

June 29 (Thursday), 15:40~16:40

Design and Products 1 (Machinery)		300A (3Floor)
15:40-16:40	<b>PP001</b> 399	<b>Study on the Effects of Friction Force in Dynamic Analysis of Four - axis Machine Tool by the Lagrange Energy Method</b> Pham Van Dinh(Korea University of Science and Technology), Chan Hong Lee(Korea Institute of Machinery and Materials), Chang Kyu Song(Korea Institute of Machinery and Materials)
	<b>PP002</b> 474	<b>A study on the fabrication of slot-die coater using PDMS-glass</b> Seongyong Kim(Changwon National University), Changwoo Lee(Changwon National University)
	<b>PP003</b> 175	<b>A Study on the Tool Wear Experiment according to Cutting Tool Materials in Induction-Assisted Machining</b> Eunjung Kim(Changwon National University), Choon-Man Lee(Changwon National University)
	<b>PP004</b> 234	<b>A Study on the Stability Evaluation of an Whirling Machine for Ball Screw machining</b> In-Jae Lee(Changwon National University), Choon-Man Lee(Changwon National University), Sung-Ho Moon(Changwon National University), Young-Hun Lee(Changwon National University), Hyun-Ku Kim(TIC Ballscrew Co., Ltd)
	<b>PP005</b> 301	<b>A Study on the Development of a Test bench for performance evaluation of Ball screws</b> Jung Hoon Lee(Changwon National University), Choon-Man Lee(Changwon National University), Eun Jung Kim(Changwon National University), Hyunku Kim(TIC)
	<b>PP006</b> 291	<b>Noise and Vibration Measurements for a Ball screw</b> Min Jeong Kim(Changwon National University), Choon-Man Lee(Changwon National University), Ga Bin Kim(Changwon National University)
	<b>PP007</b> 292	<b>An analytical Study on the Development of a Cold Forming Process for an Upper Seat Track of Vehicles using UHSS</b> Sang-Seok Seol(Changwon National University), Won-jung Oh(Changwon National University), Young-Ho Choi(Changwon National University), Jun-Hwan Kim(Changwon National University)Choon-Man Lee(Changwon National University)
	<b>PP008</b> 271	<b>A Study on High-Precision Feed Drive for Accurate Artificial Intelligence Machining Center</b> Sungki LYU(Gyeongsang National University), Zhezhu XU(Gyeongsang National University), Hyungyung Kim(Gyeongsang National University), Minhyung Jeon(Gyeongsang National University), Zin Zin(Gyeongsang National University)
	<b>PP009</b> 306	<b>A Study on the Structural analysis for the Gear module of an Whirling machine for Ball screws</b> Sung-Woo Shin(Changwon National University), Choon-Man Lee(Changwon National University), Eun-Jung Kim(Changwon National University), Sung-Ho Moon(Changwon National University), Hong-Man Moon(DUCK HEUNG CO., LTD)
	<b>PP010</b> 172	<b>A Study on the NC Code Generation Algorithm for Rotary Laser Module Control of Laser Assisted Machining</b> Won-Jung Oh(Changwon National University), Choon-Man Lee(Changwon National University)

15:40-16:40	<b>PP011</b>	348	<b>Evaluation and development of overlay welding automation system for inside surface of small pipe</b> Young Cheol Jeong(Changwon National University), Young Tae Cho(Changwon National University), Yoon-Gyo Jung(Changwon National University)
	<b>PP012</b>	333	<b>Development of sap flow measurement system based on granier's method</b> Jin Gi Shin(Changwon National University), Sang Eun Song(Changwon National University), Yoon- Gyo Jung(Changwon National University), Young Tae Cho(Changwon National University)
	<b>PP013</b>	263	<b>A Basic Study on the Development of a computerized program for Remanufacturing process of Vertical Machining Centers</b> Young-Hwa Roh(Changwon National University), Choon-Man Lee(Changwon National University), Wan-Sik Woo(Changwon National University), Jae-Hyeon Ha(Changwon National University), Dong-Gun Kim(INTECH CO., LTD.)
	<b>PP014</b>	309	<b>Comparison of anti-wear performance of TiN and WC/TiN Coating Prepared by Arc Ion Plating and magnetron sputtering</b> YUNKON JOO(Changwon National University), JEHYUN LEE(Changwon National University)
	<b>PP015</b>	246	<b>Solidification process and microstructure formation by temperature gradient in single crystal superalloy</b> Changhoon Sung(Changwon National University), Jehyun Lee(Changwon National University)
	<b>PP016</b>	227	<b>Controllable lateral thickness of water droplet by tension control in roll-to-roll systems</b> Dongguk Kim(Changwon National University), Changwoo Lee(Changwon National University)
	<b>PP017</b>	392	<b>Machining Process Optimization for Curvic Tooth of Gas Turbine Rotor</b> DukWon Hur(Changwon National University), Yoen Ho Jeong(Changwon National University), YoonGyo Jung(Changwon National University), Young Tae Cho(Changwon National University)
	<b>PP018</b>	176	<b>A Basic Study on the Machining Characteristics of Laser-Induction Assisted Milling by High-Speed Machining</b> Jae-Hyeon Ha(Changwon National University), Choon-Man Lee(Changwon National University), Yea-Jin Yang(Changwon National University), Chimeg Khulan(Changwon National University)
	<b>PP019</b>	497	<b>A Study on the Effect of Residual Stress Formation by Seal Weld Repair in the Nuclear Power Plant CEDM Nozzle</b> Jong Ho Kang(Changwon National University), Hyun Min Choi(Changwon National University), Yoon Gyo Jung(Changwon National University), Young Tae Cho(Changwon National University)
	<b>PP020</b>	512	<b>Measurement of surface and thickness of optical parallel plate using wavelength tuning</b> YANGJIN KIM(Pusan National University), Naohiko Sugita(The University of Tokyo), Mamoru Mitsuishi(The University of Tokyo)

