



*The Korean Society
of Mechanical Engineers*

ICMDT

The 3rd International Conference
on Manufacturing, Machine Design and Tribology

2009

Ramada Plaza Jeju
Jeju Island, Korea
25-26 June, 2009

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ICMDT 2009 Program Overview

Date	Time	Session Title	Room1 (Ramada Ballroom 1)	Room2 (Ramada Ballroom 2)
6.25.	9:00 - 9:20	Opening Ceremony		
	9:20 - 10:00	Plenary Speech I	Sang-Rok Lee (KIMM)	
	10:00 - 10:40	Plenary Speech II	Toshiro Higuchi (Tokyo Univ.)	
	10:40 - 11:00	Coffee Break		
	11:00 - 12:20	General Session I	Design I: Machine Analysis	Design IV: Measurement
	12:20 - 13:10	Lunch		
	13:10 - 14:00	Poster Session		
	14:00 - 16:00	General Session II	Design II: Device Analysis I	Design V: System/Device I
	16:00 - 16:20	Coffee Break		
	16:20 - 18:00	General Session III	Design II: Device Analysis II	Design V: System/Device II
	19:00 - 20:30	Banquet	Banquet	
6.26.	9:00 - 10:40	General Talk IV	Design III: Actuator System I	Design V: System/Device III
	10:40 - 11:00	Coffee Break		
	11:00 - 11:40	Plenary Speech III	Kwon-Hee Kim (Korea Univ.)	
	11:40 - 12:20	Plenary Speech IV	Shinya Sasaki (Tokyo Univ. of Science)	
	12:20 - 13:10	Lunch		
	13:10 - 14:00	Poster Session		
	14:00 - 15:20	General Session V	Design III: Actuator System II	Design VI: Detection/Inspection I
	15:20 - 15:40	Coffee Break		
15:40 - 17:00	General Session VI		Design VI: Detection/Inspection II	

Date	Time	Session Title	Room3 (Ramada Ballroom 3)	Room4 (Ramada Ballroom 4)
6.25.	9:00 - 9:20	Opening Ceremony		
	9:20 - 10:00	Plenary Speech I		
	10:00 - 10:40	Plenary Speech II		
	10:40 - 11:00	Coffee Break		
	11:00 - 12:20	General Session I	Manufacturing I: Non-conventional Processing	Tribology I: Tribological Properties
	12:20 - 13:10	Lunch		
	13:10 - 14:00	Poster Session		
	14:00 - 16:00	General Session II	Manufacturing II: Cutting	Tribology II: Hydro-dynamic/Static Lubrication
	16:00 - 16:20	Coffee Break		
	16:20 - 18:00	General Session III	Manufacturing II: Cutting II	Tribology III: Friction and Wear Mechanism
6.26.	9:00 - 10:40	General Session IV	Manufacturing III: Forming I	Tribology IV: Coating and Surface Modification I
	10:40 - 11:00	Coffee Break		
	11:00 - 11:40	Plenary Speech III		
	11:40 - 12:20	Plenary Speech IV		
	12:20 - 13:10	Lunch		
	13:10 - 14:00	Poster Session		
	14:00 - 15:20	General Session V	Manufacturing IV: Polishing	Tribology IV: Coating and Surface Modification II
	15:20 - 15:40	Coffee Break		
	15:40 - 17:00	General Session VI	Manufacturing III: Forming II	

Date	Time	Session Title	Room5 (Udo Hall)	Room6 (Chuja Hall)
6.25.	9:00 - 9:20	Opening Ceremony		
	9:20 - 10:00	Plenary Speech I		
	10:00 - 10:40	Plenary Speech II		
	10:40 - 11:00	Coffee Break		
	11:00 - 12:20	General Session I	Micro/Nano I: Printing Technology	Design VII: Machine/Device I
	12:20 - 13:10	Lunch		
	13:10 - 14:00	Poster Session		
	14:00 - 16:00	General Session II	Micro/Nano II: Printing System	Design VII: Machine/Device II
	16:00 - 16:20	Coffee Break		
	16:20 - 18:00	General Session III	Micro/Nano II: Printing System II	Design VII: Machine/Device III
6.26.	9:00 - 10:40	General Session IV	Micro/Nano III: Micro/Nano Processing I	Manufacturing V: Injection Molding
	10:40 - 11:00	Coffee Break		
	11:00 - 11:40	Plenary Speech III		
	11:40 - 12:20	Plenary Speech IV		
	12:20 - 13:10	Lunch		
	13:10 - 14:00	Poster Session		
	14:00 - 15:20	General Session V	Micro/Nano III: Micro/Nano Processing II	Micro/Nano V: Physical/Tactile Sensor
	15:20 - 15:40	Coffee Break		
	15:40 - 17:00	General Session VI	Micro/Nano IV: Micro/Nano Actuator	

ICMDT 2009 Program Details

Oral Presentation / June 25 (Thursday), Room1

Plenary Session I (Chair: Koichi Suzumori, Okayama Univ., Dae-Eun Kim, Yonsei Univ.)

9:20 - 10:00 Plenary Speech I
Nanomanufacturing processes and their applications
Sang-Rok Lee (KIMM)

10:00 - 10:40 Plenary Speech II
Next Generation Actuators Leading Breakthroughs
Toshiro Higuchi (Tokyo Univ.)

Design I: Machine Analysis (Chair: Yang Na, Konkuk Univ.)

11:00-11:20 Crack Growth Initiation in Ductile Steel Specimens during Impact Load
Jae-Ung Cho (Kongju Univ.), Chong-Du Cho (Inha Univ.), Sang-Kyo Lee (Inha Univ.),

11:20-11:40 A Study of Impact Absorbing Pad Using the Magnetic Field
Hyung-Sub Bae (Pusan Nat. Univ.), Jae-Hak Lee(Pusan Nat. Univ.), Myeong-Kwan Park(Pusan Nat. Univ.)

11:40-12:00 Effect of glass fiber reinforcement on mechanical behavior of polyurethane form
Dae-Suk Han (Pusan Nat. Univ.), In Beom Park(Pusan Nat. Univ.), Byeong-Jae Noh (Hyundai Heavy Industries), Jae-Myung Lee (Pusan Nat. Univ.)

12:00-12:20 Design Feasibility Analysis Using Support Vector Machine and Its Engineering Application
Min-Joong Jeong(KISTI), Seunghyun Jung(Hanyang Univ.), Dong-Hoon Choi (Hanyang Univ.)

Design II: Device Analysis I (Chair: Mikio Horie, Tokyo Insutitute of Technology)

- 14:00-14:20 A Study on the Bending Stress of the Hollow Sun Gear in a Planetary Gear Train
Kyung-Eun Ko (Hyundai Heavy Industries Co., LTD), Young-Bum Kim(Hyundai Heavy Industries Co., LTD), Pan-Young Kim(Hyundai Heavy Industries Co., LTD), Jinsoo Park(Hyundai Heavy Industries Co., LTD)
- 14:20-14:40 Verification of the Hypotheses on the Fatigue Strength of a Bolt in Bolt/Nut Assemblies (Effect of the Residual Stress at the Bolt Thread Root)
Akihiro Furukawa(Aoyama Seisakusho Co), Masaya Hagiwara(Nagoya Institute of Technology), Yohei Kamiya (Nagoya Institute of Technology)
- 14:40-15:00 A Study on the Durability of Fiber-Reinforced Composites Using ANSYS
Yun-Hae Kim(Korea Maritime Univ.), Seung-Jun An(Korea Maritime Univ.), Sung-Youl Bae (Hyundai Rotem Company), Chang-Won Bae(Korea Maritime Univ.), Kyung-Man Moon(Korea Maritime Univ.), Young-Il Lee (Korea Maritime Univ.)
- 15:00-15:20 Study on Contact between Two Cylinders with Skew Axis (Simplified Model of Crossed Helical Gears)
Ema Tamura, Ryoza Nemoto, Kenji Takei, Eiichirou Tanaka (Tokyo Metropolitan College of Industrial Technology)
- 15:20-15:40 Thermo-Mechanical Analysis of Multilayer Ceramic Capacitor (MLCC)
E. K. Lee(KonKuk Univ.), Mai Duc Dai(KonKuk Univ.), Chang-Wan Kim(KonKuk Univ.)
- 15:40-16:00 Effect of a Dynamic Absorber on Friction-Induced Vibration of a Rectangular Plate
Oleksandr Mikhyyeyev(Saitama Univ.), Hiroki Mori(Saitama Univ.), Takuo Nagamine(Saitama Univ.), Mizue Mori(Saitama Univ.), Yuichi Sato (Saitama Univ.)

Design II: Device Analysis II (Chair: Hong-Seok Park, Ulsan Univ.)

- 16:20-16:40 Study on structural integrity and numerical analysis of knife press forming process using brake bending press
Jung-Won Park(Pusan Nat. Univ.), Woo-Jin Song (Pusan Nat. Univ.), Tae-Wan Ku (Pusan Nat. Univ.), Beom-Soo Kang(Pusan Nat. Univ.)
- 16:40-17:00 Holding Characteristics of Porous Vacuum Chucks
Keita Toba, Masaaki Miyatake, Shigeka Yoshimoto (Tokyo Univ. of Science)
- 17:00-17:20 Flow and Thermal Behavior Simulation for Design of CPU Cooling Systems
Jeehoon Choi (Zalman Co. Ltd. & sungkyunkwan Univ.), Min-Joong Jeong(KISTI), Junghyun Yoo (Zalman Co. Ltd.), Minwhan Seo (Zalman Co. Ltd.), Sangjun Jeong (Zalman Co. Ltd.)
- 17:20-17:40 Dynamic Output Angular Displacement of Molding Pantograph Mechanism with Constant-Orientation Output Link
Rei Fukuoka(Tokyo Institute of Technology), Takashi Fukamachi(Tokyo Institute of Technology), Daiki Kamiya(Tokyo Institute of Technology), Mikio Horie (Tokyo Institute of Technology)

Banquet / 19:00 - 20:30 June 25 (Thursday), Room1

Oral Presentation / June 25 (Thursday), Room2

Design IV: Measurement (Chair: Tomomi Honda, University of Fukui)

- 11:00-11:20 The Evaluation of Mechanical Properties and Physical Properties of the Hanji Reinforced Composite
Yun-Hae Kim (Korea Maritime Univ.), Young-Dae Jo(Korea Maritime Univ.)
- 11:20-11:40 Analysis of eccentricity in the ball bar measurement
Dong-Mok LEE(Kyungpook Nat. Univ.), Young-Taek CHA(Kyungpook Nat. Univ.), Seung-Han YANG(Kyungpook Nat. Univ.)
- 11:40-12:00 Evaluation on Impact Performance from Hybridization of Fiber Metal Laminates
Seung-Ho Song (Pusan Nat. Univ.), Tae-Wan Ku(Pusan Nat. Univ.), Jeong Kim(Pusan Nat. Univ.), Woo-Jin Song (Pusan Nat. Univ.), Beom-Soo Kang(Pusan Nat. Univ.)
- 12:00-12:20 Portable Optical Interferometry Measurement System Using Newly Developed Unwrapping Algorithm
Hiroyuki Nishimoto(Tottori Institute of Industrial Technology), Fumio Obata(Tottori Univ.), Kazutake Uehara(Tottori Univ.), Kenji Yamaguchi(Yonago National College of Technology), Katsunori Kimura(Tottori Institute of Industrial Technology), Hidefumi Kashiwagi(Tottori Institute of Industrial Technology), Yoshiaki Suzuki (Tottori Institute of Industrial Technology)

Design V: System/Device I (Chair: Jae-Ung Cho, Kongju Univ.)

