong Seok	P-A-03, P-K-09
Kim Bong-Joon	P-E-17	Kim Hong-Gun	P-H-11
Kim Bongseob	P-F-03	Kim Hoon	C-2-1
Kim Bo-ra	A-3-2	Kim Hwan-Gi	P-L-03
Kim Bum Ho	P-F-16	Kim Hwayoung	D-5-5
Kim Bum-Joon	P-H-12	Kim Hyemi	A-6-3
Kim Byung-kuk	P-M-06	Kim Hyeong-Tae	C-5-2
Kim Byung-Min	B-1-1, B-9-4, P-E-01, P-E-08, P-E-09	Kim Hyoung Cheon	P-G-11
Kim Byung-Su	C-9-5	Kim Hyoung June	P-M-06
Kim Byung-Sub	P-D-01, P-K-03, P-K-11	Kim Hyoungjoon	P-B-19
Kim Byung-Sun	C-4-5, C-4-6, C-10-3	Kim Hyoun-gu	P-L-10
Kim Byungwook	P-G-10	Kim Hyun Chang	P-P-15
Kim Chae Sil	B-8-5	Kim Hyun Il	C-5-4
Kim Chang Ju	B-8-6	Kim Hyun Jin	P-O-10
Kim Chang-sam	P-N-08	Kim Hyun Keun	P-O-15
Kim Cheol	A-2-2	Kim Hyun Woo	P-E-18
Kim Cheong	P-N-07	Kim Hyun-Chul	P-C-04
Kim Chul Sung	P-N-06	Kim Hyung Jun	P-B-15, P-B-18
Kim Chuljin	P-O-15	Kim Hyung-Soo	A-9-5, P-J-09, P-J-10, P-O-16
Kim Chul-Young	P-H-03	Kim Hyungsub	B-2-4, P-F-16, P-O-16
Kim Chung Hwan	P-L-13	Kim Hyun-Joong	C-4-2
Kim Chung-Soo	A-8-4, P-M-02, P-M-19	Kim Hyun-Koo	P-K-14
Kim Da Hye	P-P-11	Kim Hyunsik	P-B-11
Kim Daeyong	B-9-5	Kim Hyunsuk	B-10-2
Kim Da-Hae	P-E-09	Kim Hyun-Woo	P-H-11
Kim Dong Hoo	B-5-3	kim Ikhyun	P-K-12
Kim Dong Hun	P-B-18	Kim Il Kyum	P-I-10
Kim Dong Hwan	P-E-05	Kim Il Won	B-3-3
Kim Dong Hyun	P-M-06	Kim In Han	P-F-13
Kim Dong Ki	P-L-18	Kim In-Ju	D-9-3
Kim Dong Soo	P-M-07	Kim Jae Hong	P-G-08, P-G-13, P-G-14, P-G-15
Kim Dong-Hwee	P-F-16, P-O-16	Kim Jae Kwan	D-6-3, D-6-4
Kim Dong-Hyeon	P-C-16	Kim Jae Sung	C-7-6, P-I-1
Kim Dong-Hyung	P-F-17	Kim Jaegu	P-D-13
Kim Dong-Ik	D-3-3, P-B-01	Kim Jaehwan	I-4, P-I-07
Kim Dong-Ki	C-1-4	Kim Jaehyo	B-10-2, B-10-5
Kim Dongsoo	P-M-08	Kim Jae-Hyun	P-M-01
Kim Doogon	P-D-07, P-L-12	Kim Jae-Il	P-J-03
Kim Eun-seob	B-7-6	Kim Jaekyung	B-8-2
Kim Eun-Sung	P-E-20, P-H-08, P-L-18	Kim Jae-Sung	P-H-11
Kim Gee-Hong	P-J-02	Kim Jang-Kyun	P-G-10
Kim Geon Hee	P-B-01, D-3-3	Kim Jeanho	D-5-3
Kim Ghiseok	P-B-01, D-3-3	kim jeng o	P-D-20
Kim Gil Jun	P-L-08	Kim Jeong	B-9-1, B-9-3, D-8-3, D-8-4, P-E-13
Kim Gi-Tae	P-G-16	Kim Jeong Gon	P-F-07
Kim Gyu Man	P-J-18	Kim Jeong Woook	P-F-10
Kim Gyung Ha	D-6-4	Kim Jeong-eun	P-K-15
Kim Gyung-Ho	B-8-4	Kim Jeong-gil	P-H-05
Kim Gyuyong	C-7-4	Kim Jeong-Guk	P-H-01
Kim Hak Doo	B-5-4, P-M-18	Kim Ji Hoon	B-9-5
Kim Hak Joon	P-O-01	Kim Jiho	A-5-5
Kim Hak-Sung	P-L-04	Kim Ji-Hwan	P-F-16
Kim Hansang	P-A-10		
Kim Han-Soo	P-L-06		
Kim Hansu	B-4-4, P-O-05		
Kim Hee-Cheol	P-H-07		