Design and Product 2		300A (3Floor)	
15:40-16:40	PP021	439	<b>Optimization and Experimental study of Design parameters in Linear Motion Stages</b> Gyungho Khim(Korea Institute of Machinery and Materials), Sung-Hyun Jang(Korea Institute of Machinery and Materials), Chun-Hong Park(Korea Institute of Machinery and Materials)
	PP022	039	<b>Detachable electric button for smart fabrics</b> Kang-Ho Lee(Korea Institute of Machinery and Materials), Ju Young Cha(Korea Institute of Machinery and Materials), Dongkyu Lee(Korea Institute of Machinery and Materials), Ohwon Kwon(Korea Institute of Machinery and Materials), Yongkoo Lee(Korea Institute of Machinery and Materials)
	PP023	508	<b>Interim-check and Volumetric Accuracy Improvement of a Coordinate Measuring Machine by Double Ball-bar Measurement on a Virtual Tetrahedron</b> Seung-Han YANG(Kyungpook National University), Hoon-Hee LEE(Kyungpook National University), Kwang-Il LEE(Kyungil University)
	PP024	362	<b>A Study on the Formability for the Ship Coupling in Profile Ring Rolling Process</b> Bae Sunmin(Gyeongsang National University), Kim Donghwan(International University of Korea)
	PP025	265	<b>Additional axis Design for increasing productivity</b> Junyoung Kim(Korea University), Daehie Hong(Korea University), Byunggon Kim(Korea University), Wanjin Kim(Korea University), Seongyong Park(MS AUTOTECH Co. Ltd), Wonik Eom(MS AUTOTECH Co. Ltd), Seok-hong Oh(Hae Won ENG), Kee-Jin Park(DAEGU MECHATRONICS & MATERIALS INSTITUTE)
	PP026	441	<b>Design of the Lightweight Seat Back Frame for Automobile by using FEM</b> Jun Young Yim(Chonbuk National University), Hee Yong Kang(Chonbuk National University), Jung Cheol Yoo(SH Global), Sung Mo Yang(Chonbuk National University)
	PP027	407	<b>Analysis of sound radiation by a vibrating rectangular bucket structure under impact force</b> Young-Hyu Choi(Changwon National University), Min-Gyu Kang(Changwon National University), Chang-Uk Kim(Changwon National University)
	PP028	183	<b>Automatic Design of Porous Shell Structures for Additive Manufacturing</b> Yeong Eun Lim(Seoul National University of Science and Technology), Keun Park(Seoul National University of Science and Technology)
	PP029	230	<b>Failure Diagnosis and Prognosis of a Paper Cup Forming Machine based on Condition Data Analysis</b> Jaeho Jang(Kumoh National Institute of Technology), Soelha Kim(Kumoh National Institute of Technology), Baeksuk Chu(Kumoh National Institute of Technology)
	PP030	429	<b>A study of the failure mode and mechanism analysis for the wall mounted elevator of a lighting device</b> Gi-Chun Lee(Korea Institute of Machinery and Materials), Yong-Bum Lee(Korea Institute of Machinery and Materials), Jong-Won Park(Korea Institute of Machinery and Materials), Cheong-Kwang Yang(Korea Institute of Machinery and Materials), Tae-Su Lee(NT Bank Co., LTD), Tae-Won Lee(Kumoh National Institute of Technology)

15:40-16:40	<b>PP031</b>	207	<b>Durability Evaluation of Electrochromic window fabricated by Nano-Particle Deposition System (NPDS)</b> Jang-Yeob Lee(Seoul National University), In-Gyu Choi(Seoul National University), Hyungsub Kim(Hanyang University), Caroline Sunyong Lee(Hanyang University), Sung-Hoon Ahn(Seoul National University), Won-Shik Chu(Seoul National University)
	<b>PP032</b>	240	<b>Characterization of Thermal Aging Behavior of Rubber by Using Oxygen Consumption Rates</b> Sun Young Lee(Chungnam National University), Chun Su Kim(Chungnam National University), Woo Jin Oh(Chungnam National University), Seung Goo Lee(Chungnam National University)
	<b>PP033</b>	142	<b>Experimental Study for Achieving the Minimum Gear Profile Errors Based on Particle Swarm Optimization</b> Jiang Han(Hefei University of Technology), Bin Yuan(Hefei University of Technology), Lulu Wu(Hefei University of Technology), Xiaoqin Tian(Hefei University of Technology), Lian Xia(Hefei University of Technology)
	<b>PP034</b>	134	<b>A Study on Cost-Benefit Analysis of Photovoltaic system for the Private and Public Rental Apartments</b> Jihun Choi(Hanyang University), Sung-Yul Kim(Keimyung University), Ju Lee(Hanyang University)
	<b>PP035</b>	427	<b>SMA-based Soft Gripper for Adaptable and Effective Grasping</b> Wei Wang(Seoul National University), Min-Woo Han(Seoul National University), Hyung-Bin Park(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	<b>PP036</b>	349	<b>Pouch-based Soft Twisting Actuator</b> Christine Heera Ahn(Sungkyunkwan University/ YISS), Hugo Rodrigue(Sungkyunkwan University)
	<b>PP037</b>	261	<b>Development of the Mirror Therapy Robot based on Air Pocket-type actuator for Hemiplegic Patients</b> Juseon Yoon(Handong University), Young Chan Kim(Handong University), Mi Ju Kim(Handong University), Jae Hyo Kim(Handong University)
	<b>PP038</b>	307	<b>Design of the Regression Model for Grasping Pattern and Grip Force Intensity of Myoelectric Prosthetic Hand for Upper-Limb Amputees</b> Woorim Cho(Handong University), Jiho Noh(Handong University), Jinuk Kim(Handong University), Jaehyo Kim(Handong University)
	<b>PP039</b>	193	<b>A Study on the Forming Analysis of Upper Seat Track using Ultra-High Strength Steel</b> Jun-Hwan Kim(Changwon National University), Choon-Man Lee(Changwon National University)
	<b>PP040</b>	488	<b>A Vibration-Based Algorithm for Mechanical Components Fault Diagnosis using EMD and SVM</b> Kyungho Lee(Changwon National University), Changwoo Lee(Changwon National University), Sunghwa Cho(Changwon National University)

Materials 1		300A (3Floor)	
15:40-16:40	PP041	321	<b>Physical and Mechanical Properties of Plasticized Butenediol Vinyl Alcohol Copolymer/Thermoplastic Starch Blend</b> Bich Nam Jung(Korea Institute of Industrial Technology), DongHo Kang(Korea Institute of Industrial Technology), Jin Kie Shim(Korea Institute of Industrial Technology), Sung Wook Hwang(Korea Institute of Industrial Technology)
	PP042	344	<b>Influence of solid solution hardening by homogenization on mechanical properties of as-hot rolled Al-3.5~7.5Mg-0.3~1.0Mn alloys</b> Bong-Hwan Kim(Korea Institute of Industrial Technology), Ji-Young Lee(Korea Institute of Industrial Technology), Seung-Yoon Yang(Korea Institute of Industrial Technology), Seong-Ho Ha(Korea Institute of Industrial Technology), Young-Ok Yoon(Korea Institute of Industrial Technology), Shae K. Kim(Korea Institute of Industrial Technology)
	PP043	094	<b>Synergy effect of Cu introduction into SnO<sub>2</sub> sorbent for COS removal</b> Byeong Sub Kwak(Yeungnam University), No-Kuk Park(Yeungnam University), Jin Pyo Hong(Korea Electric Power Research Institute), Misook Kang(Yeungnam University)
	PP044	394	<b>Synthesis of Sn-modified Titania Nanotube via Different Tin Compounds Treatment</b> Cheng-Yen Tsai(National Taiwan University), Chen-Wuing Liu(National Taiwan University), Li-Chi Lai(National Taiwan University), Yi-Wen Lin(National Taiwan University)
	PP045	405	<b>A Study on Cu/Zn Diffusion Annealing Layer by Heat Treatment for Steel Core Electrical Discharging Machining Wire</b> Deokhyun Han(Institute for Advanced Engineering), Hyunseok Yang(Institute for Advanced Engineering), Woochul Jung(Institute for Advanced Engineering)
	PP046	404	<b>Influence of heat treatment on microstructures and mechanical properties of the high-strength heat-resistant Mg-3.0Nd-1.5Gd-0.5Zn-0.5Zr magnesium alloy</b> Liang Zhan(Shenyang Research Institute of Foundry), Zhijun Feng(Shenyang Research Institute of Foundry), Hongshun Jiang(Shenyang Research Institute of Foundry), Bo Xu(Shenyang Research Institute of Foundry)
	PP047	023	<b>Effect of Ca on Oxidation Behavior of Zn-Mg alloy Coating Bath</b> Shae K. Kim(Korea Institute of Industrial Technology), Seong-Ho Ha(Korea Institute of Industrial Technology), Nam-Seok Kim(Inha University), Young-Ok Yoon(Korea Institute of Industrial Technology), Hyun-Kyu Lim(Korea Institute of Industrial Technology)
	PP048	492	<b>Nanoclay-reinforced Plasma-treated Glass Fiber/Polyamide 6 Composites</b> Byeong-Joo Kim(Ulsan National Institute of Science and Technology), Young-Bin Park(Ulsan National Institute of Science and Technology)
	PP049	479	<b>Thermal properties of polyketone fiber/epoxy composites based on epoxy resin modified by phosphoric acid</b> Hani Jo(Chungnam National University), Seung Goo Lee(Chungnam National University), Jee-Woo Yang(Chungnam National University), Seo Bin Eom(Chungnam National University), Won Gi Jo(Chungnam National University), Hyeon Soo Lim(Chungnam National University)