- 14:00-14:30 **Invited Talk**
Active Inspection Supporting System based on Mixed Reality after the Design and Manufacturing Process in the Offshore Structure
Kyung-Ho Lee(Inha Univ.), Jung-Min Lee (Inha Univ.), Young-Soo Han(Inha Univ.), Chung-Hyun Kim(Inha Univ.)
- 14:30-14:50 Walking Mode Maps for Prevention of Slip-related Falls
Takeshi Yamaguchi(Tohoku Univ.), Shintaro Hatanaka(Tohoku Univ.), Hiroteru Yamanouchi(Tohoku Univ.), Hiroshi Onodera(Japan Science and Technology Agency (JST)), Kazuo Hokkirigawa(Tohoku Univ.)
- 14:50-15:10 Design of Walker with Assist Equipment Translating Walking Motion to Rotational Motion Considering Leg's Motion
Jun Nango(Graduate School of Science and Engineering, Yamagata Univ.)
- 15:10-15:30 RFID System Including Tags Arranged on a Floor for the Localization
Hyun-Jeong Lee(Pusan Nat. Univ.), Min Cheol Lee (Pusan Nat. Univ.)
- 15:30-15:50 Continuous path control of a 5-DOF parallel-serial hybrid robot
Takuma Uchiyama(Univ. of Yamanashi), Hidetsugu Terada(Univ. of Yamanashi), Hironori Mitsuya(Kreuz Co.Ltd)

Design V: System/Device II (Chair: Masaya Hagiwara, Nagoya Institute of Technology)

- 16:20-16:40 Development of dimple Type EGR Cooler
Young-Ho Seo(Pusan Nat. Univ.), Sang-Kwang Jeon(Nara M&D), Tae-Wan Ku (Pusan Nat. Univ.), Woo-Jin Song (Ousan Nat. Univ.), Jeong Kim(Pusan Nat. Univ.), Beom-Soo Kang(Pusan Nat. Univ.)
- 16:40-17:00 Development of a New Torque Cell System for Torque/clamp Force Testing for Threaded Fasteners in accordance with ISO 16047
*Masaya Hagiwara(Nagoya Institute of Technology), Yuki Mano(Nagoya Institute of Technology), Masahiko Hamada(Aoyama Seisakuso Co.), Kazunori Nunogami(Aoyama Seisakuso Co.), Hiro Ozeki(*Kistler Japan Co.)*
- 17:00-17:20 Development of Haptic Shift Device Applied Novel 3RRR Redundant Manipulator for Shift-By Wire
Sang-Min Woo(Yeungnam Univ.), Hyuk-Jin Lee(Yeungnam Univ.), Jeh-Won Lee(Yeungnam Univ.), Jin-Ho Kimm(Yeungnam Univ.), Jae-Yong Lee(Yeungnam Univ.)
- 17:20-17:40 Effects of Case Depth, Carburized Part and Rim Thickness on Residual Stresses of Spur Internal Gears
Kouitu Miyachika(Tottori Univ.), Wei-Dong Xue(TOPY Industry, Chigasaki), Takao Koide(Tottori Univ.), Hideaki Katanuma(Tottori Univ.)
- 17:40-18:00 A Fundamental Study on the Surface Durability of High Strength Spheroidal Graphite Cast Iron Gears (In the Case of H-FCD800)
Ryohei Ishimaru(Kurume Nat. College of Technology), Syuhei Kurokawa(Kyushu Univ.), Yoji Matsukawa(Kyushu Univ.)

Oral Presentation / June 25 (Thursday), Room3

Manufacturing I: Non-conventional Processing (Chair: Shinya Sasaki, Tokyo University of Science)

- 11:00-11:20 Processing optimization of PCL/TCP composites produced by Selective Laser Sintering
Jaewon Lee (Hongik Univ.), Haseung Chung (Hongik Univ.), Haeseong J. Jee(Hongik Univ.), Suman Das(Georgia Institute of Technology)
- 11:20-11:40 Study on Recycling of Waste Water From Spent Water-soluble Coolant
Kazuya Takada(Tottori Univ.), Yasuo Kondo(Tottori Univ.), Kenji Yamaguchi(Yonago National College of Technology), Satoshi Sakamoto(Shimane Univ.)
- 11:40-12:00 Large Preproduction Manufacturing by using Small Rapid Prototype System
Ho-Bong Song(Dong-A Univ.), Tae-Ho Kim(Dong-A Univ.), Byung-Hoon Park(Dong-A Univ.), Kwang-Woo Ahn(Dong-A Univ.), Eon-Chan Jeon(Dong-A Univ.)
- 12:00-12:20 Computational fluid analysis of AWJ Cutting head
MD. Golam Mostofa(Pusan Nat. Univ.), Kwak Yong kil(Pusan Nat. Univ.), Ahn Jung Hwan(Pusan Nat. Univ.)

Manufacturing II: Cutting (Chair: Su-Jin Kim, Gyeongsang Nat' l Univ.)

- 14:00-14:20 Influence of Surface Roughness as Cutting Condition on Cutting Processing using Micro-End mill
Sung-Hyun Kim(Dong-A Univ.), Soo-Yong Kim(Dong-A Univ.), Min-Sik Han(Dong-A Univ.), Dae-Kyun Park(Dong-A Univ.), Eon-Chan Jeon(Dong-A Univ.)
- 14:20-14:40 Study on tool wear mechanism in milling laser sintered material
Yassin Abdullah(Kanazawa Univ.), Takashi Ueda, Tatsuaki Furumoto(Kanazawa Univ.), Sanusi Mohd(Kanazawa Univ.), Ryutaro Tanaka(Kanazawa Univ.), Akira Hosokawa(Kanazawa Univ.)
- 14:40-15:00 Study on Laser Assisted Milling of Ferrous Based Consolidated Material
Tatsuaki Furumoto(Kanazawa Univ.), Takashi Ueda(Kanazawa Univ.), Teruyuki Osaka(Kanazawa Univ.), Abdullah Yassin(Kanazawa Univ.), Akira Hosokawa(Kanazawa Univ.), Ryutaro Tanaka(Kanazawa Univ.)
- 15:00-15:20 A Manufacturing Model of a Ball-End Mill Using a 5-Axis CNC Grinding Machine
Trung Thanh Pham(Konkuk Univ.), Sung Lim Ko(Konkuk Univ.)
- 15:20-15:40 A Study on Micro Burr Mechanism in Grooving Prism & Pyramid Pattern
Duy Le(Gyeongsang Nat. Univ.), Jong-Min Lee(Gyeongsang Nat. Univ.), Su-Jin Kim(Gyeongsang Nat. Univ.), Dongyoon Lee(KITECH)

Manufacturing II: Cutting II (Chair: Tatsuaki Furumoto, Kanagawa University)

- 16:20-16:40 Adjustable milling cutter for finish mill application
Chang-Hee Choi(TaeguTec), Chang-Gyu Park(TaeguTec), Chu-Uk Kang(TaeguTec), Moshe Sharon(TaeguTec)
- 16:40-17:00 Cutting Force at Dry Cutting by Fly Tool of 4 blades
Keigo Fukunaga (Oita Nat. College of Technology), Kei Adachi(Mazda Motor Corporation)
- 17:00-17:20 Indirect Cutting Force Measurement in Micro End-milling Process Based on Frequency Analysis of Sensor Signals
Bong-Cheol Shin(Inha Univ.), Seok-Jae Ha(Inha Univ.), Myeong-Woo Cho(Inha Univ.), Gil-Sang Yoon(KITECH), Young-Moo Heo(KITECH)
- 17:20-17:40 Product Development with TRIZ: Design Evolution of Deburring Tools for Intersecting Holes
Chang-Hee Cho(Korea Univ.), Kwon-Hee Kim(Korea Univ.)
- 17:40-18:00 Correlation between the Wear of Single Crystal Diamond Tools and Sensor Signals in Machining of Copper-plate Roll Molds
Dongyoon Lee(KITECH), Sanghyun Hong(KITECH), Kihyung Song(KITECH), Sungho Nam(KITECH) Seokwoo Lee(KITECH)

Oral Presentation / June 25 (Thursday), Room4

Tribology I: Tribological Properties (Chair: Toshiharu Kazama, Muroran Institute of Technology)

- 11:00-11:20 Synergistic Effect of Surface Texture and Oil Repellence on Tribological Properties of Alloy Steel
Hatsuhiko Usami(Meijo Univ.), Yasushi Hoshino(Meijo Univ.)
- 11:20-11:40 Mechanical properties of Cr-Zr-N coatings as a function of N₂ partial pressure
Y.S. Kim(Korea Aerospace Univ.), G.S. Kim(Korea Aerospace Univ.) SangYul Lee(Korea Aerospace Univ.)
- 11:40-12:00 High-Pressure Behavior and Tribological Properties of Wind Turbine Gear Oil
Sobahan Mia(Saga Univ.), Shota Mizukami(Saga Univ.), Ryusei Fukuda(Saga Univ.), Shigeki Morita(Saga Univ.), Nobuyoshi Ohno(Saga Univ.)
- 12:00-12:20 Friction Characteristics in Carbon Nitride Coating on the Dimple Pattern
Won-Sik Choi(Pusan Nat. Univ.), Noritsugu Umehara(Nagoya Univ.)

Tribology II: Hydro-dynamic/Static Lubrication (Chair: In-Ha Sung, Hannam Univ.)

- 14:00-14:20 Simultaneous Temperature Measurements of Bearing/Seal Parts of A Swash Plate Type Axial Piston Pump
Toshiharu Kazama(Muroran Institute of Technology), Hayato Sasaki(Muroran Institute of Technology), Yukihito Narita(Muroran Institute of Technology)
- 14:20-14:40 Generation of Bubbles in EHL Oil Film
Koshiro Kato(Tsuruoka Nat. College of Technology)
- 14:40-15:00 Instability of Herringbone Grooved Aerodynamic Bearings Flexibly Supported by Foils with Hemispherical Bumps
Masaki Sato(Tokyo Univ. of Science), Katsuya Nagata(Tokyo Univ. of Science), Shigeka Yoshimoto(Tokyo Univ. of Science), Masaaki Miyatake (Tokyo Univ. of Science)
- 15:00-15:20 Development of Aerostatic Porous Bearing Guide for Large Glass Sheets in Liquid Crystal Display Manufacturing Equipment
Masaya Masuda(Doshisha Univ.), Atsushi Kitano(Doshisha Univ.), Tomoko Hirayama(Doshisha Univ.), Takashi Matsuoka (Doshisha Univ.)
- 15:20-15:40 Friction and Wear Analysis of a Camshaft and Cam Follower Made from Steel by Ultrasonic Nanocrystal Surface Modification
Auezhan Amanov(SunMoon Univ.), Young-Shik Pyoun(SunMoon Univ.), Alisher Gafurov(SunMoon Univ.), Do-Hyun Jung (Korea Automotive Technology Institute), Joon-Ho Seo(Korea Univ.), Byung-Chul Na(Korea Automotive Technology Institute)
- 15:40-16:00 Reduction of Nano-Fluctuations of Aerostatic Thrust Bearings with Surface Restriction
Tomotaka Yoshimura(Doshisha Univ.), Hiroki Danjo(Doshisha Univ.), Takakazu Kitagawa(Doshisha Univ.), Takashi Matsuoka(Doshisha Univ.), Tomoko Hirayama(Doshisha Univ.), Hiroshi Yabe(Kyoto Univ)

Tribology III: Friction and Wear Mechanism (Chair: Shinya Sasaki, Tokyo University of Science)

- 16:20-16:40 The Effect of Counterpart Materials on Friction and Wear of Rice Husk Ceramics under Dry Condition
Tuvshin Dugarjav(Tohoku Univ.), Takeshi Yamaguchi(Tohoku Univ.), Kazuo Hokkirigawa(Tohoku Univ.)
- 16:40-17:00 Assessment of Adhesion between Thin Film and Substrate Based on Scratch Test
Jung-Eun Lee (Yonsei Univ.), Hyun-Joon Kim(Yonsei Univ.), Dae-Eun Kim(Yonsei Univ.)
- 17:00-17:20 Friction and Wear Properties of Cu/C/RBC Composite as Pantograph Slider Material of Railway Current Collector
Kei Shibata(Tohoku Univ.), Takeshi Yamaguchi(Tohoku Univ.), Yuta Yao(Tohoku Univ.), Akihiko Ishizu(East Japan Railway Company), Nobuyuki Yokoyama(East Japan Railway Company), Junichiro Mishima(East Japan Railway Company), Kazuo Hokkirigawa(Tohoku Univ.)
- 17:20-17:40 Sensitivity of Frictional Behavior by Dimensional Analysis in Cold Forging
Joseph Sehinde Ajiboye(KAIST), Ki-Ho Jung(KAIST), Yong-Taek Im(KAIST)
- 17:40-18:00 Investigation of Temperature and Thermal Stress in Ventilated Disc Brake based on 3D thermo-mechanical Coupling Model
Pyeong Hwang(Yeungnam Univ.), Xuan Wu(Yeungnam Univ.), Young-Bae Joen (Yeungnam Univ.)