# Authors INDEX

Kim Jin-Man	C-7-2, A-5-5, C-7-3, C-7-5	Kim Seong Jong	P-D-08
Kim Jinbong	P-B-09, P-B-10, P-K-01	Kim Seong Su	C-5-1, C-6-4
Kim Jin-Seok	P-L-06	Kim Seong-Han	P-H-10
Kim Jiseop	D-2-2	Kim Seong-Ho	D-5-6
Kim Ji-Sun	D-9-3	Kim Seung Bae	P-F-13
Kim Jong-Deok	P-M-12, P-M-10	Kim Shae K.	D-10-1, D-10-2, D-10-3
Kim Jonghyun	P-M-09	Kim Si Seup	C-5-4
Kim Jong-Kyu	P-H-06	Kim Soo Han	P-K-17
Kim Jongmin	P-D-17	Kim Soo Min	P-J-16
Kim Jongwon	A-9-1	Kim Soo-Bin	P-O-03
Kim Joon-Hyung	D-7-2	Kim Soung- Yon	P-J-16
Kim Joo-Wan	P-O-16	Kim Su-Jin	B-8-4, P-C-12
Kim Jun Hyong	B-4-3, B-5-4, P-M-18	Kim Sumin	P-I-02
Kim Jung Seok	P-I-10	Kim Sun Keel	P-D-06
Kim Jung Su	P-M-07, P-M-08	Kim Sung Jin	P-G-16
Kim Junseok	P-D-17	Kim Sung Mok	B-8-3
Kim Ka Eul	C-7-6	Kim Sung-Guwy	B-1-1, P-E-08
Kim Kang-Eun	P-D-10	Kim Sungjin	A-8-5, P-L-05
Kim Kee Joo	P-P-01	Kim Sungwook	P-D-17
Kim Kee Poong	P-E-18	Kim Sun-Jae	A-3-2, P-L-03
Kim Ki Hong	B-4-3	Kim Sun-Woong	P-K-15
Kim Ki Young	P-M-03	Kim Sunyong	P-F-03
Kim Ki-Joong	P-O-13	Kim Swl-Gi	C-2-3
Kim Kwang-Hyun	P-H-07	Kim Tae Ho	B-5-3
Kim Kwang-Seok	B-2-2	Kim Tae Woo	P-I-15
Kim Kwang-Seop	P-M-01	Kim Tae Yong	P-L-05
Kim Kwang-Young	P-D-19, P-L-11	Kim Taeksoo	P-O-07
Kim Kyeongsuk	P-J-20	Kim Taekyu	P-L-14
Kim Kyoung-Hoon	D-1-2	Kim TaeSoo	P-A-02
Kim Kyuhan	A-3-4, P-F-18, P-F-19	Kim Tae-Yong	P-G-16
Kim Kyung-Jae	P-E-20	Kim Wan Ho	B-10-1
Kim Kyungjin	B-1-4	Kim Wheekuk	B-8-3, P-J-12
Kim Kyung-Shik	P-M-01	Kim Woncheol	P-B-17
Kim Kyungsik	P-I-20	Kim Won-Tae	P-N-13
Kim Min Soo	A-9-5, B-7-6, P-C-01, P-C-02, P-F-16, P-O-16, P-P-08	Kim Won-Woo	B-3-1
Kim Min-Hee	P-F-16, P-O-16	Kim Woochul	C-2-1
Kim Minho	P-A-10	Kim Wook-bae	B-3-1, P-N-03
Kim Min-seuk	C-9-5	Kim Yang Gon	P-D-10, P-P-11
Kim Min-Sung	P-A-01	Kim Yeon-Su	P-H-01, P-P-10
Kim Miran	P-I-09	Kim Yeon-Wook	P-J-03
Kim Mok-Soon	C-1-4	Kim Yi-Ha	B-9-2
Kim Moon-Jo	P-A-01	Kim Yongseok	C-2-4
Kim Myoung Ho	P-M-11	Kim Yoon Jeong	P-J-05
Kim Myoung-gyun	C-5-2	Kim Yootaek	P-I-03
Kim Naksoo	B-7-3, D-2-2, D-8-2, P-E-12	Kim Young Jun	C-7-6, P-B-15
Kim Nam Jeong	P-A-19	Kim Young Min	P-I-11
Kim Namhun	P-C-17	Kim Young Rock	P-G-08, P-G-15
Kim Nam-Seok	D-10-1	Kim Young-Beom	A-4-1, P-N-18, P-N-16
Kim S. H.	P-J-06	Kim Young-Chun	P-M-16
Kim Sang Chai	P-F-06	Kim Younghsin	B-6-1
Kim Sang Kyu	B-5-5	Kim Young-Joo	P-P-15
Kim Sang Kyu	P-N-01, P-L-05	Kim Young-Kyu	P-G-10
Kim Sang-Chai	P-L-19	Kim Young-Pyo	P-K-03
Kim Sang-Hoon	C-2-4	Kim Youngsam	P-F-03
Kim Sangmin	P-M-01	Kim Yu-Beom	B-3-2, D-8-3
Kim Sangwoo	D-8-5	Kimura Teruo	A-5-2, C-4-1, C-10-4
Kim Sangyeop	P-G-16	Klocke Fritz	P-C-11
Kim Sangyuop	A-8-5	Ko Cheolwoong	P-M-04
Kim Se Min	B-5-3	Ko D. C.	P-J-06
Kim Seho	P-E-11	Ko Dae-Cheol	B-1-1, B-9-4, D-9-2, P-E-08, P-E-09
Kim Seok-Min	P-G-10, P-L-09		