15:40-16:40	PP050	284	<b>Exploring Stable Structure of Solute Cluster in Al-Si Based Alloys by using First Principles Calculation and Kinetic Monte Carlo Method</b> Hiroshi Mito(Hiroshima University), Kenjiro Sugio(Hiroshima University), Yongbum Choi(Hiroshima University), Gen Sasaki(Hiroshima University)
	PP051	057	<b>Fracture Behavior of the Compact Tension Specimens of Structural Steel and CFRP Composite with Holes</b> Jaewoong Park(Kongju National University), Jae Ung Cho(Kongju National University), Guiping Zhao(Xi'an Jiaotong University)
	PP052	256	<b>The Effects of Surface Treatment on Polyketone Fabric for Polyurethane Coating</b> Jee-Woo Yang(Chungnam National University), Hani Jo(Chungnam National University), Seo Bin Eom(Chungnam National University), Seung Goo Lee(Chungnam National University)
	PP053	082	<b>A Comparative Study on Mechanical Properties of CFRTS and CFRTP Using Polyamide6</b> Jihoon Hwang(Pusan National University), Minsik Lee(Pusan National University), Chunggil Kang(Pusan National University)
	PP054	070	<b>a study on comparison and formability of direct and indirect drawing by using theoretical and experimental result</b> Ji-Seong Lim(Pusan National University), Chung-gil Kang(Pusan National University)
	PP055	487	<b>Effect of Short Glass Fiber and <math>\beta</math>-Nucleating Agent on Mechanical Properties and Crystallization Behavior of Polypropylene / Glass Fiber Composites</b> Jong Sung Won(Chungnam National University), Chun Su Kim(Chungnam National University), Jong Hyeon Park(Chungnam National University), Seon Woong Koo(Chungnam National University), Seung Goo Lee(Chungnam National University)
	PP056	353	<b>Study on Fast Cure Behavior of Epoxy Resins with curing Agent and Accelerator</b> JongHyeon Park(Chungnam National University), Chun Su Kim(Chungnam National University), Song Hee Kang(Chungnam National University), Jin Wook Jeong(Chungnam National University), SeungGoo Lee(Chungnam National University)
	PP057	108	<b>Investigation of electrical property of PEDOT:PSS/CNT sheet composite films</b> Ju Hyeon Kim(Inha University), Tae June Kang(Inha University)
	PP058	058	<b>A Study on Static Fracture Property of DCB and TDCB Aluminum Foam Specimens for Type of Mode III due to Specimen Thickness</b> Jung Ho Lee(Kongju National University), Jae Ung Cho(Kongju National University), Guiping Zhao(Xi'an Jiaotong University)
	PP059	281	<b>Evaluation of Interfacial Thermal Resistance of Al-SiC Composites by Using Image-based Calculation</b> Keisuke Kono(Hiroshima University), Sugio Kenjiro(Hiroshima University), Yongbum Choi(Hiroshima University), Gen Sasaki(Hiroshima University)
PP060	285	<b>Microstructure control of TiB<sub>2</sub> particle dispersed steel composites</b> Koki Tominaga(Hiroshima University), Gen Sasaki(Hiroshima University), Kazunari Noguchi(Hiroshima University), Kenjiro Sugio(Hiroshima University), Yongbum Choi(Hiroshima University), Kazuhiro Matsugi(Hiroshima University)	

Materials 2		300A (3Floor)
15:40-16:40	PP061 478	<p><b>Improvement of interfacial adhesion between carbon fiber and polyphenylenesulfide with electrophoresis process</b></p> <p>SEON WOONG KOO(Chungnam National University), Seung Goo Lee(Chungnam National University), Jong Sung Won(Chungnam National University), Jong Hyun Park(Chungnam National University), Jin Wook Jeong(Chungnam National University)</p>
	PP062 384	<p><b>Age Hardening Behavior of Al<sub>2</sub>Ca-added Al-5.6Zn-2.5Mg-1.4Cu Alloy Produced by Hot Rolling Process</b></p> <p>Seung-Yoon Yang(Sungkyunkwan University), Bong-Hwan Kim(Korea Institute of Industrial Technology), Seong-Ho Ha(Korea Institute of Industrial Technology), Young-Ok Yoon(Korea Institute of Industrial Technology), Shae K. Kim(Korea Institute of Industrial Technology), Young Jig Kim(Sungkyunkwan University)</p>
	PP063 385	<p><b>The Effect of Pre-deformation on Microstructure and Mechanical Properties of Al-5.8Zn-1.6Mg Alloy in Age-hardened Temper</b></p> <p>Seung-Yoon Yang(Sungkyunkwan University), Bong-Hwan Kim(Korea Institute of Industrial Technology), Seong-Ho Ha(Korea Institute of Industrial Technology), Young-Ok Yoon(Korea Institute of Industrial Technology), Shae K. Kim(Korea Institute of Industrial Technology), Young Jig Kim(Sungkyunkwan University)</p>
	PP064 034	<p><b>Evaluation of Electromagnetic Interference Shielding Properties of CFRP Laminated With Metal Wire Mesh</b></p> <p>Alexandre Tugirumubano(Jeonju University), Vijay Santhiyagu Joseph(Jeonju University), Hyo-In Yoon(Jeonju University), Sun-Ho Go(Jeonju University), Jeong-Jin Lee(Jeonju University), Lee-Ku Kwac(Jeonju University), Hong-Gun Kim(Jeonju University)</p>
	PP065 278	<p><b>Effect of Preparation Conditions on Thermal Properties of Graphite / Copper Composites</b></p> <p>Yojiro Miyoshi(Hiroshima University), Gen Sasaki(Hiroshima University), Kenjiro Sugio(Hiroshima University), Yongbum Choi(Hiroshima University), Kazuhiro Matsugi(Hiroshima University)</p>
	PP066 279	<p><b>Particle Detection of Al-SiC Particle-Dispersed Composites by using Image Recognition with Machine Learning Technique</b></p> <p>Yosuke Otani(Hiroshima University), Kenjiro Sugio(Hiroshima University), Yongbum Choi(Hiroshima University), Gen Sasaki(Hiroshima University)</p>
	PP067 018	<p><b>Distribution of eutectic Si and Mg<sub>2</sub>Si and its effect on oxidation process in Al-Mg-Si alloys</b></p> <p>Nam-Seok Kim(Inha University), Seong-Ho Ha(Korea Institute of Industrial Technology), Young-Ok Yoon(Korea Institute of Industrial Technology), Bong-Hwan Kim(Korea Institute of Industrial Technology), Shae K. Kim(Korea Institute of Industrial Technology)</p>
	PP068 465	<p><b>A rapid continuous fabrication process of micro porous metal thin wire</b></p> <p>Sungwon Youn(National Institute of Advanced Industrial Science and Technology), Toru Shimizu(National Institute of Advanced Industrial Science and Technology), Hideki Takagi(National Institute of Advanced Industrial Science and Technology), Sohei Matsumoto(National Institute of Advanced Industrial Science and Technology), Hiroshi HIROSHIMA(National Institute of Advanced Industrial Science and Technology), Ryutaro Maeda(National Institute of Advanced Industrial Science and Technology)</p>