Oral Presentation / June 25 (Thursday), Room5

Micro/Nano I: Printing Technology (Chair: Do-Young Byun, Konkuk Univ.)

- 11:00-11:30 **Invited Talk**
An Application of ESD technology for the R2R Printing Process
Jung Su Kim(KIMM), Kang Dae Kim(KIMM), Chung Hwan Kim(KIMM), Sung Woo Bae(KIMM), Kyung Hyun Choi(Jeju Nat. Univ.), Dong Soo Kim(KIMM)
- 11:30-11:50 The influence of a pattern geometry variation in direct gravure printing process using conductive ink
Byoung Joon Ahn(Konkuk Univ.), Kyung Joon Han(Konkuk Univ.), Sung Lim Ko(Konkuk Univ.)
- 11:50-12:10 Computer Aided Simulation of Mesoscale Particles Mixing for Direct Printable Ink
Dong Hoon Oh(Seokyoung Univ.), Nam Soo Kim(Seokyoung Univ.)

Micro/Nano II: Printing System I (Chair: Yang Na, Konkuk Univ.)

- 14:00-14:20 Effect of Pb-free Solder Paste Formulation on the Screen Printing and Reflow Processes
A-Mi Yu(Inha Univ.), Mok-Soon Kim(Inha Univ.), Jong-Hyun Lee(Seoul Nat. Univ. of Technology), Cheol-Hee Kim(KITECH), Jun-Ki Kim(KITECH)
- 14:20-14:40 Novel Fabrication Method of Gate Cavity for Printed Thin Film Transistor using Laser Assisted Self-Alignment Process
Dong-Youn Shin(KIMM), Paul Grassia(Univ. of Manchester)
- 14:40-15:00 Lateral Control of a Moving Web Using a Steering Guide System for Roll-to-roll Printed Electronics
Hyeunhun Shin(Konkuk Univ.), Thanhtam Ho(Konkuk Univ.), Sangyoon Lee(Konkuk Univ.)
- 15:00-15:20 Quality control with Matching Technology in R2R Printed Electronics
Changwoo Lee(Konkuk Univ.), Hojoon Kim(Konkuk Univ.), Ho Anh Duc Nguyen(Konkuk Univ.), Kee-Hyun Shin(Konkuk Univ.)
- 15:20-15:40 Fluid-Structure Interaction Analysis of Drying Process in R2R Printed Electronic
Y. H. Seo(Konkuk Univ.), Chang-Wan Kim(Konkuk Univ.)
- 15:40-16:00 Online Wrinkle Measurement System Integrated With Roll To Roll System
Huu Phuong Hoang(Konkuk Univ.), Sung Lim Ko(Konkuk Univ.)

Micro/Nano II: Printing System II (Chair: Nam Soo Kim, Seo Kyeong Univ.)

- 16:20-16:40 Analysis on the Ink Transfer Mechanism in R2R Application
Sangwon Lee(Konkuk Univ.), Yang Na (Konkuk Univ.)
- 16:40-17:00 Simulation of Droplet Generation Through Electrostatic Forces
Khalid Rahman (Jeju Nat. Univ.), Jeong-beom Ko(Jeju Nat. Univ.), Saleem Khan(Jeju Nat. Univ.), Kyung-hyun Choi(Jeju Nat. Univ.), Dong-Soo Kim(KIMM)
- 17:00-17:20 Electrohydrodynamic(EHD) Inkjet Printing Using ac Voltage
Vu Dat Nguyen(Konkuk Univ.), Si Bui Quang Tran(Konkuk Univ.), Hadi Teguh Yudistira(Konkuk Univ.), Do-Young Byun(Konkuk Univ.)
- 17:20-17:40 Fabrication of Gas Sensor using Printing Technology
Kang-Min Jeon(KAIST), Taik-Min Lee(KIMM), Hong-Seok Yoon(KAIST), Seong-Beom Kim(KAIST), Min-Yang Yang (KAIST)

Oral Presentation / June 25 (Thursday), Room6

Design VII: Machine/Device I (Chair: Jun Nango, Yamagata University)

- 11:00-11:20 Die shape compensation method for micro gears of Al powder
J.L. Gu(Pusan Nat. Univ.), D.B. Tae(Pusan Nat. Univ.), Y.H. Jung(Pusan Nat. Univ.), B.M. Kim(Pusan Nat. Univ.), S.J. Lee(Pusan Nat. Univ.)
- 11:20-11:40 A Study of Re-tightening Method of a Bolted Joint
Shinji Hashimura(Kurume Nat. College of Technology), Taisuke Matsufuji(Kurume Nat. College of Technology), Adil Kassoum(Kurume Nat. College of Technology), kyoichi komatsu(Kurume Nat. College of Technology)
- 11:40-12:00 Design of 100kW Wind Turbine for Island and Remote Rural Area
Dae-Young Kim(Han Jin ind. LTD.), Yun-Joo Nam(Han Jin ind. LTD.), Sang-Hyun Jeon(Han Jin ind. LTD.), Tae-Joong Kang(Han Jin ind. LTD.), Myeong-Kwan Park(Pusan Nat. Univ..)
- 12:00-12:20 Effect of Zero-spin Disk for Shaft-drive CVT on High Power-to-weight Ratio
Yukihito Narita(Muroran Institute of Technology), Yohei Mori(Tohoku University), Masashi Yamanaka i(Tohoku University), Katsumi Inoue(Tohoku University)

Design VII: Machine/Device II (Chair: Young-Hyu Choi, Changwon Nat' I Univ.)

- 14:00-14:30 **Invited Talk**
The Development of Gearless Reducers with Rolling Balls
Hidetsugu Terada (Univ. of Yamanashi)
- 14:30-14:50 Vibration Reduction module with Flexure mechanism for Personal Tools
Donghyun Hwang(Ajou Univ.), Deuk-Kyu Lee(Ajou Univ.), Moon G. Lee(Ajou Univ.)
- 14:50-15:10 Unilateral One-Way Clutch Mechanism Based on Planetary Gear
Hitoshi Maekawa(Nat. Institute of Advanced Industrial Science and Technology)
- 15:10-15:30 Virtual Excavator Simulator featuring HILS and Haptic Joysticks
Jae-Hong Cho(Pusan Nat. Univ..), Yun-Joo Nam(Pusan Nat. Univ..), Myeong-Kwan Park(Pusan Nat. Univ..)
- 15:30-15:50 Design of Magnetically-Levitated Rotors in a Large Flywheel Energy Storage System from Stability Standpoint
Seong-Yeol Yoo(Chungnam Nat. Univ.), Wook-Ryun Lee(Korea Electric Power Research Insitute), Yong-Chae Bae(Korea Electric Power Research Insitute), Myounggyu Noh(Chungnam Nat. Univ.)

Design VII: Machine/Device III(Chair: Nobuhiko Henmi, Shinshu University)

- 16:20-16:40 Non-contact Transportation Technique of Large Glass Sheet for LCD
Kazuki Amano(Tokyo Univ. of Science), Shigeka Yoshimoto(Tokyo Univ. of Science), Masaaki Miyatake(Tokyo Univ. of Science)
- 16:40-17:00 Simulation and Design Process of Aircraft Hydraulic Pump
Seong-Min Lee(Pusan Nat. Univ.), Jae-Hong Cho(Pusan Nat. Univ.), Myeong-Kwan Park(Pusan Nat. Univ.)
- 17:00-17:20 Comparison of Bending Fatigue Strength of Gears Manufactured by Various Methods
Masashi Yamanaka(Tohoku Univ.), Yu Matsushima(Tohoku Univ.), Katsumi Inoue(Tohoku Univ.)
- 17:20-17:40 A New Structure Reconfiguration Design Method for Modular Reconfigurable Machine Tools in the Rectangular Coordinates
Sung-Hyun Jang(Changwon Nat. Univ.), Woo-Young Jung(Changwon Nat. Univ.), Young-Hyu Choi(Changwon Nat. Univ.)
- 17:40-18:00 An Excavator Design System Based on Dynamic Analysis
Kang-Soo Lee(Hanbat Nat. Univ.), Jung-Ho Seok(Space Solution Inc.)

Oral Presentation / June 26 (Friday), Room1

Design III: Actuator System I (Chair: Nobuyuki Iwatsuki, Tokyo Institute of technology)

- 9:00- 9:20 Positioning Using a Langvin Ultrasonic Motor in High Vacuum Environment
Wan-Soo Kim (GIST), Cheol-Ho Yun(Tokyo Institute of Technology), Dong-Jin Lee(GIST), Sun-Kyu Lee(GIST)
- 9:20- 9:40 Development of Nutation Motors (9th Report, Improvement of Pneumatic Nutation Motor by Optimizing Diaphragm Design)
Shinji Oda, Kazuo Uzuka, Isao Enomoto, Koichi Suzumori(Okayama Univ.)
- 9:40-10:00 Magneto-Rheological Accumulator for Temperature Compensation in Hydro-Pneumatic Suspension Systems
Jung-Uk Seo(Pusan Nat. Univ.), Young-Won Yun(Pusan Nat. Univ.), Myeong-Kwan Park (Pusan Nat. Univ.)
- 10:00-10:20 Development of a spherical motor driven by electro-magnets
Seiji Ikeshita(Okayama Univ.), Akio Gofuku(Okayama Univ.), Tetsushi Kamegawa(Okayama Univ.), Takakazu Nagai(Okayama Univ.)
- 10:20-10:40 Measurement and Evaluation of the VCA Driver
Il-Kyu Hwang(Dongyang Technical College)

Plenary Session II (Chair: Shigeka Yoshimoto, Tokyo Univ. of Science, Soo Hong Lee, Yonsei Univ.)

- 11:00-11:40 Plenary Speech III
Design and Creativity in Engineering
Kwon-Hee Kim (Korea Univ.)
- 11:40-12:20 Plenary Speech IV
Environmental friendly tribology (Eco-tribology)
Shinya Sasaki (Tokyo Univ. of Science)

Design III: Actuator System II (Chair: Sangho Park, Chungnam Nat I Univ.)

- 14:00-14:20 Control Experiments of Sliding Motion of Active Flexible Cable
Kazuma Sawata(Tohoku Univ.), Masashi Konyo(Tohoku Univ.), Satoshi Tadokoro(Tohoku Univ.), Koichi Osuka(Kobe Univ.)
- 14:20-14:40 Micro Patterned Thin Film Multi Body Actuator for MEMS Magnetostrictive Transducer
Heung-Shik Lee(Inha Univ.), Chongdu Cho(Inha Univ.)
- 14:40 - 15:00 Application of Pneumatic Servo Bearing Actuators for XY θ Ultraprecise Positioning Stage
Hiroki Danjo(Doshisha Univ.), Tomotaka Yoshimura(Doshisha Univ.), Takakazu Kitagawa(Doshisha Univ.), Tomoko Hirayama(Doshisha Univ.), Takashi Matsuoka(Doshisha Univ.)
- 15:00 - 15:20 An Application of Intelligent Control Technique to Modeling A Magneto-Rheological (MR) Fluid Damper
Dinh Quang Truong(Univ. of Ulsan), Kyoung Kwan Ahn(Univ. of Ulsan)

Oral Presentation / June 26 (Friday), Room2

Design V: System/Device III (Chair: Kang-Soo Lee, Hanbat Nat I Univ.)