# Authors INDEX

Lee Jeonghwan	A-8-5	Lee Seong Beom	P-B-02, P-K-04, P-P-03
Lee Jeong-Won	P-B-14, P-M-10	Lee Seong-Yun	P-E-09
Lee Je-Ryung	P-P-13	Lee Seung Woo	D-5-1, P-K-18, P-L-02
Lee Ji Hoon	P-P-14	Lee Seunghoon	P-F-17
Lee Jin-Gyu	P-O-16	Lee Seung-Mo	C-6-2
Lee Jinhwan	A-4-4	Lee Seung-Yeob	A-6-3
Lee Jin-Kyu	P-F-16	Lee Shinok	P-C-03
Lee Jinkyung	P-J-01	Lee Shinok	P-P-11
Lee Jin-Kyung	P-A-07, P-A-13, P-K-06	Lee Sin-Young	B-6-4
Lee Ji-Woon	C-5-2	Lee Si-Young	C-2-4
Lee Jong Dae	P-O-09	Lee Soo Hong	D-5-6
Lee Jong Kook	P-A-14	Lee Soo Jin	P-J-05
Lee Jong-Beom	B-9-2, P-E-04	Lee Soobin	P-O-04
Lee Jong-Cheon	P-C-01, P-C-02	Lee Suk Ho	P-N-17
Lee Joonhyun	P-J-01	Lee Sun Ho	A-4-1
Lee Jounghwan	B-3-4	Lee Sung Hee	P-D-10
Lee Jse-Chun	C-9-5	Lee Sungcheul	P-J-07, P-K-11
Lee Ju	P-B-16, P-H-04	Lee Sung-Jun	P-K-16
Lee Ju-Dong	C-3-5	Lee Sungyoon	B-10-2
Lee Juneyoung	P-J-16	Lee Sun-kyu	P-L-15, P-M-09
Lee Junghwan	P-E-19	Lee Tae Jin	P-N-17
Lee Jung-Min	D-9-2, P-E-01	Lee Taebong	B-3-3
Lee K. H.	P-J-06	Lee Taemoon	D-6-3
Lee Kangtaek	P-P-15	Lee Teagyu	C-7-4
Lee Kang-Won	P-P-11	Lee Woo Geun	P-I-10
Lee Kee Sung	P-I-15	Lee Woo Il	K-5, P-O-02, P-A-10
Lee Keyseo	D-3-1	Lee Ye Hwan	P-D-10
Lee Ki Yong	P-B-04, P-C-09	Lee Yong-Kab	D-7-2
Lee Kunwoo	P-M-19	Lee Yong-Sung	P-A-03
Lee Kwang-Jin	C-8-6	Lee Yoon Ho	A-4-3
Lee Kwang-Ki	P-K-05	Lee Young Seon	P-O-14
Lee Kwang-Il	P-K-20	Lee Young-Cheol	P-P-01
Lee Kweon-Hyung	P-F-12, P-F-13	Lee Youngkyun	B-5-6
Lee Kwon-Hee	P-B-13, P-H-06, P-J-13	Lee Young-Seon	B-1-2, D-8-5, D-8-5, B-9-5, P-D-16, P-M-15
Lee Kyoung-Yong	D-7-2	Legal Erica	P-I-19
Lee Kyung Soo	P-O-15	Li Fangyi	C-4-4, P-M-05
Lee Kyung Won	P-F-08	Li Gang	C-4-4
Lee Kyung-Hun	B-9-4	Li Hua	C-6-3, C-10-1
Lee Kyung-Tae	A-10-1, P-F-16, P-O-16	Li Jianfeng	C-4-4
Lee Min-Ho	P-I-17	Li Jie	P-C-15
Lee Mok Young	P-A-06	Li Xiaocui	P-A-09
Lee Myoung-Gyu	B-1-5, B-9-5	Li Xiao-long	B-7-4
Lee Myunggyu	P-C-08	Li Yibo	P-E-16, P-M-13
Lee Pil-Ho	B-3-3	Liew Garlie	P-A-12
Lee Pyeong An	P-D-06	Lim Hyeung-Tae	P-J-04
Lee S. B.	P-J-06	Lim Hyun Kyu	D-10-2
Lee S. H.	P-L-07	Lim Hyung Jun	P-J-02
Lee Sang Ho	P-D-12, P-M-03	Lim Jong Sung	P-F-04
Lee Sang Won	B-3-3	Lim Jong Wan	P-F-08
Lee Sang Yeol	P-O-14	Lim Joong Yeon	C-10-3
Lee Sang-Chul	P-D-10	Lim Wonsik	A-10-4
Lee Sang-Heon	B-10-4	Lin Jia-Fang	P-F-09
Lee Sangil	D-7-6	Lin Ji-jun	B-5-1
Lee Sangjick	B-5-6	Lin Y. C.	P-J-17
Lee Sang-Jo	P-O-15	Lin Yan-Cherng	B-4-2, P-D-04
Lee Sang-kon	P-D-10, P-E-09, P-P-11	Lin Yuan-Chung	P-F-09
Lee Sang-Pil	P-K-06	Liu Anmin	P-D-14
Lee Sang-Pill	P-A-07, P-A-13, P-J-01	Liu Feng	P-C-15, P-D-02, P-E-07, P-I-01, P-I-08, P-M-14
Lee Sang-Soo	P-A-11, P-I-05, P-I-06	Liu Hezhou	C-10-1
Lee Sang-Young	P-D-10	Liu Huaicong	P-H-04
Lee Seok-Woo	A-1-4, D-7-3, P-C-08, P-N-04		
Lee Seon-Bong	B-9-4, D-9-2		