15:40-16:40	PP069	020	<b>Surface enrichment of alkaline earth metal elements in Al and their effects on oxidation behavior in liquid state</b> Young-Ok Yoon(Korea Institute of Industrial Technology), Seong-Ho Ha(Korea Institute of Industrial Technology), Nam-Seok Kim(Inha University), Bong-Hwan Kim(Korea Institute of Industrial Technology), Shae K. Kim(Korea Institute of Industrial Technology)
	PP070	064	<b>Effect of Temperature-Humidity Treatment on Bend Reliability of Epoxy-contained Sn-58Bi Solder with Various Surface Finish</b> Haksan Jeong(Sungkyunkwan University), Woo-Ram Myung(Sungkyunkwan University), Yong-Gue Sung(Sungkyunkwan University), Seung-Boo Jung(Sungkyunkwan University)
	PP071	075	<b>Microstructure and Mechanical Property of Brazed Stainless Steel with Ag Content of Cd-free Filler Metals</b> Jong Gun Lee(Sungkyunkwan University), Byung Wook Ahn(Sungkyunkwan University), Hyun Joon Park(Sungkyunkwan University), Won Bae Lee(POSCO Global R n D center), Seung Boo Jung(Sungkyunkwan University)
	PP072	472	<b>Performance Evaluation of a New Type of MR Brake</b> Han Gyeol Gang(Kumoh National Institute of Technology), Seung-Bok Choi(Inha University), Jung Woo Sohn(Kumoh National Institute of Technology)
	PP073	494	<b>Shear-Compression Simultaneous Sensor Based on Flexible Carbon Nanocomposite Pillar Arrays</b> Chang Yoon Jeong(Ulsan National Institute of Science and Technology), Young-Bin Park(Ulsan National Institute of Science and Technology)
	PP074	137	<b>Looping Architecture for Three-dimensional Soft Morphing Structures</b> Min-Woo Han(Seoul National University), Jongha Yu(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	PP075	461	<b>Development of C. Elegans Robot Actuated by SMA(Shape Memory Alloy)</b> Youngjoon Baek(Seoul National University), Beomjin Kim(Seoul National University), Sung-Hoon Ahn(Seoul National University), Min-Woo Han(Seoul National University)
	PP076	204	<b>Fabrication of micro nickel line tunable transmittance in real time</b> Seongwoo Kim(Kyungpook National University), MoonKyu Kwak(Kyungpook National University)
	PP077	418	<b>Triboelectric nanogenerator based on bacterial nanocellulose</b> Hyunjun Kim(Korea Advanced Institute of Science and Technology), Seongjun Kim(Chonnam National University), Jeongyoung Park(Korea Advanced Institute of Science and Technology), Ilkwon Oh(Korea Advanced Institute of Science and Technology)
	PP078	424	<b>Optoelectric response of aluminum oxide infilled colloidal quantum dot film</b> Hye-mi So(Korea Institute of Machinery and Materials), Won Seok Chang(Korea Institute of Machinery and Materials)
PP079	425	<b>MECHNO-ELECTRICAL BEHAVIOR OF CARBON NANOTUBE Based POROUS STRUCTURE</b> Hye-mi So(Korea Institute of Machinery and Materials), Won Seok Chang(Korea Institute of Machinery and Materials)	
PP080	287	<b>Recycling processes of waste silicon photovoltaic module as a cement binder and their physical properties</b> Hongseok Jang(Chonbuk National University), Yongteak Lim(Chonbuk National University), Junhyeon Jo(Chonbuk National University)	



Manufacturing Processes 1 (Hybrid Manufacturing)			300A (3Floor)
15:40-16:40	PP081	432	<b>Design Methodology for Hybridization of Additive and Subtractive Processes</b> Dong-Hyeon Kim(Seoul National University), Won-Shik Chu(Seoul National University), Thomas J. Y. Kim(Seoul National University), Choon-Man Lee(Changwon National University), Sung-Hoon Ahn(Seoul National University)
	PP082	208	<b>Experimental Investigation of Tribological Attributes of Chemical Mechanical Polishing for Printed Circuit Board</b> Minjong Yuh(Pusan National University), Soocheon Jang(Pusan National University), Jongwoo Lee(Pusan National University), Haedo Jeong(Pusan National University)
	PP083	190	<b>Design of Slurry-Particle/Chip Separation System in Pad Polishing</b> Dong-Ryul Kim(Seoul National University), Mincheol Kim(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	PP084	121	<b>Embedded sensor onto composite fabricated by Aerodynamically focused nanoparticle (AFN) printer</b> Ho-Jin Kim(Seoul National University), Gil-Yong Lee(Seoul National University), Min-Soo Kim(Seoul National University), Hyung-Soo Kim(Seoul National University), Jin-Woo Oh(Seoul National University), Jeong-Beom Ihn(Boeing), Sung-Hoon Ahn (Seoul National University)
	PP085	164	<b>Actuation of Microscale Shape Memory Alloy Structure with Ion Beam Induced Heating Method</b> Hyun-Taek Lee(Seoul National University), Gil-Yong Lee(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	PP086	276	<b>Enhancement of Crystallinity of Nickel Oxide Nano-Particles by Continuous-Laser Irradiation Process</b> Jaeho Shin(Seoul National University), Young Duk Suh(Seoul National University), Jinwook Jung(Seoul National University), Yeosang Yoon(Seoul National University), Seongmin Jeong(Seoul National University), Hyeonjin Eom(Korea Institute of Industrial Technology), Sukjoon Hong(Hanyang University), Daeho Lee(Gachon University), Seung Hwan Ko(Seoul National University)
	PP087	160	<b>Effect of nozzle temperature on deposition characteristics using gas injection system</b> KANG IN LEE(Seoul National University), Jang-Yeob Lee(Seoul National University), Hyun-Taek Lee(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	PP088	373	<b>Variable Gauge Factors of Strain Sensors Printed by Aerodynamically Focused Nanoparticles Printer</b> Min-Soo Kim(Seoul National University), Gil-Yong Lee(Seoul National University), Hyung-Soo Kim(Seoul National University), Ho-Jin Kim(Seoul National University), Jin-Woo Oh(Seoul National University), Jeong-Beom Ihn(Boeing corporation), Sung-Hoon Ahn(Seoul National University)
	PP089	076	<b>Fabrication of Piezoelectric Energy Harvester using Nano Particle Deposition System (NPDS)</b> Soo-Hong Min(Seoul National University), Sung-Hoon Ahn(Seoul National University), Gil-Yong Lee(Seoul National University), Hyun-Taek Lee(Seoul National University), Ho-Jin Kim(Seoul National University)