- 9:00 - 9:20 Behavior of Piston Rings Passing over Cylinder Ports in Two-Stroke Cycle Engines
Kohei Nakashima(Meijo Univ.), Yuki Nakano(Meijo Univ.), Soichi Ishihara(Meijo Univ.), Yoshio Murakami(Meijo Univ.), Masago Yamamoto(Meijo Univ.)
- 9:20 - 9:40 Development of a Novel MR Rotary Brake with Permanent Magnet
Dong-Won Yun(KIMM), Jung-Ho Park(KIMM), Sang-Yong Ham(KIMM), Seong-Hee Lee(KIMM), Byung-In Kim(KIMM), Jung-Sik Kang(KIMM)
- 9:40 - 10:00 Development of Casting Design Review and Skill Transfer System Using Mixed Reality Technology
Keiichi Watanuki(Saitama Univ.), Lei Hou(Saitama Univ.)
- 10:00 - 10:20 Development of a Walking Assistance Apparatus Unfixed on Legs and Improvement of Assistance Power
Eiichirou Tanaka(Shibaura Institute of Technology), Tadaaki Ikehara(Tokyo Metropolitan College of Industrial Technology), Louis Yuge(Hiroshima Univ.), Hirokazu Yusa(Shibaura Institute of Technology), Kenichi Hashimoto(Shibaura Institute of Technology), Yusuke Sato(Shibaura Institute of Technology)
- 10:20 - 10:40 Gait Generation and Change of Direction for the Underactuated Three-legged Robot
Kazunori Kaede(Saitama Univ.), Keiichi Watanuki(Saitama Univ.)

Design VI: Detection/Inspection I (Chair: Kouitsu Miyachika, Tottori University)

- 14:00 - 14:20 Detection Technology for Small Size Tubing using T-Mode Guided Wave Transducer
Doo-Song Gil(KEPRI), Yeon-Shik Ahn(KEPRI), Sang-Ki Park(KEPRI), Young-Gun Kim(Seoul Nat. Univ.), Sae-June Park(Seoul Nat. Univ.)
- 14:20 - 14:40 Wear Test and Calculation of the Involute Spur Gear
Natsuhiko Seyama(Hiroshima Univ.), Kazuteru Nagamura(Hiroshima Univ.), Kiyotaka Ikejo(Hiroshima Univ.), Masanori Taguchi(Mazda Motor Corporation), Masaya Torii(Hiroshima Univ.)
- 14:40 - 15:00 Monitoring Temperature Evolution on Railway Brake Disc with Infrared Camera
Jeongguk Kim(KRRI), Sung-Cheol Yoon(KRRI), Sung-Tae Kwon(KRRI)
- 15:00 - 15:20 Surface Durability of Powder-Forged Roller Treated by Shot Peening
Masanori Seki, Masahiro Fujii, Yuji Kobayashi, Masaaki Sato, Akira Yoshida(Okayama Univ.)

Design VI: Detection/Inspection II (Chair: Hae-Jin Choi, Nanyang Tech. Univ.)

- 15:40 - 16:00 Effective Evaluation Technique for Adhesion Area of LNGC Insulation System
Chi-Seung Lee(Pusan Nat. Univ.), Myung-Hyun Kim(Pusan Nat. Univ.), Min-Sung Chun(Samsung Heavy Industries), Sang-Min Han(Samsung Heavy Industries), Yong-Suk Suh(Samsung Heavy Industries), Jae-Myung Lee(Samsung Heavy Industries)
- 16:00 - 16:20 Influences of Various Factors of Bolt Tightening on Fatigue Characteristics under Transverse Vibration
Shinji Hashimura(Kurume Nat. College of Technology), Shinichi Umeno(Kurume Nat. College of Technology), Yu Kurakake(Kurume Nat. College of Technology)
- 16:20 - 16:40 Bearing Life Rating for Wind Turbine Gearbox
Qi Zhang(Gyeongsang Nat. Univ.), Sungki Lyu(Gyeongsang Nat. Univ.), Sungmin Moon(Gyeongsang Nat. Univ.), Jaijun Ku(Gyeongsang Nat. Univ.)
- 16:40 - 17:00 Surface Durability of WC/C Coated Case-Hardened Steel Gear
Masahiro Fujii(Okayama Univ.), Masanori Seki(Okayama Univ.), Akira Yoshida(Hiroshima International Univ.)

Oral Presentation / June 26 (Friday), Room3

Manufacturing III: Forming I (Chair: Dong-Gyu Ahn, Chosun Univ.)

- 9:40 - 10:00 Design of Die Forging Process for Marine Engine Thrust Shaft
Il-Keun Kwon(Hyundai Heavy Industries), Hong-Seok Park(Univ. of Ulsan), Dang Xuan Phuong(Univ. of Ulsan)
- 10:00 - 10:20 Reduction of Abnormal Grain Growth by N₂ gas Die Cooling during Hot Extrusion of Al6061
Dae-Hoon Ko(Pusan Nat. Univ.), Sang-Ho Lee(Pusan Nat. Univ.), Dae-Cheol Ko(Pusan Nat. Univ.), Byung-Min Kim(Pusan Nat. Univ.)
- 10:20 - 10:40 Designing Technique of Die Shape for Multi-Stage Profile Drawing
Sang-Kon Lee(Pusan Nat. Univ.), Jae-Eun Lee(Pusan Nat. Univ.), Tae-Kyu Lee(Pusan Nat. Univ.), Sung-Min Kim(Pusan Nat. Univ.), Byung-Min Kim(Pusan Nat. Univ.)

Manufacturing IV: Polishing (Chair: Yasuo Kondo, Tottori University)

- 14:00 - 14:30 **Invited Talk**
Airbag Tool Polishing for Aspherical Glass Lens Mold
Junguk Kim(Hanbat Nat. Univ.), Hyunhyung Kang(Hanbat Nat. Univ.), Hocheol Lee(Hanbat Nat. Univ.)
- 14:30 - 14:50 Optimization of conditioner design for non-porous pad in CMP Process
Ji Chul Yang(Sungkyunkwan Univ.), Hojoong Kim(Sungkyunkwan Univ.), Taesung Kim(Sungkyunkwan Univ.)
- 14:50 - 15:10 Ultra-precision Polishing of Mica Glass Ceramics Using Magnetorheological Fluids and Nano Abrasives
Dong-Woo Kim(Inha Univ.), Kwang-Pyo Hong(Inha Univ.), Myeong-Woo Cho(Inha Univ.), Won-Seung Cho(Inha Univ.), Young-Jae Shin(KIMM)
- 15:10 - 15:30 Lapping of Ni-based Superalloy Using a Biodegradable Coolant with Positive Oxidation Potential
Yasuo Kondo, Kentaro Sugimoto, Satoshi Sakamoto, Kenji Yamaguchi(Tottori Univ.)
- 15:30 - 15:50 A Study on Characteristics of Micro-grinding Process Using Compressed Chilly Air
Pil-Ho Lee(Sungkyunkwan Univ.), Sang-Won Lee(Sungkyunkwan Univ.)

Manufacturing III: Forming II (Chair: Hocheol Lee, Hanbat Nat' I Univ.)

- 16:10 - 16:30 Application of Flexible Forming Process to Hull Structure Forming
Seong-Chan Heo(Pusan Nat. Univ.), Young-Ho Seo(Pusan Nat. Univ.), Tae-Wan Ku(Pusan Nat. Univ.), Jeong Kim(Pusan Nat. Univ.), Beom-Soo Kang(Pusan Nat. Univ.)
- 16:30 - 16:50 Development of Rectangular Cup with Extreme Aspect Ratio using Multi-Stage Deep Drawing Process
Beom-Soo Kang(Pusan Nat. Univ.), Seong-Chan Heo(Pusan Nat. Univ.), Jung-Won Park(Pusan Nat. Univ.), Woo-Sin Song(Pusan Nat. Univ.), Tae-Wan Ku(Pusan Nat. Univ.)
- 16:50 - 17:10 Development of Bezel Frame for the Strength Reinforcement of TFT-LCD Module in Hemming Process
Byung-Min Kim(Pusan Nat. Univ.), Sang-Ho Lee(Pusan Nat. Univ.)

Oral Presentation / June 26 (Friday), Room4

Tribology IV: Coating and Surface Modification I (Chair: Eui-Sung Yoon, KIST)

- 9:00 - 9:20 Ultraviolet Ray Irradiation Effect on Frictional Property of Carbon Nitride Coating
Takayuki Tokoroyama(Nagoya Univ.), Makoto Kamiya(Nagoya Univ.), Yoshio Fuwa(Toyota Motor Co.Ltd.), Noritsugu Umehara(Nagoya Univ.)
- 9:20 - 9:40 Effect of Supercritical Nano Plating and Heat Treatment on Material Surface
Yun-hae Kim(Korea maritime Univ.), Do-wan Kim(Korea maritime Univ.), Young-dae Jo(Korea maritime Univ.), Dong-hun Kim(Korea maritime Univ.), Chang-won Bae(Korea Institute of Maritime and Fisheries Technology), Kyung-man Moon(Korea maritime Univ.)
- 9:40 - 10:00 Photochemical Fluorination for Friction Reduction between Thermoplastic Elastomers and Plastics under Unlubricated Condition
Keisuke Usami(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.), Isami Nitta(Niigata Univ.), Noritsugu Umehara(Nagoya Univ.)
- 10:00 - 10:20 Ultra-low Friction Mechanism of CN_x Coating in Nitrogen
Yuki Miyahira(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.)
- 10:20 - 10:40 Friction Test of Inner Surface of Narrow Metal Tube Coated with DLC Using Microwave Plasma CVD
Hiroyuki Kousaka(Nagoya Univ.), Kazunori Mori(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.), Noboru Tamura(CCS Inc.), Toyohiko Shindo(CCS Inc.)

Tribology IV: Coating and Surface Modification II (Chair: Hatsuo Usami, Meijo University)

- 14:00 - 14:30 **Invited Talk**
Topographically-Chemically Modified Silicon Surfaces as Tribological Candidates for Miniaturized (MEMS) Devices
Duc-Cuong Pham(KIST), R. Arvind Singh(KIST), Kyoungwhan Na(KIST), Sungwook Yang(KIST), Eui-Sung Yoon(KIST)
- 14:30 - 14:50 Improvement of Tribological Properties of Diamond-like Carbon Coating with Ultraviolet Ray Irradiation
Takuya Hatano(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.), Yoshio Fuwa(Toyota Motor Co.Ltd.), Noritsugu Umehara(Nagoya Univ.)
- 14:50 - 15:10 Effect of Thickness on Frictional Properties of CNx
Ryosuke Saito(Nagoya Univ.), kayuki Tokoroyama(Nagoya Univ.), Noritsugu Umehara, (Nagoya Univ.), Yoshio Fuwa(Toyota Motor Co.Ltd.)
- 15:10 - 15:30 Influence of Fluorine Content on Hardness of Amorphous Carbon Film Coated by Pulsed-plasma Ablation
Shingo Kawara(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.), Hiroyuki Koizumi(Japan Aerospace Exploration Agency), Kazuhiko Yamada(ASAHI GLASS Co. Ltd), Noritsugu Umehara(Nagoya Univ.)
- 15:30 - 15:50 AFM Scratch Test for the Clarification of Ultra Low Friction Mechanism of CNx Coating
Norihiro Kimura(Nagoya Univ.), Yosuke Tsukiyama(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.)
- 15:50 - 16:10 Effect of Surface Texture on Running-in Process in Lubricating Condition
Tomomi Honda(Univ. of Fukui), Wataru Hirai(Univ. of Fukui), Yoshiro Iwai(Univ. of Fukui), Yoshio Fuwa(Toyota Motor)

Oral Presentation / June 26 (Friday), Room5

Micro/Nano III: Micro/Nano Processing I (Chair: Noritsugu Umehara, Nagoya University)

- 9:00 - 9:20 A New Anodizing Method for Fabrication of Nano Porous Membrane
Honggue Shin(Kangwon Nat. Univ.), Yongmin Park(Kangwon Nat. Univ.), Young Ho Seo(Kangwon Nat. Univ.), Byeong Hee Kim(Kangwon Nat. Univ.)
- 9:20 - 9:40 The Effect of Superhydrophobic Double Roughening Diamond-like Carbon Structure on Micro/nanoscale Friction
Young-Jun Jang(Nagoya Univ.), Jong-Joo Rha(KIMS), Hiroyuki Kousaka(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.)
- 9:40 - 10:00 Prevention from Oxidation of Copper Nano Ink in Aqueous Solutions
JinJu Lee(Seokyoung Univ.), Nam Soo Kim(Seokyoung Univ.)
- 10:00 - 10:20 Designing MEMS Disk Resonator Based Biological Mass Sensors under Fabrication Uncertainty
Amir Heidari(Nanyang Technological Univ.), Miao Jianmin(Nanyang Technological Univ.), Hae-Jin Choi(Nanyang Technological Univ.)