# Authors INDEX

Liu Peng	C-4-4
Lu Chao	P-A-15
Lu Yanyan	C-10-1
Lu Yongfeng	P-D-09
Lui Lei	P-L-13
Lung Dieter	P-C-11
Luo Jingwen	P-D-14
Lv Hongqing	P-C-13
Lyu Sung-Ki	P-K-14

## M

Ma Sang-Dong	P-P-12
Mahmood Samsuddin F.	C-1-2
Mangold Jennifer	C-9-4, P-F-01, P-O-17
Maskey Abhas	P-F-16
Matsui Shinji	K-9
Matsuyama Satoshi	A-5-2
Mazlan Saiful Amri	D-10-5
Meda-campaña Jesus Alberto	A-10-2
Meng Liu	P-E-15
Miller Scott F.	P-E-10
Min Kyung Ho	B-4-3
Min Kyung-Wook	P-F-16, P-O-16
Min Se-Dong	B-10-4
Misiolek Wojciech	D-9-4
Mohanty Amar K.	K-12
Moon In Yong	P-D-06
Moon Jong Seol	P-C-01, P-C-02
Moon Jun-Young	P-F-16, P-O-16
Moon Min Seok	P-A-16, P-F-14
Moon Sang Dong	P-G-11
Moon Seung Jae	P-D-12
Moon Sung-Min	A-9-6
Moon Yoon Jae	P-D-12
Moon Younghoon	D-8-5
Moreno Cesar	A-8-1
Mun Seongcheol	P-I-07
Muneta Yuya	C-4-3
Murickan Rony	B-4-1
Muscharad Bernd	B-6-2
Myung Jaehoon	D-5-6
Myung Seung-Taek	A-3-2

## N

Na Hee-Seung	P-P-08
Na Mangyun	P-J-20
Nagata Kazuhiro	P-A-17
Nahm Seonghoon	P-J-01
Nahm Seung Won	P-F-06
Nahm Seung-Hoon	P-A-07
Nakagaito Antonio	C-4-3
Nakanishi Koji	A-5-2
Nam Jae Du	D-8-6
Nam Ki Sang	P-L-13
Nam So-Jeong	D-5-1, P-K-18, P-L-02
Nam Su- Yong	P-D-19
Nam Sung-Ho	A-1-2, A-1-4, D-7-3, D-7-6, P-C-08
Nam Sung-ki	P-L-15
Nam Tae-Hyun	P-J-03
Nam Taek Jun	A-5-6
Negoro Takanori	A-5-3, A-5-4