15:40-16:40	<b>PP090</b>	126	<b>Effect of Plasma Assisted Deposition for Electrochromic Windows Fabrication Using Nano Particle Deposition System</b> Sung-Ik Park(Seoul National University), In-Gyu Choi(Seoul National University), Jang-Yeob Lee(Seoul National University), Doo-Man Chun(University of Ulsan), Caroline S. Lee(Hanyang University), Won-Shik Chu(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	<b>PP091</b>	120	<b>Development of Carbon Fiber-Epoxy 3Dprinter for Direct Composite Repair</b> Hyung-Soo Kim(Seoul National University), Gil-Yong Lee(Seoul National University), Min-Soo Kim(Seoul National University), Ho-Jin Kim(Seoul National University), Jin-Woo Oh(Seoul National University), Jeong-Beom Ihn(Boeing), Sung-Hoon Ahn (Seoul National University)
	<b>PP092</b>	040	<b>Fabrication of superhydrophobic surface by 3D printing and dip coating</b> Kyong-Min Lee(University of Ulsan), Hani Park(University of Ulsan), Doo-Man Chun(University of Ulsan)
	<b>PP093</b>	165	<b>Image Monitoring Study on Fused Deposition Modeling (FDM) Fabrication Process</b> Hung-Yin Tsai(National Tsing Hua University), Wei-Yuan Hsu(National Tsing Hua University), Yi-Hung Chen(National Tsing Hua University), Che-Chih Tsao(National Tsing Hua University)
	<b>PP094</b>	421	<b>The Polyamide-12 Sintering Process Using A Diode Laser In Powder Bed Fusion</b> Jang Myoung Kim(Sentrol Col., Ltd), Hae Jeong Kim(Sentrol Col., Ltd), Sungwoo Bae(Sentrol Col., Ltd)
	<b>PP095</b>	403	<b>Fabrication and characterization of electrospun microfibrinous structures</b> Young Hun Jeong(Kyungpook National University), Gwangjune Shin(Kyungpook National University)
	<b>PP096</b>	376	<b>A Nanoscale Recycle Processes via an Electromagnetic-Aid in Pulsed Electrical-Discharge Electrocorrosion</b> P.S. Pa(National Taipei University of Education)
	<b>PP097</b>	059	<b>Effect of thermal treatment about NPDS (Nano Particle Deposition System) for electrochromic window</b> Ji-Soo Kim(Seoul National University), In-Gyu Choi(Seoul National University), Doo-Man Chun(University of Ulsan), Caroline S. Lee(Hanyang University), Sung-Hoon Ahn(Seoul National University), Won-Shik Chu(Seoul National University)
	<b>PP098</b>	452	<b>Life Cycle Evaluation of Strain Sensor Printed with Silver Nanoparticles for Composite Health Monitoring</b> Jin Woo Oh(Seoul National University), Gil-Yong Lee(Seoul National University), Min-Soo Kim(Seoul National University), Jeong-Beom Ihn(Boeing), Sung-Hoon Ahn (Seoul National University)

Manufacturing Processes 2 (Machining)			300A (3Floor)
15:40-16:40	PP099	319	<b>Micro grinding of hard materials using EDMed PCD and PCBN tools</b> Pyeong An Lee(Soongsil University), Seungman Jung(Soongsil University), Bo Hyun Kim(Soongsil University)
	PP100	502	<b>Study of Sand Mould Milling Precision Based on Experiments</b> Zhu Fuxian(Jiangsu University of Technology)
	PP101	087	<b>A Study on the Prevention of Machine Tool Damage Using Material Property</b> JAEHYEOK KIM(Korea Institute of Industrial Technology), DONGYOON LEE(Korea Institute of Industrial Technology), KYUNGHEE Park(Korea Institute of Industrial Technology)
	PP102	188	<b>Micromachining of the micropatterns on the polytetrafluoroethylene (PTFE) Materials</b> Dong Min Kim(Ulsan National Institute of Science and Technology), Hyung Wook Park(Ulsan National Institute of Science and Technology)
	PP103	248	<b>Thermal Fatigue Behaviors on Carbide Tool in Wet and Cryogenic Conditions in Milling of Titanium</b> Gi-Dong Yang(Korea Institute of Industrial Technology), Kyung-Hee Park(Korea Institute of Industrial Technology), Mohd Azlan Suhaimi(Universiti Teknologi Malaysia), Dong Yoon Lee(Korea Institute of Industrial Technology), Seok-Woo Lee(Korea Institute of Industrial Technology)
	PP104	032	<b>Investigation on Mechanical Characteristics of Felt-Typed Polishing Pads</b> Hyunseop Lee(Tongmyong University), Dasol Lee(Pusan National University)
	PP105	332	<b>Analysis of the Influence of Cross-axis angle on Cutting Speed and Tooth Surface Structure during Gear Power Honing</b> Lian Xia(Hefei University of Technology), Dongling Wang(Hefei University of Technology), Bin Yuan(Hefei University of Technology), Jiang Han(Hefei University of Technology)
	PP106	416	<b>Effects of Machining Conditions and Tool Paths on the Deformation of Micro Structure</b> Ki-hyeong Song(Korea Institute of Industrial Technology), Young-jae Choi(Korea Institute of Industrial Technology), Dong-yoon Lee(Korea Institute of Industrial Technology), Hon-zong Choi(Korea Institute of Industrial Technology), Yong-shin Lee(Kookmin University)
	PP107	481	<b>Dynamic Analysis of Miniaturized Micro-Drilling Machine Tool</b> Longfei Hu(Dongfeng Nissan Passenger Vehicle), Sang Won Lee(Sungkyunkwan University)
PP108	426	<b>Multitool Milling for cutting force reduction in the mobile machining system</b> Segon Heo(Korea Institute of Machinery and Materials), Jongyoun Shim(Korea Institute of Machinery and Materials), Seung-Kook Ro(Korea Institute of Machinery and Materials)	