Micro/Nano III: Micro/Nano Processing II (Chair: Pyung Hwang, Yeungnam Univ.)

- 14:00 - 14:20 Phase Transition Characteristics of Machine Oils under High Pressure Analyzed by Synchrotron Radiation X-Ray Diffraction
Koki Kono(Doshisha Univ.), Susumu Hayase(Doshisha Univ.), Tomoko Hirayama(Doshisha Univ.), Takashi Matsuoka(Doshisha Univ.)
- 14:20 - 14:40 Evaluation of Exposure Energy Intensity and Micro Patterning Results of a Maskless Lithography System
Dong-Woo Kim(Inha Univ.), Min-Hyung Kang(Inha Univ.), Myeong-Woo Cho(Inha Univ.), Jong-Soo Kim(Inha Univ.), Soo-Jin Lee(Inha Univ.)
- 14:40 - 15:00 Thickness of Additive Layer on Metal Surfaces Measured by Neutron Reflectometry and Its Effect to Tribological Properties
Takashi Torii(Doshisha Univ.), Takashi Kashiwara(Doshisha Univ.), Tomoko Hirayama(Doshisha Univ.), Takashi Matsuoka(Doshisha Univ.), Kazuko Inoue(Waseda Univ.), Dai Yamazaki(Waseda Univ.), Masahiro Hino(Kyoto Univ.)
- 15:00 - 15:20 Nanowear Property of Carbon Nanotube Film Made by Surface Decomposition of SiC
Yosuke Tsukiyama(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.), Michiko Kusunoki(Nagoya Univ.)

Micro/Nano IV: Micro/Nano Actuator (Chair: Yuichi Nakazato, Nippon Institute of Technology)

- 15:40 - 16:00 Distributed Geometric Modeling System Based on P2P to Share Modeling Functions
Sung-il Choi(Chungnam Nat. Univ.), Sangho Park(Chungnam Nat. Univ.), Murali Subramaniam(Chungnam Nat. Univ.)
- 16:00 - 16:20 Fabrication and Evaluation of Various Types of Micro One-way Valves through Micro Rubber Molding Process
Yuki Uohashi(Okayama Univ.), Hironari Taniguchi(Tsuyama National College of Technology), Koichi Suzumori(Okayama Univ.)
- 16:20 - 16:40 Topology Optimization of a Thermal Actuated Compliant Mechanism
W. G. Lee(Hanyang Univ.), J. Y. Park(Hanyang Univ.), J. S. Yoo(Hanyang Univ.), M. G. Im(Hanyang Univ.), J. Y. Park(Hanyang Univ.), Y. K. Oh(Hanyang Univ.), S. Y. Han(Hanyang Univ.)
- 16:40 - 17:00 Analysis of Micro Factory Layouts for Productivity Improvement with Five and Six Micro Machines
Murali Subramaniam(Chungnam Nat. Univ.), Sangho Park(Chungnam Nat. Univ.)

Oral Presentation / June 26 (Friday), Room6

Manufacturing V: Injection Molding (Chair: Keun Park, Seoul Nat' l Univ. of Tech.)

- 9:00 - 9:20 Intelligent Mold Cost Estimator for Plastic Injection Mold Manufacturing
Than Lin(Konkuk Univ.), T. Lwin(Konkuk Univ.), Jae-Woo Lee(Konkuk Univ.)
- 9:20 - 9:40 A Study on Replication of Micro Pattern in Injection Molding
Yeong-Eun Yoo(KIMM), Tae Hoon Kim(KIMM), Tae-Jin Je(KIMM), Doo-Sun Choi(KIMM), Chang-Wan Kim(Seoul Nat. Univ.), Sun Kyung Kim(Seoul Nat. Univ.)
- 9:40 - 10:00 An optimized injection molding condition for reducing fabrication defects in display front panels
Hyoung-jun Moon(Inha Univ.), Sangkyo Lee(Inha Univ.), Chongdu Cho(Inha Univ.)
- 10:00 - 10:20 Optimal Injection Molding Condition Considering Core Shift for Plastic Battery Case with Thin and Deep Walls
Dong-Gyu Ahn(Chosun Univ.), Dae-Won Kim(Chosun Univ.), Yeol Ui Yoon(Chun-Bok Injection Mold)
- 10:20 - 10:40 Eliminating Weld Line of Injection Molded Parts by Induction Heating
Keun Park(Seoul Nat. Univ. of Technology), Kwang-Hwan Cho(Mobase Co. Ltd)

Micro/Nano V: Physical/Tactile Sensor (Chair: Koichi Suzumori, Okayama University)

- 14:00 - 14:20 Presentation of Odor and Airflow using Olfactory Display
Haruka Matsukura(Tokyo Univ. of Agriculture and Technology), Hitoshi Yoshida(Tokyo Univ. of Agriculture and Technology), Takamichi Nakamoto(Tokyo Institute of Technology), Hiroshi Ishida(Tokyo Univ. of Agriculture and Technology)
- 14:20 - 14:40 Thermal Stress Analysis of Anode-supported IT-SOFCs
Sangho Sohn(Seoul Nat. Univ.), Jin Hyun Nam(Kookmin Univ.), Kyu-Jin Lee(Seoul Nat. Univ.), Charn-Jung Kim(Seoul Nat. Univ.)
- 14:40 - 15:00 Human Finger Size Tactile Sensor for Texture/Softness Detection
Takashi Maeno(Keio Univ.), Yusuke Hidaka(Keio Univ.)
- 15:00 - 15:20 FEM Simulation of Velvet Hand Illusion
Abdullah Chami(Nagoya Univ.), Masahiro Ohka(Nagoya Univ.), Yuji Kawabe(Nagoya Univ.), Tetsu Miyaoka(Shizuoka Inst)

Poster Presentation (Chair: Dae-Eun Kim, Yonsei Univ.) / 13:10 - 14:00 June 25 (Thursday)

- 1 Clutch-added Driving System for Mobile Robot
Jong-geol Kim(PIRO), Young-jin Hong(PIRO), Jin-ho Suh(PIRO), Kyoo-sik Shin(PIRO)
- 2 Durability of Reduction Gearbox for Bimodal Tram propelled by Series Hybrid Propulsion
Yeon-Su Kim(KRRR), Jai-Kyun Mok(KRRR), Song-Gyu Leem(KRRR), Jin-Wan Kim(DYMOS), Tae-Young Kim(DYMOS)
- 3 Development of Zero Leakage Ball Valve for LNG
Myoung-Sub Kim(KIMM), Dong-Soo Kim(KIMM), Jung-Su Kim(KIMM)
- 4 Development of an Ultra-precision Lathe with Application of Motion-error Compensation System
Young-Chan Song(KIMM), Jooho Hwang(KIMM), Chun-Hong Park(KIMM)
- 5 A Novel Electromagnetic Linear Actuator for Active Accelerator Pedal
Jae-Yong Lee(Yeungnam Univ.), Jin-Ho Kim(Yeungnam Univ.), Sang-Min Woo(Yeungnam Univ.), Jeh-Won Lee(Yeungnam Univ.)
- 6 Development of a 3DOF Active Polymer Hinge as a Sinus Surgery Manipulator
Chalermrat Techakasem(Tokyo Institute of Technology), Mikio Horie(Tokyo Institute of Technology)

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- 8 Effect of Some Parameters to Apply Centrifugal Pendulum Vibration Absorber to Gear System
Shigeki Matsumura(Tokyo Institute of Technology), Haruo Houjoh(Tokyo Institute of Technology)
- 9 Development of a Getting up Assistance Mechanism Supports Waist Motion
Eiichirou Tanaka(Shibaura Institute of Technology), Tadaaki Ikehara(Tokyo Metropolitan College of Industrial Technology), Makito Kontani(Shibaura Institute of Technology), Kenichi Hashimoto(Shibaura Institute of Technology), Tatsuya Akiyama(Shibaura Institute of Technology)
- 10 Development of a walking assist machine using crutches (Proposition of its composition and basic experiments)
Masaru Higuchi(Tokyo Institute of Technology), Makoto Ogata(Tokyo Institute of Technology), Shuta Sato(All Nippon Airways Co., Ltd), Yukio Takeda(Tokyo Institute of Technology)
- 11 Development of In-pipe Micro Mobile Robot using Peristalsis
Yuichi Nakazato(Nippon Institute of Technology), Yukihiko Sonobe(Nippon Institute of Technology), Shigeki Toyama(Tokyo Univ.)
- 12 Design for the Increase of Heating Capacity in Gas By-Pass Type Thermal Error Controller
Hankil Yeom(KIMM), Seung Woo Lee(KIMM), Kil-Jong Park(Ilrin Nano Tec INT)
- 13 Robust Design of Railway Vehicle Suspension by using Process Capability Index
Kwang-Ki Lee(WISEMECA Inc), Chan-Kyoung Park(KRRI), Seung-Ho Han(Dong-A Univ.)
- 14 Design Method of Tilting Mechanism in Tilting Train
Nam-Po Kim(KRRI), Seog-Won Kim(KRRI)
- 15 Ultrasonic System Development and Characterization of Fiber Orientation in Cured and Uncured CFRP Composite Laminates
Kwang-Hee Im(Woosuk Univ.), Sun-Kyu Kim(Chonbuk Nat. Univ.), David K. Hsu(Iowa State Univ.), In-Young Yang(Chosun Univ.), Young-Tae Cho(Jeonju Univ.)
- 16 Fast Drive of Displacement Magnification Mechanism with Flexure Hinge Using Loading Type Impact Damper
Nobuhiko Henmi(Shinshu Univ.), Yuuta Sumi(Shinshu Univ.), Michihiko Tanaka(Shinshu Univ.)
- 17 Design and Characteristics Analysis of the Direct Drive Type Pneumatic Servo valve
Kwangsoo Kim(KIMM), Dong-Soo Kim(KIMM)
- 18 A Generic Inverse Kinematics Model for 5-Axis Machine of Two Orthogonal Rotation Axes
Bum-Sik So(Gyeongbuk Hybrid Technology Institute), Yoong-Ho Jung(Pusan Nat. Univ.)
- 19 An Analysis of the Main Factors on the Wear of Brushes for Small Brush-Typed DC Motor in the Automotive
Wae-Gyeong Shin(Yonsei Univ.), Soo-Hong Lee(Yonsei Univ.)

- 20 A dynamic Analysis on the Contaminant Particle Obliquely Collided with a Cryogenic Carbon Dioxide Particle
Juhong Lee(Chung-Ang Univ.), Pilkee Kim(Chung-Ang Univ.), Jongwon Seok(Chung-Ang Univ.)
- 21
- 22 Tooth Surface Temperature of Plastic Gears
Mikio Takahashi(Kisarazu Nat. College of Tech), Hideo Takahashi(Kisarazu Nat. College of Tech), Takao Koide(Tottori Univ.)
- 23 Improved Fuel Efficiency and Weight Reduction of the Standard Model for Low-Floor Bus in Korea
Yeon-Su Kim(KRRI), Jai-Kyun Mok(KRRI), Seky Chang(KRRI), Kyeong-Ho Moon(KRRI), and Song-Gyu Leem(KRRI)
- 24 Improved Crash Capacity by Impact Collapse Characteristics of CFRP hat-shaped Sectional Members
In-Young Yang(Chosun Univ.), Ju-Ho Choi(Chosun Univ.), Woo-Chae Hwang(Chosun Univ.)
- 25 Comparative Analysis of Axial and Bending of Strength and Stiffness of the hybrid member
Ji Hoon Kim(Chosun Univ.), Jung Min Bang(Chosun Univ.), Jung Ho Kim(Chosun Univ.), In Young Yang(Chosun Univ.)
- 26 Comparison with Mechanical Flexure Strength and Rigidity Basic of Al/CFRP Structure
In Young Yang(Chosun Univ.), Joo Yeung Jung(Chosun Univ.), Jung Ho Kim(Chosun Univ.), Ji Hoon Kim(Chosun Univ.)
- 27 Experimental Study on the Traction Performance of a Suction Roll
Soon-Oh Kwon(Sung-An Machinery Co), Keun-Chul Im(Sung-An Machinery Co), Jae-Won Lee(Sung-An Machinery Co), Jang-Hwan Lee(Sung-An Machinery Co)
- 28 Design and Analysis for the Articulated Car Body of the Bimodal Tram
Song-Gyu Leem(KRRI), Yeon-Su Kim(KRRI), Jai-Kyun Mok(KRRI), Se-Hyun Cho(Hankook Fiber Glass Co)
- 29 Strength Evaluation According to Axial Collapse of CFRP Hat Shaped Sectional Members under the Hygrothermal
Yong-Jun Yang(Chosun Univ.), In-Young Yang(Chosun Univ.)
- 30 Evaluation of Effect of Radial Loading in FRCM by Eddy Current Inspection
Cheol-Woong Kim(Korea Univ.), Min-Hyung Park(Korea Univ.), Yong-Hoon Shin(Korea Eddy Current and Ultrasonic Co), Jun-Young Cho(Korea Eddy Current and Ultrasonic Co), Yong-Bum Seo(Korea Eddy Current and Ultrasonic Co)