Ngo Chi-Vinh	B-2-3
Nguyen Ngoc	P-N-12
Nguyen Sy Quy	P-C-06
Nguyen Thi Minh Hien	P-N-06
Nichols William T.	P-A-18, P-I-14, P-J-08
Nik Pa Nik Masmiami	P-C-05
Nishino Nariaki	B-6-2
Noh Eul	A-3-2
Noh Hak-Gon	B-9-1
Noh Sang Do	A-1-1, D-5-2
Nomura Manabu	C-10-5
Novelo Genrev	P-I-19
Novy Zbysek	D-8-1

## O

Obregon-pulido Guillermo	A-10-2
Ogawa Keiji	C-9-1
Oh Hyo-Jin	A-3-2
Oh Hyun Ju	C-6-4
Oh Hyun Suk	P-J-12
Oh Hyun-Seok	B-2-3
Oh Je-Ha	P-A-16, P-E-20, P-F-14, P-H-08, P-L-18
Oh Jeong Seok	B-8-6, P-B-12, P-K-10
Oh Joo-Young	P-H-05
Oh Myung-Hoon	P-F-05, P-N-15
Oh Sang-Yeob	P-L-18
Oh Se-Young	P-H-04
Oh Se-Young	P-B-16
Oh Soo Jung	P-N-09
Oh Youngtaig	A-4-6
Ohmori Hitoshi	I-1, A-8-3
On Seung Yoon	C-6-4
Osako Katsunori	A-5-2
Ota Tomoko	A-5-3, C-10-5
Ou Yang Hung Po	C-8-5
Ouyang Qiubao	P-A-08

## P

P Kuppen	B-4-1
Paek Jun Yeol	A-4-1, A-4-2
Paglicawan Marissa	C-4-5, P-I-19
Pan Qing	P-E-16, P-M-13
Pandey Jitendra	A-8-4, C-4-3
Panganiban Henry	P-B-17
Pangavhane Dilip R.	A-8-6
Park Bum-Guen	B-2-2
Park Byung-Hun	C-2-3
Park Chan-Dong	P-F-16, P-O-16
Park Changon	P-B-11
Park Chanhoon	P-D-18
Park Cheol Woo	P-J-18
Park Cheolhoon	P-K-19
Park Cheol-Hwan	P-F-16, P-O-16
Park Chul-Min	P-O-13
Park Chun-Hong	B-8-4, B-8-6, P-B-12, P-K-10
Park Dae-Woo	P-G-16
Park Dong Il	P-D-18, P-K-19
Park Eun-Soo	P-E-17
Park Gee-Hoon	P-F-16, P-O-16
Park Gwanglim	C-1-5
Park Gwangwon	P-O-05