15:40-16:40	<b>PP109</b>	430	<b>Effect of workpiece temperature on delamination of CFRP drilling</b> Gyuhho Kim(Yonsei University), Tae In Ha(Yonsei University), Jae-Hyeong Park(Yonsei University), Eunseok Nam(Yonsei University), Byung-Kwon Min(Yonsei University), Tae-Gon Kim(Korea Institute of Industrial Technology), Seok-Woo Lee(Korea Institute of Industrial Technology)
	<b>PP110</b>	510	<b>Machinability of Ti-6Al-2Sn-4Zr-2Mo alloy using Abrasive Waterjet Machine</b> Thirumalai Kumaran S(Yeungnam University), Tae Jo Ko(Yeungnam University), Ki Moon Park(Yeungnam University), Uthayakumar M(Kalasalingam University), Suresh Kumar S(Kalasalingam University)
	<b>PP111</b>	214	<b>Analysis of Parameters affecting surface roughness in Sapphire Wafer Polishing using Nanocrystalline –Microcrystalline multilayer diamond CVD pallet</b> Joong-Cheul Yun(Korea University), Dae-Soon Lim(Korea University), Eung-seok Lee(Korea University), Choong-hyun Lee(Korea University), Young-kyun Lim(Korea University)
	<b>PP112</b>	499	<b>Burr Removal Rate Model in an Ultrasonic assisted Dry-EDM process for Deburring Drilled Holes of CFRP Composite using Regression Analysis</b> Rendi Kurniawan(Yeungnam University), Tae Jo Ko(Yeungnam University), Ji Hyeon Byeon(Yeungnam University)
	<b>PP113</b>	498	<b>Abrasive Waterjet Cutting of Redmud Filled Chemically Treated Pineapple Fiber Reinforced Polyester Composites</b> Arumugaprabu V(Yeungnam University), Taejo Ko(Yeungnam University), Yein Kwak(Yeungnam University)

Manufacturing Processes 3 (3DP)			300A (3Floor)
15:40-16:40	PP114	440	<b>3D Printing method for effectively cutting Expanded Polystyren(EPS)</b> Sangyeol Jeong(Korea University), Daehie Hong(Korea University) Hakmin Kim(Korea University)
	PP115	138	<b>3D Hybrid Bioprinting Technology and Its Applications</b> Hyun-Wook Kang(Ulsan National Institute of Science and Technology)
	PP116	390	<b>Fabrication Process of a Non-planar Tactile Sensor</b> In Hwan Lee(Chungbuk National University), Yong-sun Choi(Chungbuk National University), Ho-chan Kim(Andong National University), Hae-yong Cho(Chungbuk National University)
	PP117	505	<b>Design and Analysis of Personalized Cast with Porous Lightweight Structure</b> Keun Park(Seoul National University of Science and Technology), Na-Hyun Kim(Seoul National University of Science and Technology), Hye-Jin Choi(Seoul National University of Science and Technology), Yeong Eun Lim(Seoul National University of Science and Technology)
	PP118	028	<b>Development Plan of a Classification Scheme for Gaskets and O-rings Considering Maintenance Using 3D Printing</b> Taeyun Kim(Kyungpook National University), Moohyun Cha(Korea Institute of Machinery and Materials), Duhwan Mun(Kyungpook National University)
	PP119	468	<b>Research for a new green MID technology process with thermoplastic of attaching conductive polymer for generate conductive circuit seed</b> haeyong yun(Andong National University), Hochan Kim(Andong National University), Inhwan Lee(Chungbuk National University), Yonghwan Bae(Andong National University)
	PP120	459	<b>Experimental Study on Pre-heating Characteristics of a Powder Bed System using a Plasma Electron Beam</b> Ho-Jin Lee(Chosun University), Dong-Gyu Ahn(Chosun University), Jae-Guk Song (Chosun University), Eun Goo Kang(Korea Institute of Industrial Technology), Bihlii Chua(Chosun University)
	PP121	460	<b>A Study on Feeding Characteristics of a Powder Bed System According to Type of Feeding Blade</b> Ho-Jin Lee(Chosun University), Dong-Gyu Ahn(Chosun University), Jae-Guk Song (Chosun University)
	PP122	153	<b>Effects of inside angle of corrugated inner structures on drop impact characteristics of the lightweight sandwich plate</b> Yong-Hun Jang(Chosun University), Dong-Gyu Ahn(Chosun University), Dong-In Kim (Chosun University), Bo-Sung Shin(Pusan National University)

June 29 (Thursday), 17:00~18:00

Materials 3			300A (3Floor)
17:00-18:00	PP123	101	<b>Material Properties of Electrically Assisted Pressure Joint of Titanium Alloys</b> Yong-Fang Li(University of Ulsan), Trung Thien Nguyen(University of Ulsan), Hrishikesh Das (University of Ulsan), Ju-Ri Kim(University of Ulsan), Sung-Tae Hong (University of Ulsan), Jinwook Jung(Seoul National University), Heung Nam Han(Seoul National University)
	PP124	074	<b>Electrically assisted springback reduction of super-elastic titanium alloys</b> Yong-Ha Jeong(University of Ulsan), Viet Tien Luu(University of Ulsan), Thi Anh Nguyet Nguyen (University of Ulsan), Sung-Tae Hong(University of Ulsan), Hyun Woo So(Lg electronics), Hye-Jin Jeong(Seoul National University), Heung Nam Han(Seoul National University)
	PP125	243	<b>Preparation and characterization of eco-friendly composite films made with poly (ethylene oxide)-lignin</b> Jung Woong Kim(Inha University), Tippabattini Jayaramudu(Inha University), Lindong Zhai (Inha University), Jeongho Park(Inha University), Jaehwan Kim(Inha University)
	PP126	080	<b>Tensile electroplasticity of dual phase ultra-high strength steel at different strain rates</b> Trung Thien Nguyen(University of Ulsan), Yong-Ha Jeong(University of Ulsan), Sung-Tae Hong(University of Ulsan), Hye-Jin Jeong(Seoul National University), Heung Nam Han(Seoul National University)
	PP127	286	<b>Fabrication of Ag conductive electrode using Ag organometallic ink on a flexible substrate and examination of its electrical and mechanical stability</b> Jinwoo Lee(Seoul National University), Seung-Hwan Ko(Seoul National University), Jaeho Shin(Seoul National University), Jinhyeong Kwon(Seoul National University), Ha Inho(Seoul National University), Hyunmin Cho(Seoul National University), Kyunky Kim(Seoul National University), Hyunseok Kim(Seoul National University), Yeosang Yoon(Seoul National University)
	PP128	215	<b>Microstructure analysis of high porosity nickel porous reinforced metal composites by infiltration and reaction method</b> Tomokazu Hirano(Hiroshima University), Yongbum Choi(Hiroshima University), Kazuhiro Matsugi(Hiroshima University), Zhefeng Zu(Hiroshima University), Kwnjiro Sugio(Hiroshima University), Gen Sasaki(Hiroshima University)
	PP129	103	<b>Effect of Electric Energy Density on Stress Relief Annealing of Automotive Springs</b> Gi Dong Park(University of Ulsan), Van Loi Tran(University of Ulsan), Sung-Tae Hong (University of Ulsan), In-Hye Kim(University of Ulsan), Ji Ye Hong(Daewon Kang Up Co., LTD, Chungnam), Sung-Woo Jin(Seoul National University), Heung Nam Han(Seoul National University)
	PP130	383	<b>Lightweight Design of Fiber Reinforced Composites for Automobile Parts</b> Jinyu Zhou(Jiangsu University of Technology), Jifeng Huang(Jiangsu University of Technology), Renxiang Hu(Jiangsu University of Technology)
	PP131	398	<b>Study on large thin-wall aluminum alloy shock tower sand casting trial-manufacture technology</b> Ming Ruan(Shenyang Research Institute of Foundry), Zhijun Feng(Shenyang Research Institute of Foundry), Fei Shi(Shenyang Research Institute of Foundry), Yufei Li(Shenyang Research Institute of Foundry), Liang Zhan(Shenyang Research Institute of Foundry), Wei Wang(Shenyang Research Institute of Foundry), Xin Su(Shenyang Research Institute of Foundry)