- 31 Measurement and Evaluation of the High Speed Rail with Rail Inspection Measurement System of HSR-350x
Sang-Soo Kim(Korea Railroad Research Institute), Choonsoo Park(Korea Railroad Research Institute), Sunghoon Choi(Korea Railroad Research Institute), Jinyong Mok(Korea Railroad Research Institute)
- 32 Prediction of the Resistance Coefficient in a Segment Ball Valve
Jin-Hwan Lee(Dong-A Univ.), Kwon-Hee Lee(Dong-A Univ.)
- 33 ECT Technology for Surface Defect Evaluation and DB Establishment for Gas Turbine Rotor
Yeon-Shik Ahn (KEPRI), Doo-Song Gil(KEPRI), Sang-Ki Park(KEPRI)
- 34 A New Method for Determining the Geometrical Errors in Rotary Axis of a Miniaturized Machine Tool Using Position Sensing Detectors and Laser Diode
Sung-Ryung Park(Kyungpook Nat. Univ.), Trung-Kien Hoang(Kyungpook Nat. Univ.), Seung-Han Yang(Kyungpook Nat. Univ.)
- 35 Eddy Current Inspection of Geometry of Defects in CFRP Tube
Cheol-Woong Kim(Korea Univ.), Min-Hyung Park(Triple-C Medical Corporation), Cheon-Woong Park(Korea Eddy Current and Ultrasonic Co), Yong-Hoon Shin(Korea Eddy Current and Ultrasonic Co), Hae-Young Seo(Korea Eddy Current and Ultrasonic Co)
- 36 Acoustic Sensitivity Measurements of PMN-PT Single Crystal Piezoelectric Cantilever Array
Shin Hur(KIMM), Sung-Q Lee(ETRI)
- 37 Acoustic Emission Monitoring for AFM Nano Scratching
Seoung Hwan Lee(Hanyang Univ.), Hanwoog Bae(Hanyang Univ.), Eunchul Hwang(Hanyang Univ.)
- 38 RBDO Using Convex Approximation and SORA Method
Tae-Min Cho(KAIST), Byung-Chai Lee(KAIST)
- 39 A Framework for a Product-service system of an Excavator front design with Knowledge- Based Engineering
Ilju Bae(Yonsei Univ.), Soo-hong Lee(Yonsei Univ.)
- 40 Amplitude and Phase Correction Method for Dynamic Measurements by Optical Lever AFM
Hiroshige Matsuoka(Tottori Univ.), Yoshitaka Shimizu(Tottori Univ.), Shigehisa Fukui(Tottori Univ.)
- 41 Tube-type ECF Pump
Joon-Wan Kim(Tokyo Institute of Technology), Toshiya Suzuki(Tokyo Institute of Technology), Shinichi Yokota(Tokyo Institute of Technology), Kazuya Edamura(New Technology Management Co. Ltd)
- 42 Paul Trapping for Microscopic Particle and Its Application for Crystal Growth
Yukitoshi Otani(Tokyo Univ. of Agriculture and Technology), Naoya Yoshizawa(Tokyo Univ. of Agriculture and Technology), Yasuhiro Mizutani(Tokyo Univ. of Agriculture and Technology)

- 43 Experimental Investigation of Ink Transfer in Gravure Printing Process Using Conductive Ink
Kyung Joon Han(Konkuk Univ.), Byung Joon Ahn(Konkuk Univ.), Sung Lim Ko(Konkuk Univ.)
- 44 Dielectric Patterning using Gravure Printing
Hun-Keun Chang(Samsung Electro-Mechanics Co), Yeo-Chan Yoon(Samsung Electro-Mechanics Co), Yoon-Heung Han(Samsung Electro-Mechanics Co), Dong-Ik Joo(Samsung Electro-Mechanics Co)
- 45 A Study on the Surface Shape of Ink in the Gravure Cell due to Clogging
Yun-Shick Eom(Konkuk Univ.), Kee-Hyun Shin(Konkuk Univ.)
- 46 The Effect of Surface Roughness on the Surface Energy of a Moving Web in R2R Printing Systems
Ho-Joon Kim(Konkuk Univ.), Chang-Woo Lee(Konkuk Univ.), Kee-Hyun Shin(Konkuk Univ.)
- 47 Nano-conductive Material for Printed Electronics
Cho Ho Souk(LS Cable Ltd), Yoon Jin Kim(LS Cable Ltd), Chang Mo Ko(LS Cable Ltd), Gun Joo Lee(LS Cable Ltd)
- 48 The Study of Laser Curing for Improving Conductivity of the Printed E-Ink
Ju-Seok Kim(Hanyang Univ.), Tae-Yeop Kim(Hanyang Univ.), Seung-Jae Moon(Hanyang Univ.), Jae-Heon Lee(Hanyang Univ.), Jun Young Hwang (KITECH), Kyungtae Kang(KITECH)
- 49 Analysis of Different Dripping Behavior in Electrostatic Integrated Deposition Inkjet Head
A. Rahman(Jeju Nat. Univ.), A. Ali(Jeju Nat. Univ.), B. S. Yang(Jeju Nat. Univ.), S. Khan(Jeju Nat. Univ.), N.N. Han(Jeju Nat. Univ.), Y.H. Doh(Jeju Nat. Univ.), K. H. Choi(Jeju Nat. Univ.)
- 50 Surface Treatment for Inkjet Printing by Atmospheric Plasma
Chang-Heon Yi(LG Electronics), Young-Jun Choi(LG Electronics), and Man-In Baik(LG Electronics)
- 51 The Implementation of Rotary Electrohydrodynamic(EHD) Inkjet Printing using Roll-to-Roll Process
Jin-Hyun Ahn(Konkuk Univ.), Vu Dat Nguyen(Konkuk Univ.), Hadi Teguh Yudistira(Konkuk Univ.), Kee-Hyun Shin(Konkuk Univ.), Do-Young Byun(Konkuk Univ.)
- 52 Meniscus Generation for Electrostatic Inkjet Printer
M.A.A. Rehmani(Jeju Nat. Univ.), K.H. Choi(Jeju Nat. Univ.)
- 53 One-touch Direct Writing Process for Thick Layers using High Viscous and Mesoscale Materials
Se-Ryoung Park(SeoKyong Univ.), Nam-Soo Kim(SeoKyong Univ.)
- 54 Ink-jet Printed SWCNT-polymer Channel TFT for RF-ID tags
Kwonwoo Shin(KETI), Yoon Han Jang(KETI, Sungkyunkwan Univ.), Dae Seup Shim(POSTECH), Jong Hun Han(KETI)

- 55 Development of Plate to Plate Gravure Offset Printing System
Taik-Min Lee(KIMM), Jae-Ho Noh(KIMM), Chung Hwan Kim(KIMM), Jeongdai Jo(KIMM), Dong-Soo Kim(KIMM)
- 56 RFID tag Antennas by Gravure-offset Printing
Chung Hwan Kim(KIMM), Byung-Oh Choi(KIMM), Byung Soon Ryu(KIMM), Kyu Jin Lim(KIMM), and Dong Soo Kim(KIMM)
- 57 Effects of Chip Bonding Condition on the Roll-to-roll Manufacturing Process of RFID Tag
Jun-Sik Lee(KITECH), Jun-Ki Kim(KITECH), Cheol-Hee Kim(KITECH), Mok-Soon Kim(Inha Univ.), Jong-Hyun Lee(Seoul Nat. Univ. of Technology)
- 58 Parameter Design in R2R Printing Process using Taguchi Method
Ho Anh Duc Nguyen(Konkuk Univ.), Changwoo Lee(Konkuk Univ.), Kee-Hyun Shin(Konkuk Univ.)
- 59 Cross Direction Register Error Modeling and Control in a Multi-layer Gravure Printing
Hyun-Kyoo Kang(Konkuk Univ.), Jae-Min Lee(Konkuk Univ.), Chang-Woo Lee(Konkuk Univ.), Kee-Hyun Shin(Konkuk Univ.)
- 60 Hybrid Dying on Roll to Roll Printing Process
Jiyong Park(Hanyang Univ.), Sehun Rhee(Hanyang Univ.)
- 61 Wrinkle Analysis of Web Material in Roll to Roll Printing
N. S. Kim(Konkuk Univ.), Chang-Wan Kim(Konkuk Univ.)
- 62 The Study of Register Error Considering Thermal Effect on R2R Process
Jae Ho Choi(Konkuk Univ.), Chang Woo Lee(Flexible Display Research Center), Hyun Kyoo Kang(Konkuk Univ.), Kee Hyun Shin(Konkuk Univ.)
- 63 LQG Precision Tension Control Using Dancer System for Production of Printed Electronics in R2R System:
Jin-Woo Seong(Konkuk Univ.), Hyun-Kyoo Kang(Konkuk Univ.), Kee-Hyun Shin(Konkuk Univ.)
- 64 Analysis of Deformation of Blanket Roller and Its Effect on Printing Quality
Kwangsoo Kim(KIMM), Chung Hwan Kim(KIMM), Dong Soo Kim(KIMM)
- 65 Development of Cantilever type Roll Printing Equipments for Printed Electronics
Dong-Soo Kim(KIMM), Myoung-Sub Kim(KIMM), Chung-Hwan Kim(KIMM), Byung-Oh Choi(KIMM)
- 66 Dynamic Characteristics Analysis of Desktop Micro Forming System
Yong Hong(Chonbuk Nat. Univ.), Yu-Gon Ko(Chonbuk Nat. Univ.), Dong-Pyo Hong(Chonbuk Nat. Univ.)

Poster Presentation (Chair: Taik-Min Lee, KIMM)
/ 13:10 - 14:00 June 26 (Friday)

- 101 Low Frequency Operating Strategy of PZT Type Energy Harvesting System
So-Nam Yun(KIMM), Dong-Gun Kim(KIMM), Jung-Ho Park(KIMM)
- 102 High Precision X-Y Stage for Production and Inspection Equipment of Organic Light-Emitting Diode Display
Myung-Jin Chung(Korea Polytechnic Univ.)
- 103 Position Tracking Improvement of Magnetostrictive Actuator by Cooling System and Thermal Analysis
Yong-Kil Kwak(Pusan Nat. Univ.), MD. Golam Mostofa(Pusan Nat. Univ.), Jin-Dong Hwang(Hyundai steel company), Sun-Ho Kim(Dong-Eui Univ.), Jung-Hwan Ahn(Pusan Nat. Univ.)
- 104 A Rotational Precision Stage Driven by Piezo Actuator based on Cartwheel- type Flexure Hinges
Kee-Bong Choi(KIMM), Jae Jong Lee(KIMM), Aleksey-Deson Ten(KIMM), Kook Won Ko(SunMoon Univ.)
- 105 Electromagnetic Design for Performance Improvement of a MR Valve
Do-Young Lee(Pusan Nat. Univ.), Yun-Joo Nam(Pusan Nat. Univ.), Ki-Han Kim(Pusan Nat. Univ.), R Yamane(Kokushikan Univ.), Myeong-Kwan Park(Pusan Nat. Univ.)
- 106 Kinematics and Optimization of a 2-DOF Parallel Manipulator with a Passive Constraining Leg and Linear Actuators
Myeong-Kwan Park(Pusan Nat. Univ.), Ji-Hoon Lee(Pusan Nat. Univ.), Yun-Joo Nam(Pusan Nat. Univ.)
- 107 Simultaneous Control of Motion and Stiffness of Redundant Closed-loop Link Mechanisms with Elastic Elements
Nobuyuki Iwatsuki(Tokyo Institute of Technology), Takanori Kotte(Toshiba Corporation), Koichi Morikawa(Tokyo Institute of Technology)
- 108 Substrate Effects of Megnetostrictive Thin Film on Magnetostriction for Micro Actuator
Heung-Shik Lee(Inha Univ.), Chongdu Cho(Inha Univ.)
- 109 A Novel Bearing with Piezoelectrically Position-controlled Permanent Magnets
Jung-Ho Park(KIMM), Dong-Won Yun(KIMM), So-Nam Yun(KIMM), Young-Bog Ham(KIMM)
- 110 Development of Angular and Axial Position Sensor for Rotional/Linear 2 Degrees-of-freedom Motor - Reduction of the Number of Photo Sensors -
Yasukazu Sato(Yokohama Nat. Univ.), Yuki Iwasaki(Yokohama Nat. Univ.)
- 111 Power-saving Drive of Giant-magnetostrictive Actuator
Yasukazu Sato(Yokohama Nat. Univ.), Keita Shinohara (Yokohama Nat. Univ.)