# Authors INDEX

Ryu Jun-Hyung	P-O-04	Shon In Jin	P-L-18
Ryu Kwangyeol	D-5-3, D-5-4, D-7-5, D-7-6	Shon Jung Min	P-F-10
	D-6-1	Sin Bong-Su	P-B-13
Ryu Shi Hyoung	P-L-08	Slowinski Robert	C-2-2
Ryu Si Ok	P-O-10	Smith Dennis W.	C-1-2
Ryu Taebeum	D-5-3	Sohn Bo-Kyun	P-O-13
Ryu Weon Jae	P-D-08	Sohn Il-Seon	P-H-12
Ryuh Young-Sun	I-11	Son Hwang-Jin	P-N-01, B-5-5
<hr/>		Son In-Soo	P-A-07, P-A-13, P-K-06
<b>S</b>		Son Insu	P-J-01
Sabol Joseph	D-9-4	Son Jong Tae	P-N-07
Sakamoto Junichi	C-9-1	Son Seok Hwan	P-P-14
Sangermann Hubertus	P-C-11	Son So-Eun	D-8-4
Scaife Richard	B-3-4	Son Sung-Gyun	P-N-03
Seliger Gunther	B-6-2	Song Chang Kyu	P-D-01, P-K-11
Semmens John	C-9-2	Song Changheon	P-C-03, P-C-19
Seo Bu-Kyo	P-H-06	Song Chul Ki	P-G-11, A-10-1, P-F-16, P-H-07
Seo Eunhee	P-O-07		P-O-06
Seo Gyu-Seok	P-G-03	Song Hayoung	P-I-05, P-I-06, P-A-11
Seo Hyunwoong	P-G-06	Song Injong	P-M-17
Seo Jung Won	P-P-02, P-P-09	Song Ji-Hyeon	P-F-16
Seo Min-Kang	P-N-13	Song Ji-Hyun	P-O-16
Seo Pan Ki	D-8-6, P-E-08	Song Jin-Hun	P-O-13
Seo Seong Gyu	P-F-06, P-L-19	Song Joon Hyuk	P-A-16, P-E-20, P-F-14, P-L-18
Seo Sun-Hwa	P-I-18	Song Jun Yeob	P-B-15, P-B-18
Seok Chang-Sung	C-2-4, D-9-1, P-K-12	Song Jung Sup	P-C-07
Shan Zhongde	I-12, P-C-15, P-D-02, P-E-06, P-E-07, P-E-14, P-E-15, P-I-01, P-I-08, P-K-07, P-K-08, P-M-14	Song Jung-Il	C-4-6
		Song Junyeob	P-B-19
		Song Ki Young	P-D-07
Shi Ting	D-5-2	Song Minseok	D-6-1, D-7-5
Shi Wei	P-G-04	Song Qinghua	P-C-13
Shieh Chwen-Jen	A-4-5	Song Ren Guo	P-A-15
Shim Jae-Eul	A-9-5	Song Sangbin	B-10-1, P-D-09
Shim Jae-Hwan	P-F-16	Song Seung A	C-5-1
Shim Kyutae	A-3-4, P-F-19	Song Se-Yong	P-F-16
Shimoyama Yuki	A-8-3	Song Sung-Hyuk	A-9-5, P-J-11
Shin Bong-Su	P-J-13	Song Wenju	P-E-16
Shin Bo-Sung	P-L-01	Song Woo-Jin	P-E-13, B-9-1, B-9-3, D-8-4
Shin Bumshick	A-3-4, P-F-18, P-F-19	Song Yoon-Ho	P-B-08
Shin Chang Woo	A-10-4	Stetsovych Oleksandr	A-8-1
Shin Dae-Young	P-C-19, P-B-20, P-H-05	Sudhakara P.	C-4-6
Shin Duk	B-10-5	Suh Jeong Se	P-G-11, P-H-07
Shin Gwang Yong	P-B-04, P-C-09	Suh Kahp Y.	P-D-07, P-L-12
Shin Hee-Jae	C-7-6, P-I-11, P-H-11	Suh Yun Hwa	D-5-6
Shin Hong Shik	P-D-05	Sun Jie	P-M-05
Shin Hyeon-Min	P-F-16	Sun Jin-tsu	P-C-18
Shin Hyunkyu	B-3-4, C-1-2	Sun Joung Soo	C-7-2, C-7-3, C-7-5
Shin Jeong-Hoon	A-1-4, D-7-3	Sun Peiqin	P-M-05
Shin Jong-Hyun	A-7-3	Sun Sangwoo	P-J-20
Shin Jung-Hun	P-L-01	Sung Ji Hyun	P-D-10, P-P-11, P-E-09
Shin Ki-Hoon	P-A-03, P-K-09	Sung Jong-Hyun	C-7-3
Shin Min Jae	B-8-5	Sung Young Whee	A-10-3
Shin Min-Chul	P-H-10	Suzuoka Akihiro	C-10-4
Shin Min-Ho	P-P-15	Sy Jo Ann	C-4-5
Shin Moonsoo	D-5-3, D-5-4	<hr/>	
Shin Shun Myung	C-9-6	<b>T</b>	
Shin Sungwon	A-3-4, P-F-18, P-F-19	Takagi Hitoshi	C-4-3
Shin Yong Jun	P-N-11	Tanaka Yoshi	A-9-2
Shin Yoo-In	P-H-07	Tang Weixiao	P-C-13
Shin Yujeong	P-P-05, P-P-07	Tao Y.	D-9-4
Shin Yunsik	D-1-3	Tawakoli Taghi	K-6
Shiratani Masaharu	P-G-06	Tikal Filip	D-7-4, P-E-02