17:00-18:00	<b>PP132</b>	355	<b>Effect of Electrode Vibration on Inclusions and Power Consumption of ZG04Cr13Ni4Mo Stainless Steel in ESR System</b> Zhao Wei Song(Shenyang Research Institute of Foundry), Yun Long Xiong(Shenyang Research Institute of Foundry), Rui Chen(Shenyang Research Institute of Foundry)
	<b>PP133</b>	210	<b>Effects of Nickel Additive on Micro-arc Oxidation Coating of AZ63B Magnesium Alloy</b> Wen Zhan(Wuhan Research Institute of Materials Protection), Feng Tian(Wuhan Research Institute of Materials Protection), Ou-Yang Gui(Wuhan Research Institute of Materials Protection)
	<b>PP134</b>	504	<b>Extraction behavior of rare earth element (Nd,Dy) from rare earth magnet by using molten magnesium</b> Teak-soo Kim(Korea University of Science and Technology), Yongsu Kim(Korea University of Science and Technology)
	<b>PP135</b>	150	<b>Impact Characteristics of Multi-layers Deposited Parts by a Direct Energy Deposition Process</b> Yong-Hun Jang(Chosun University), Dong-Gyu Ahn(Chosun University), Dong-In Kim(Chosun University), Woo-Sung Kim(Korea Institute of Industrial Technology)
	<b>PP136</b>	144	<b>Research on the bending property and acoustic emission characteristics of flexible oriented 3D composite</b> Xiaochuan Wu(China Academy of Machinery Science & Technology), Zhongde Shan(china academy of machinery science & technology), Yuan Wang(University Science and Technology Beijing), Feng Liu(china academy of machinery science & technology), Weixiao Du(china academy of machinery science & technology)
	<b>PP137</b>	400	<b>Improvement of surface area and humidity sensing capability of hierarchical titanium dioxide nanostructures</b> Hakyung Jeong(Konkuk University), Dongjin Lee(Konkuk University), Saeyoung Kim(Konkuk University), Jongsu Lee(Konkuk University), Youngwook Noh(Konkuk University)
	<b>PP138</b>	501	<b>Contact model dependency for residual stress and strain during powder packing process</b> JAEHEE LYU(Kumoh National Institute of Technology), JUNYOUNG PARK(Kumoh National Institute of Technology)
	<b>PP139</b>	270	<b>The characteristics of recycled composite pozzolanic materials as a high strength concrete binder</b> Hongseok Jang(Chonbuk National University), Juhee Kim(Chonbuk National University), Seugnyoung So(Chonbuk National University)
	<b>PP140</b>	106	<b>Highly porous nanocellulose foam for the removing of spilled oil on seawater</b> Young Ho Mun(Inha University), Tae June Kang(Inha University)
	<b>PP141</b>	433	<b>Design of Interlocking Compressed Earth Brick Machine and Properties of Brick</b> Christine Ahn(Sungkyunkwan University/ YISS), Binayak Bhandari(Woosong University/ IDIM Nepal)
<b>PP142</b>	413	<b>Analysis of the Shear Deformation Behavior of Carbon Fabric based on Binder Treatment</b> Hye-In Kwon(Korea Textile Machinery Research Institute), Sang-Jin Lee(Korea Textile Machinery Research Institute), Hwan-Kuk Kim(Korea Textile Machinery Research Institute)	

Manufacturing Processes 3 (Forming)			300A (3Floor)
17:00-18:00	PP143	358	<b>High Temperature Formability of Ti-6Al-4V Titanium Alloy Sheet</b> SEONG-WON LEE(Korea Institute of Industrial Technology), CHAN-JOO LEE(Korea Institute of Industrial Technology), YUN-KYUNG KIM(Dong A University), YOUNG-JUN KIM(CENTRAL CO.), JUNG-MIN LEE(Korea Institute of Industrial Technology)
	PP144	359	<b>A Study on Cold Ring Rolling of Copper for Fabrication of End Ring's Preform</b> SEONG-WON LEE(Korea Institute of Industrial Technology), CHAN-JOO LEE(Korea Institute of Industrial Technology), YUN-KYUNG KIM(Dong A University), YOUNG-JUN KIM(CENTRAL CO.), JUNG-MIN LEE(Korea Institute of Industrial Technology)
	PP145	444	<b>Development of Undercut Shape Forging Technology of Double Flange Roller Parts using Split Mold</b> MinCheol Park(Korea Institute of Industrial Technology), Chanjoo Lee(Korea Institute of Industrial Technology), Mansoo Joun(Gyeongsang National University), Donghwan Kim(International University of Korea)
	PP146	375	<b>Multi-point iterative forming and its effect on springback and residual stress of sheet metal</b> Jun Chen(Jilin University), Wenzhi Fu(Jilin University), Mingzhe Li(Jilin University), Yu Wang(Jilin University), Xiaodong Liu(Jilin University)
	PP147	337	<b>Study on the Springback in Bending process of titanium sheet at various temperature</b> Hyunwoo Kim(Seoul National University of Science and Technology), Chang-Whan LEE(Seoul National University of Science and Technology)
	PP148	511	<b>Reducing the Computation Time in Shape Memory Alloys Tool Clamp Design</b> Sungcheul Lee(Korea Institute of Machinery and Materials), Seung-Kook Ro(Korea Institute of Machinery and Materials), Jong-Kweon Park(Korea Institute of Machinery and Materials)
	PP149	374	<b>Effect of casting process on microstructure and mechanical properties at ambient and elevated temperature of AZ91-Ca magnesium alloy</b> Yang Zhang(Jiangsu University of Technology), Fuxian Zhu(Jiangsu University of Technology), Xiaoping Li(Jiangsu University of Technology), Yalin Lu(Jiangsu University of Technology), Weining Lei(Jiangsu University of Technology)
	PP150	363	<b>The Technology of Roll-Forming for The PCM Plate Center of Refrigerator</b> Kim byeongcheol(Gyeongsang National University), Kim DongHwan(International University of Korea)
	PP151	124	<b>Block Shear Strength of STS304L Stainless Steel Fillet-welded Connection with Base Metal Fracture</b> HooChang Lee(Hanbat National University), BoKyung Hwang(Hanbat National University), TaeSoo Kim(Hanbat National University)
	PP152	105	<b>Application of Friction Stir Hole Clinching to Joining of Dissimilar Materials</b> Long-Hai Gao(Pusan National University), Gil-Seok Kang(Pusan National University), Chan-Joo Lee(Korea Institute of Industrial Technology), Byung-Min Kim(Pusan National University), Dae-Cheol Ko(Pusan National University)