- 112 Control Performance of a Spherical Electromagnetic Motor
Noriyasu Masumoto(Nippon Institute of Technology), Kosuke Nozawa(Nippon Institute of Technology), Hiroki Takagi(Chichibu Railway Co., Ltd.), Shih-Hsuan Huang(Usun Technology Co., Ltd.)
- 113 Thermal Performance of Surface Treatment on Al Plate Heat Exchangers
Jong-Soon Kim(Pukyong Nat. Univ.), In-Kwan Kim(Pukyong Nat. Univ.), Tae-Ho Kang(Pukyong Nat. Univ.)
- 114 Improvement of Bonding Strength in Thermal Spray Coating Layer by Laser Treatment
Jin Hyo Park(Pusan Nat. Univ.), Min Su Ku(Pusan Nat. Univ.), Jeong Suk Kim(Pusan Nat. Univ.), Koo Hyun Lee(KIMS), Yo Seung Song(Hankuk Aerospace Univ.), Myung Chang Kang(Pusan Nat. Univ.)
- 115 Effect of Micro-scale Young's Modulus and Surface Roughness on Adhesion Property of Plasma Treated to Rubber Surface
Jong Hyoung Kim(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.), Mamoru Shimada(Nipro Corporation), Mitsuru Hasegawa(Nipro Corporation)
- 116 Coating Effect of Molding Core Surface for Aspheric Glass Lens
Hyun-Uk Kim(RIKEN), Gwang-Ho Kim(Chosun Univ.), Sang-Hwa Jeong(Chosun Univ.)
- 117 An Electrochemical Evaluation on Corrosion Resistance of Anti-Corrosive Paint
Kyung-Man Moon(Korea Maritime Univ.), Myung-Hoon Lee(Korea Maritime Univ.), Yun-Hae Kim(Korea Maritime Univ.), Sung-Yul Lee(Korea Maritime Univ.), Jin-Gyeong Kim(Korea Institute and Fisheries Technology)
- 118 Hardness Improvement of DLC films Deposited by Plasma CVD using Adamantane as Precursor Material
Shinichi Moroto(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.)
- 119 Friction Properties of Carbon Nitride Coatings in Inert Gas Atmosphere
Takeaki Sawaya(Tohoku Univ.), Pengfei Wang, Koshi Adachi(Tohoku Univ.)
- 120 Tribological Effect of Surface Texturing for Die Materials under Boundary Lubricated Conditions
Ki-Hyun Kim(Iwate Univ.), Akira Iwabuchi(Iwate Univ.), Michimasa Uchidate(Iwate Univ.)
- 121 Estimations of the Work Hardening Exponents of Engineering Metals using the Residual Indentation Profiles of Nano-indentation
Byungmin Kim(Pusan Nat. Univ.), Chanjoo Lee(Pusan Nat. Univ.), Jungmin Lee(Inter.Nat. Univ. of KOREA)
- 122 Surface Crack Propagation Analysis in Rail Head
Hyun-Kyu Jun(KRRI)

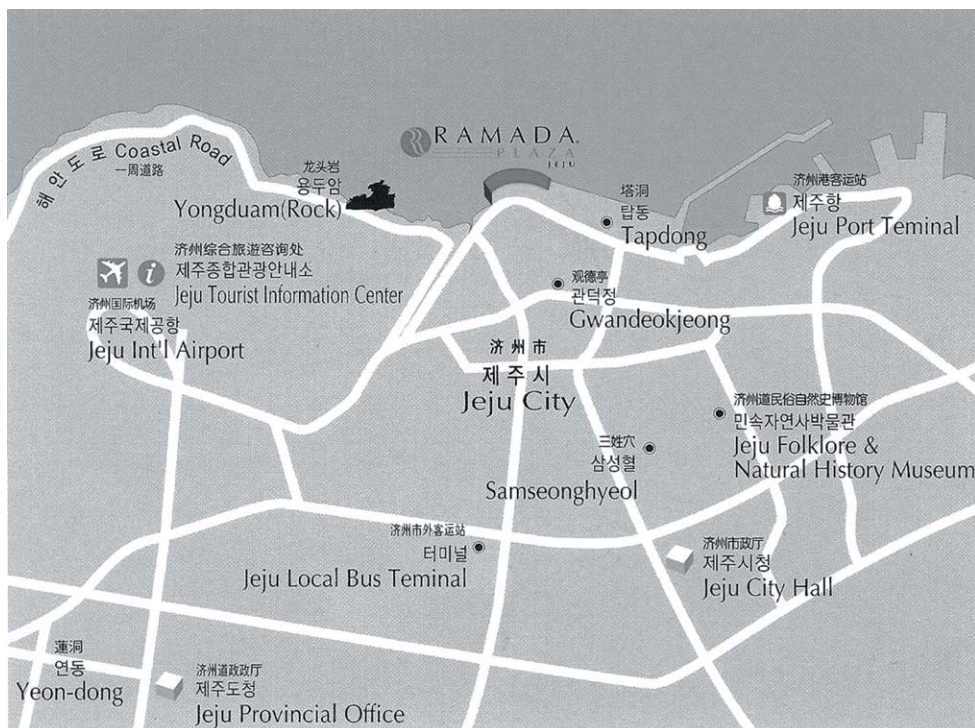
- 123 Measurement of Slip in Contact Area between Shoe Sole and Mating Floor during Walking
Tomoaki Iwai(Kanazawa Univ.), Ryuji Otsuka(Kanazawa Univ.), Yutaka Shokaku(Kanazawa Univ.)
- 124 Vibration Analysis of Plates with Spot Welded Stiffeners
Somer M. Nancy, Nabeel K. Alsaheb, Faiz F. Mustafa(Univ. of Baghdad)
- 125 Remote Laser Welding System
Hee-Shin Kang(KIMM), Jeong Suh(KIMM), Taik-Dong Cho(Chungnam Nat. Univ.)
- 126 Research on the Optimization of NCP Manufacturing and Flip Chip Bonding Processes for the improved Reliability of COB Package
So-Jeong Lee(KITCH), Jun-Ki Kim(KITCH), Cheol-Hee Kim(KITCH), Ji-Hwan Lee(Inha Univ.)
- 127 Evaluation of Corrosion Property on Repair Welding Zone of Exhaust Valve by Plasma Transferred Arc Welding Method
Kyung-Man Moon(Korea Maritime Univ.), Myung-Hoon Lee(Korea Maritime Univ.), Yun-Hae Kim(Korea Maritime Univ.), Sung-Yul Lee(Korea Maritime Univ.), Young-Sik Kim(Korea Maritime Univ.)
- 128 Hot Forging Analysis of Al6061 Swash Plate for Unmanned Helicopter
Ki-Sung Kim(Donggeui Univ.), Ok-Young Lee(Donggeui Univ.), Hong-Tae Yeo(Oneseen Sky Tec Co), Kwan-Do Hur(Donggeui Univ.)
- 129 Evaluation of Design Parameters for Optimizing the Cooling Channel by FE-analysis in Hot Press Bending Process
Ki-Ju Nam(Pusan Nat. Univ.), Hong-Seok Choi(Pusan Nat. Univ.), Dae-Cheol Ko(Pusan Nat. Univ.), Byung-Min Kim(Pusan Nat. Univ.)
- 130 Parameter Study on Mechanical Clinching Process for Joining of Aluminum Alloy and High Strength Steel Sheets
Chan-Joo Lee(Pusan Nat. Univ.), Jae-Young Kim(Pusan Nat. Univ.), Sang-Kon Lee(Pusan Nat. Univ.), Dae-Cheol Ko(Pusan Nat. Univ.), Byung-Min Kim(Pusan Nat. Univ.)
- 131 Redesign of Vertical Roller Mill using Artificial Neural Networks
Dong-Woo Lee(Dong-A Univ.), Won-Sik Joo(Dong-A Univ.), Seok-Swoo Cho(Kangwon Nat. Univ.)
- 132 Deformation Behavior of Commercial Mg-Al-Zn-Mn Type Alloys under the Hydrostatic Extrusion Process at Elevated Temperatures
Sangmok Lee(KITECH), Duk-Jae Yoon(KITECH), Seong-Joo Lim(KITECH), Eung-Zu Kim(KITECH)
- 133 A Design of Side Guide to Reduce Camber Due to Variation of Temperature in Width Direction during Hot Bar Rolling
S.M. Byon(Dong-A Univ.), J.H. Lee(Dong-A Univ.), Y. Lee(Chung-Ang Univ.)

- 134 Evaluation of the Mechanical and Dimensional Properties of Hot Press Bended Part by Direct and Indirect Method
Hong-Seok Choi(Pusan Nat. Univ.), Ki-Ju Nam(Pusan Nat. Univ.), Dae-Cheol Ko(Pusan Nat. Univ.), Byung-Min Kim(Pusan Nat. Univ.)
- 135 The Tool Wear Characteristics of Ball End Mill in High-speed Machining of Titanium Alloy Ti-6Al-4V
Hae-woong Kwon(Pusan Nat. Univ.), Ik-Soo Kang(Pusan Nat. Univ.), Jeong-Suk Kim(Pusan Nat. Univ.), Ki-Tae Kim(Hwacheon Machine Tool Co), Sung-Jun Moon(Hwacheon Machine Tool Co)
- 136 Quality Changes of Water-soluble Coolant with Running Time
Kenji Yamaguchi(Yonago Nat. College of Technology), Yasuo Kondo(Tottori Univ.), Satoshi Sakamoto(Shimane Univ.), Shu Kohira(Yonago Nat. College of Technology), Masahiro Morita(Yonago Nat. College of Technology)
- 137 An AE Monitoring of Machined Surface Shape in Micro Cutting using Single Crystal Diamond Tool
Ik-Soo Kang(Pusan Nat. Univ.), Jeong-Min Seong(Pusan Nat. Univ.), Jeong-Suk Kim(Pusan Nat. Univ.), Myung-Chang Kang(Pusan Nat. Univ.)
- 138 Cutting Dynamics in Diamond Turning
Minsung Hong (Ajou Univ.), Moongu Lee(Ajou Univ.), Kyungnam Kim(Northwestern Univ.), Kornel F. Ehmman(Northwestern Univ.)
- 139 Experimental Results for Aspect Ratio Limit in V-groove Micromachining
Hyun-Chul Kim(Inje Univ.)
- 140 Development of New Deburring Tool for Intersecting Hole.
Thien-Phuong Ton(Konkuk Univ.), Sung-Lim Ko(Konkuk Univ.)
- 141 Wear Behavior of Fe-based Bulk Metallic Glass
Beom-Taek Jang(Kyungpook Nat. Univ.), Seong-Hoon Yi(Kyungpook Nat. Univ.), Seock-Sam Kim(Kyungpook Nat. Univ.)
- 142 Friction and Wear Characteristics of the Gold-Alloy Dental Prosthesis
Won-Sik Choi(Pusan Nat. Univ.), Noritsugu Umehara(Nagoya Univ.), Soon-Hong Kwon(Pusan Nat. Univ.), Sung-Won Chung(Pusan Nat. Univ.), Soon-Gu Kwon(Pusan Nat. Univ.), Jong-Min Park(Pusan Nat. Univ.), Hak-Jin Kim(Pusan Nat. Univ.), Won-Ku Kim(Pusan Nat. Univ.)
- 143 Friction-Stiffness Map of Various Semiconductor Material Surfaces in Contact with A Colloidal Particle
In-Ha Sung(Hannam Univ.), Hung-gu Han(KIST), Hosung Kong(KIST)
- 144 Experimental Study for Wear Volume of DCI Roll for One High Carbon Steel and Two Alloying Steels
S.M. Byon(Dong-A Univ.), D.H. Kim(InterNat. Univ. of Korea), Y. S Lee(Chung-Ang Univ.)