# Authors INDEX

Tominaga Yasutoshi	P-L-10	Yang Hsiharng	A-4-5
Tsai Lung	B-4-2	Yang In-Sang	P-N-06
Tsai Po-Cheng	B-7-5	Yang In-Young	P-G-01
Tsubokawa Norio	P-A-17	Yang Jeong Min	P-O-09
Tursunkulov Oybek	A-8-5, P-L-05	Yang Jian	P-D-14
<hr/>			
<b>U</b>			
Uchida Giichiro	P-G-06	Yang Jung	P-C-09
Um Dong-Yeong	P-F-15	Yang Po-Ming	P-F-09
Umemura Toshikazu	C-10-5	Yang Seung-Han	P-K-20
Umezu Shinjiro	A-8-3, A-9-2	Yang Seung-ho	C-1-4
<hr/>			
<b>V</b>			
Verma Rajneesh	C-1-2	Yang Seungkyu	B-2-4, P-G-07
Vetrano Barbara	C-10-2	Yang Sung Mo	P-E-20, P-F-14
Vinh Nguyen Thai	P-A-01	Yang Sung-Ho	C-2-4
Visaya Brigida	C-4-5	Yang Sung-Yoon	P-C-12
<hr/>			
<b>W</b>			
Wang A-Cheng	B-4-2, P-D-04	Yang Wan-Suk	B-8-4
Wang Chao	P-A-15	Yang Y. C.	P-J-17
Wang Honghua	C-8-2	Yang Yunsik	D-7-1
Wang Hui	B-7-4	Yang Yuqiu	C-10-5
Wang P. C.	P-J-17	Ye Sang-Don	P-B-03
Wang Shih-Ming	B-5-1, B-7-5	Ye Yong-Sheng	P-E-15
Wang Weipeng	A-8-2	Ye Zhe-Zhi	B-5-1
Wang Yongwei	P-K-08	Yeh Syh-Shiuh	P-C-18
Wang Yusong	P-C-13	Yen Chuntai	B-7-5
Wang Yuting	P-G-06	Yeom Gil-Young	D-10-1, D-10-2, D-10-3
Wang Zheng	P-I-01, P-I-08	Yeon Yun-Mo	D-9-5
Wang Zhennan	P-K-07	Yi Byung-Ju	B-8-3
Wan-hua Cai	P-E-15	Yi Chung-Seob	P-G-11
Watanbe Masato	B-10-5	Yi Hwa-Cho	T-2, A-5-6
Wehrkamp-richter Tobias	C-1-1	Yi JinBock	B-10-3
Weixiao Du	P-E-14	Yi Seung-Hwan	C-6-1, P-B-05
Wen Xiulan	P-D-03	Yoo Dong-yoon	P-L-15
Whang Kyung-hyun	P-D-13	Yoo Eun-Ji	P-F-16
Wicker Ryan B.	B-2-1	Yoo Gi Won	P-N-07
Won Cheon	C-4-6	Yoo MyeongHan	P-A-16
Won Jong Ho	P-N-02	Yoo Yijun	P-K-19
Won Kwang Woo	D-8-6	Yoon Cheolsang	P-P-15
Won Sang-Yeon	C-1-4	Yoon Chohye	P-I-09
Won Sejeong	P-M-01	Yoon Gi Ho	B-5-3
Woo Kee Do	P-F-14	Yoon Gil-Sang	P-B-14, P-M-10
Woo Kyoungja	C-5-3	Yoon Hae-Sung	B-7-6, P-C-01, P-C-02, P-F-16, P-M-02, P-M-19, P-O-16
Woo Sam-Yong	P-K-16	Yoon Heonjun	A-2-3
Wu Wei	P-A-20	Yoon Hi Seak	P-M-11
Wu Xiaochuan	P-I-01, P-I-08	Yoon Hyuk Jin	P-I-10, P-P-08
Wunderlich Joseph	A-9-3	Yoon Jaehong	C-8-4
<hr/>			
<b>X</b>			
Xie Junling	A-3-1	Yoon Jonghun	P-E-19
Xiong Ying	P-A-15	Yoon Jong-hun	B-1-4
Xu Zhezhu	P-K-14	Yoon Jong-won	P-N-08
<hr/>			
<b>Y</b>			
Yaacob Iskandar	P-A-12	Yoon Joon-Yong	D-7-2
Yahya Bernardo N.	D-6-1	Yoon Jun-Seok	D-8-4, P-E-13
Yamada Kazushi	A-5-3	Yoon Minho	C-7-4
Yamauchi Takeshi	P-A-17	Yoon Moonyoung	P-P-03, P-P-04
Yang Dong-Yol	K-2	Yoon Seong-Man	P-D-19, P-L-11
Yang Duck J.	C-1-2	Yoon Sung-Cheol	P-H-01, P-P-10
		Yoon Sungkwon	P-A-18, P-J-08
		Yoon Sungwook	C-3-3
		Yoon Taesung	P-L-14
		Yoon Won-Kyu	C-1-4
		Yoon Woo Young	P-N-09
		Yoon Young Ji	P-G-08
		Yoon Young-Ok	D-10-1, D-10-2, D-10-3
		You Won-Hee	P-P-05, P-P-07
		Youn Byeng-Dong	I-5, A-2-3, A-7-1

## Authors INDEX

Youn Donghyup	A-2-1
Young Sung	P-J-03
Yu Hyeong-Ho	P-A-01
Yu Jae-Min	A-1-5, A-1-2
Yu Jong Su	P-L-11
Yu Jong Sun	P-L-08
Yu Jun-Ho	P-N-19, P-D-11
Yu Sang-Ha	P-K-14
Yu Seulgi	P-I-02
Yu Ying	C-10-5
Yuan Chris Yingchun	A-3-1
Yum Young-Jin	C-8-6
Yun Hyun-do	P-K-15
Yun Kang-Seop	A-3-2
Yun Seongmin	A-2-2
Yun So-Nam	P-F-02, P-J-04
Yun Song-hui	P-K-15

---

### Z

Zamzuri Hairi	D-10-5
Zemko Michal	P-E-02
Zhai Lindong	P-I-07
Zhai Zhiqiang John	A-3-5, C-2-2
Zhan Li	P-K-08
Zhan Peng	A-8-2
Zhang Chonghao	P-D-14
Zhang Di	I-10, C-8-1, C-8-2, P-A-09
Zhang Qun	P-E-06, P-M-14
Zhang Zhengjun	A-8-2
Zhao Jingming	P-A-14
Zhao Wen-Bin	A-1-1, D-5-2
Zhao Yanhua	P-M-05
Zhao Yibing	P-D-03
Zitoune Radouane	P-I-13

# Memo

# Memo

# ISGMA 2013

ISGMA Secretariat | Byeong Kwon Lee ([secretariat@isgma.org](mailto:secretariat@isgma.org))

Tel. +82-2-518-0722 / Fax. +82-2-518-2937

The Korean Society for Precision Engineering  
(100-808) SKY1004 Building 12F, 50-1 Junglim-ro, Jung-gu, Seoul, Korea



ISGMA 2014

# ISGMA 2014

## International Symposium on Green Manufacturing and Applications

June 25(Wed) ~ 29(Fri), 2014  
Paradise Hotel, Busan, Korea



### 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

### Publications

- International Journal of Precision Engineering and Manufacturing(SCIE, IF1.141)
- Journal of Biobased Materials and Bioenergy(SCIE, IF 1.037)
- Journal of Composite Materials(SCI, IF 1.068)
- Journal of Intelligent Material Systems and Structures(SCIE, IF 1.953)
- Journal of the Korean Society for Precision Engineering(KCI)
- More SCI/SCIE indexed journals to be added.

### Organizers

- Korean Society for Precision Engineering (KSPE, Korea)
- Seoul National Univ. (SNU, Korea)
- Institute of Advanced Machinery and Design (IAMD, Korea)
- 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)
- Pusan National Univ. (PNU, Korea)
- Engineering Research Center for Innovative Technology on Advanced Forming (ERC-ITAF, Korea)



### Committees

- **Honorary Chair**  
Jang-Moo Lee, Climate Change Center (Korea)
- **Conference Chairs**  
Hon-Zong Choi, KITECH (Korea)  
Beomsoo Kang, PNU (Korea)
- **Co-Chairs**  
Sung-Hoon Ahn, SNU (Korea)  
David Dornfeld, UC Berkeley (USA)  
Ichihiro Inasaki, Chubu Univ. (Japan)  
Jong Won Kim, SNU (Korea)  
Gyu-Bong Lee, KITECH (Korea)  
Friedrich B. Prinz, Stanford Univ. (USA)
- **Chairs of Advisory Committee**  
Sun-Kyu Lee, GIST (Korea)  
Dong-Woo Cho, POSTECH (Korea)
- **Chairs of Organizing Committee**  
Haedo Jeong, PNU (Korea)  
Suk-Won Cha, SNU (Korea)
- **Secretary-General**  
Woojin Song, PNU (Korea)



### Co-Organizers

- Changwon National Univ. (Korea)
- Global Frontier Center for Multiscale Energy System (Korea)
- Gyeongsang National Univ. (GNU, Korea)
- Inha Univ. (Korea)
- Creative Research Center for EAPaper Actuator
- Jeonju Institute of Machinery and Carbon Composites (Korea)
- Korea Institute of Machinery and Materials (KIMM, Korea)
- Korea Institute of Materials Science (KIMS, Korea)
- Korean Society for Composite Materials (KSCM, Korea)
- Scientists and Engineers Without Borders (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)
- Univ. Industrial Technology Force (UNITEF, Korea)