- 146 Development of a High Temperature Impact-Fretting Test Rig for Understanding of Erosion by Liquid Droplet Impingement
Michimasa Uchidate(Iwate Univ.), Akira Iwabuchi(Iwate Univ.), Keisuke Kato(Iwate Univ.), Hitoshi Yashiro(Iwate Univ.), Arisa Hirayama(Iwate Univ.)
- 147 Analysis and Prevention of Polygonal Wear on Roll Covered with Rubber
Kazuteru Nagamura(Hiroshima Univ.), Kiyotaka Ikejyo(Hiroshima Univ.), Toshio Ueno(Shin Nippon Machinery Co., Ltd.), Yoshitake Kobayashi(Kobe Steel)
- 148 Simulation Results of a Hexahedron-Octahedron Based Spherical Stepping Motor
Tomoaki Yano(Nat. Institute of Advanced industrial Science and Technology)
- 149 Study on Gas Foil Journal Bearings Supported by Visco-elastic Material
Yuki Katayama(Tokyo Univ. of Science), Shigeka Yoshimoto(Tokyo Univ. of Science), Masaaki Miyatake(Tokyo Univ. of Science)
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- 151 Electrical Discharge Machining of Micro Grooves for a Polycrystalline Diamond Scribing Wheel
Gil Ham(Sunchon Nat. Univ.), Huinam Rhee(Sunchon Nat. Univ.)
- 152 Effect of Manufacturing Process on Mechanical Properties of GFRP Laminates
Joong-Suk Kook(Daebul Univ.), Jong-Hee Yim(Small and Medium Business Administration), Tadaharu Adachi(Toyohashi Univ.)
- 153 Proposal of Eco-friendly Slicing Method for Multi-Wire Sawing
Satoshi Sakamoto(Shimane Univ.), Yasuo Kondo(Tottori Univ.), Hiroshi Usuki(Shimane Univ.), Kenji Yamaguchi(Yonago National College of Technology), Hiroki Katta(Shimane Univ.), Akira Nagae(Shimane Univ.)
- 154 Study on Optimizing Method for Pitting Process Regarding Sustainability as Important Factor
Ryuichi Saito, Hiroki Yamakiri, Tsuneo Kurita, Shinsuke Kondo, Nozumu Mishima, Shinya Sasaki(Tokyo Univ. of Science)
- 155 Micro Electrical Discharge Drilling of Tungsten Carbide Using Deionized Water
Ki Young Song(Seoul Nat. Univ.), Do Kwan Chung(Seoul Nat. Univ.), Min Soo Park(Wonkwang Univ.), Chong Nam Chu(Seoul Nat. Univ.)
- 156 Application and Performance Evaluation in the SLS Process Using the Digital Mirror System
Sung Woo Bae(KIMM), Dong Soo Kim(KIMM), Seong Yeon Yoo(Chungnam Nat. Univ.)

- 157 Micro Machining of Glass by Electrochemical Discharge Machining
Xuan Doan Cao(Seoul Nat. Univ.), Bo Hyun Kim(Andong Nat. Univ.), Hong Shik Shin(Seoul Nat. Univ.), Do Kwan Chung(Seoul Nat. Univ.), Young Tak Oh(Ansan College of Technology), Chong Nam Ch(Seoul Nat. Univ.)
- 158 Effect of Contact Conditions on the Variation of a Fuel Rod Motion in Nuclear Fuel Fretting failures
Young-Ho Lee(KAERI), Kang-Hee Lee(KAERI), Hyung-Kyu Kim(KAERI)
- 159 A Study on Wear Characteristic of Al203/AC8A Composite Applied to Low-Pressure Infiltration Process
JongWon Choi(Gyeongsang Nat. Univ.), HyunJun Lee(Gyeongsang Nat. Univ.), Huawei Rong(Gyeongsang Nat. Univ.), SunChul Huh(Gyeongsang Nat. Univ.), WonJo Park(Gyeongsang Nat. Univ.)
- 160 A Study on the Friction and Wear Characteristic of the C-N and TiN Coated Gear
Long Lu(Huaihai Institute of Technology), Sungki Lyu(Gyeongsang Nat. Univ.), Huibo He(Gyeongsang Nat. Univ.), Qi Zhang(Gyeongsang Nat. Univ.), Sungmin Moon(Gyeongsang Nat. Univ.)
- 161 Process Characteristics of Nickel/AC8A Metal Matrix Composites by Low-Pressure Infiltration Process
HyunJun Lee(Gyeongsang Nat. Univ.), Jiang Jun(Gyeongsang Nat. Univ.), SungHo Park(Gyeongsang Nat. Univ.), SunChul Huh(Gyeongsang Nat. Univ.), WonJo Park(Gyeongsang Nat. Univ.)
- 162 A Study on the Thermal Characteristics in Considering the Forced Convection for the Machining Unit of High Speed Worm Cutting Machine
Jae-Hwan Son(Daegu Machinery Institute of Component & Materials Foundation), Chang-Soo Kim(ENPLA Co), Choon-Young Lee(Kyungpook Nat. Univ.), Sang-Ryong Lee(Kyungpook Nat. Univ.), Chang-Woo Han(YeoungNam College of Science & Technology)

Map of Ramada Plaza Jeju Hotel



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Tokyo Office

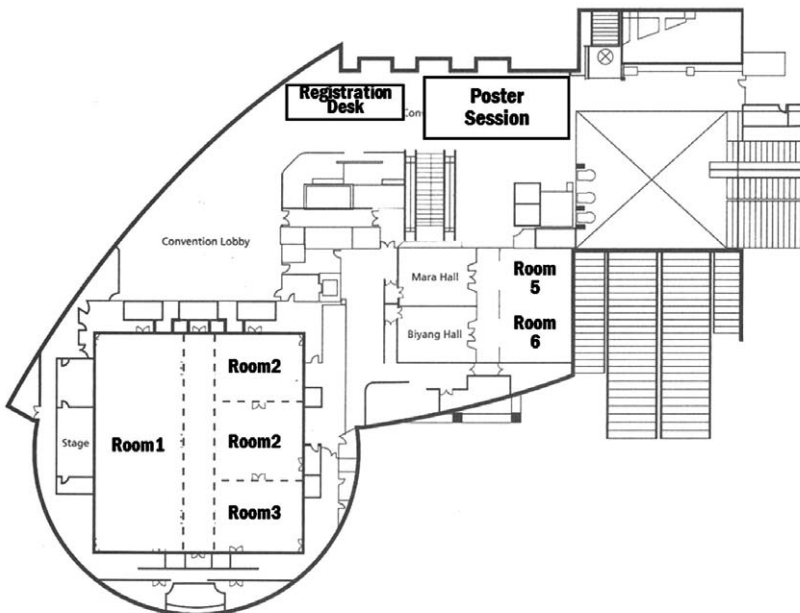
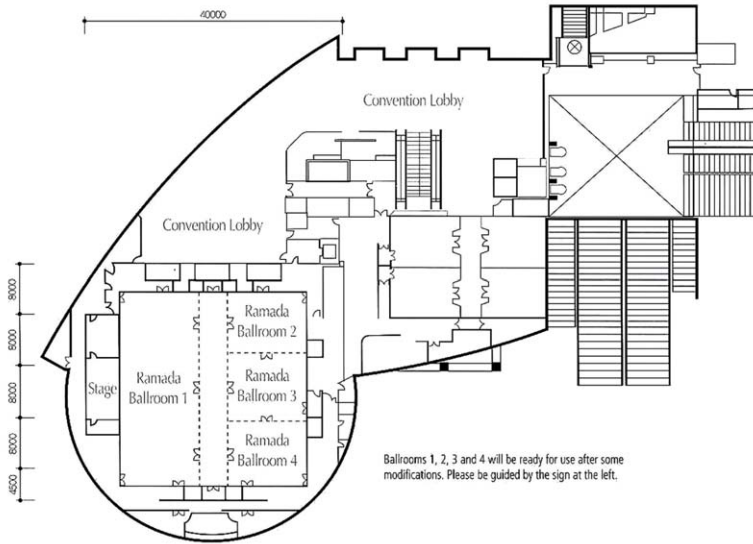
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ICMDT 2009 Floor Plan

Ramada Grand Ballroom - 2F



ICMDT 2009 Tour Programs (Date : 25~26th, June)



WELCOME to JEJU !!

We have prepared the optional tours for participants in ICMDT 2009.



The price of Optional tour (You have to reserve! If the number of the pre-booked tourist are less than 15 people, the tour program will be cancelled.)

Tour Program	(A) U-DO Island	(B) Jeju folk	(C) Well-being (UNESCO)	The number of persons (min)
Fee (p/p)	krw60,000	krw60,000	krw75,000	10
Remark	I) The price is included entrance fee, Transfer, English guide. ((C)course:Lunch) II) Reservation deadline : 12 th . Jun. III) If it is not enough persons untill 12 th . Jun, it will be to add the cost or to cancel .			

※ Tour schedule will be changed due to the local situations.

- Payment : You have to pay the tour fee by only cash at the tour desk on 25th. Jun. (USD or KRW)
- Tour Start : You should take-on the vehicle which is attached the tour course (A,B,C) at the front of Ramada Plaza hotel on tour day.

SMc&T

Reservation deadline is 10th, June. Please complete and return this form to
 Tel : 82-2-737-1616 Fax:82-2-737-1182 E-mail : sssm1959@hanmail.net

Optional Tour A : Island Course "U-DO"



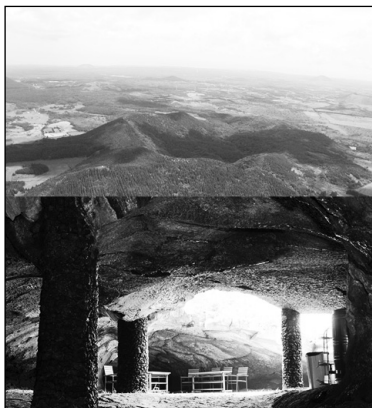
- ▷ 13:00 "Depart from Ramada Hotel"
- ▷ 14:40 ~ 16:00 "U-DO (Island)"
The island was named "Udo" or "Cow Island" as its contours look like a cow lying down on the ground. There are 8 scenic wonders of Udo.
- ▷ 16:30 ~ 17:20 "Nymph & Namuggun Theme Park"
- ▷ 18:00 "Arrive at Ramada Hotel"

Optional Tour B : Jeju East Course "FOLK"



- ▷ 13:00 "Depart from Ramada Hotel"
- ▷ 14:00 ~ 15:00 "Seonsan Sunrise Bong"
99 rocky peaks surround the crater like a fortress and the gentle southern slope connected to water is a lush grassland.
- ▷ 15:50 ~ 17:10 "Pyoseon folk tourism complex "
Folk culture of a nation is the spirit of its people. It transforms and adapts to the age and environment and is transmitted through generations.
- ▷ 18:00 "Arrive at Ramada Hotel"

Optional Tour C : Jeju Well-being Course "UNESCO"



- ▷ 09:00 "Depart from Ramada Hotel"
- ▷ 10:00 ~ 12:30 "Geomun Oreum" (UNESCO)
The eroded valley of lava that erupted from the middle of the crater is the largest on Jeju Island.
- ▷ 12:40 ~ 13:40 Lunch 'Bean curd casserole'
- ▷ 13:50 ~ 16:00 "Cave Café & Green tea field"
- ▷ 16:30 ~ 17:20 "Haenyeo(a Woman diver) Museum"
- ▷ 18:00 "Arrive at Ramada Hotel"