17:00-18:00	<b>PP153</b>	127	<b>Application of Flexibly-reconfigurable Roll Forming using Sheet Metals</b> Min-Gyu Kil(Pusan National University), Ji-Woo Park(Pusan National University), Jun-Seok Yoon(Pusan National University), Jeong Kim(Pusan National University), Beom-Soo Kang(Pusan National University)
	<b>PP154</b>	128	<b>Inverse parameter estimation for electromagnetic forming simulation with reduce-order modeling</b> Seungmin Lee(Pusan National University), Kyunghoon Lee(Pusan National University), Beom-Soo Kang(Pusan National University)
	<b>PP155</b>	169	<b>Wear Testing Methods and Online Monitoring Study of Wet Clutch Friction Plate</b> Liyong Wang(Beijing Information Science & Technology University), Hao Li(Beijing Information Science and Technology University), Le Li(Beijing Information Science and Technology University)
	<b>PP156</b>	181	<b>Design of 3D Printed Insert Core for an Automotive Crash Pad in Injection Molding Process</b> Yong-Ha Cho(Pusan National University), Jae-Hong Kim(Pusan National University), Myong-Geun Lee(Hae-Chang Precision), Byung-Min Kim(Pusan National University)
	<b>PP157</b>	206	<b>Development of an Augmented Hansel-spittel Constitutive Equation</b> Seulki Kim(Pusan National University), Kyunghoon Lee(Pusan National University), Jihoon Kim(Pusan National University), Beomsoo Kang(Pusan National University)
	<b>PP158</b>	312	<b>Development of a cyclic hardening model of Transformation-Induced Plasticity steel</b> Sungwook Jun(Pusan National University), Jaebong Jung(Pusan National University), Hyun-Seok Lee(NARA Mold & Die Co., Ltd.), Byung-Min Kim(Pusan National University), Ji Hoon Kim(Pusan National University)
	<b>PP159</b>	442	<b>Prediction Model of Surface Residual Stress for Multi-pass Drawn Steel Wire</b> In-Kyu Lee(Korea Institute of Industrial Technology), Sung-Yun Lee(Korea Institute of Industrial Technology), Myeong-Sik Jeong(Korea Institute of Industrial Technology), Yong-Jae Cho(Korea Institute of Industrial Technology), Dae Hye Kim(Korea Institute of Industrial Technology), Sun-Kwang Hwang(Korea Institute of Industrial Technology), Byung-Min Kim(Pusan National University), Sang-Kon Lee(Korea Institute of Industrial Technology)
	<b>PP160</b>	495	<b>Comparison of microstructure and phase transformation of laser-welded joints in Al-10wt%Si-coated boron steel after hot stamping</b> Jung-Gil Yun(Pusan National University), Tae-jin Yoon(LG Electronics), Myeong-Hwan Oh(Sungwoo Hitech Co., Ltd.), Hyeon-jeong Shin(POSCO), Chung-Yun Kang(Pusan National University)
	<b>PP161</b>	129	<b>Study on numerical simulation of electrohydraulic forming</b> Min A Woo(Pusan National University), Woo Jin Song(Pusan National University), Beom Soo Kang(Pusan National University), Jeong Kim(Pusan National University)
<b>PP162</b>	013	<b>Tool Fabrication for thick Plate Forming of Hollow-Partitioned Steam Turbine Nozzle</b> Bong-Seok Kwak(Pusan National University), Mahn-Jung Yoon(Power MnC Co. Ltd), Jae-Young Jeon(Power MnC Co. Ltd), Beom-Soo Kang(Pusan National University), Tae-Wan Ku(Pusan National University),	

Design and Products 3 (Machinery / Product Application)		300A (3Floor)	
17:00-18:00	<b>PP163</b>	235	<b>A study on compensation of machining error in the assembly phase of a highly precision machining center</b> Mingi Choi(Changwon National University), Changwoo Lee(Changwon National University)
	<b>PP164</b>	295	<b>Optimization of table and column position to minimize squareness in assembly process</b> SEONGHWA CHO(Changwon National University), CHANGWOO LEE(Changwon National University), MINGGI CHOI(Changwon National University)
	<b>PP165</b>	177	<b>A Basic Study on the Development of an Arc Assisted Machining System</b> Sung Ho Moon(Changwon National University), Ho In Jeong(Changwon National University), Choon-Man Lee(Changwon National University)
	<b>PP166</b>	346	<b>3 Dimension Simulation of TIG Welding Arc Plasma on the V-groove Weld Joint</b> Yong Hee Oh(Changwon National University), Young Tae Cho(Changwon National University), Yoon Gyo Jung(Changwon National University)
	<b>PP167</b>	178	<b>A Study on the Structural Analysis for an Upper Seat Track using Ultra-high Strength Steel in Automobile</b> Young-Ho Choi(Changwon National University), Choon-Man Lee(Changwon National University), Sang-Seok Seol(Changwon National University), Byung-Hyun Ryu(Dong-Gu Co., LTD.)
	<b>PP168</b>	201	<b>Size-selected cluster ion beam for ligand etching of gold nanoparticles</b> Eun Ji Park(Korea Basic Science Institute), Jung-Hwan Kim(Korea Basic Science Institute), Chang Min Choi(Korea Basic Science Institute), Sang Ju Lee(Korea Basic Science Institute), Ji Young Baek(Korea Basic Science Institute), Young Dok Kim (Sungkyunkwan University), Myoung Choul Choi(Korea Basic Science Institute)
	<b>PP169</b>	419	<b>A diamond knife development based on the droplet dynamics for ultramicrotomy</b> Hwan Hur(Korea Basic Science Institute), Ji Yong Bae(Korea Basic Science Institute), Jooran Lee(Korea Basic Science Institute), Chan Bae Jeong(Korea Basic Science Institute), Geon-Hee Kim(Korea Basic Science Institute)
	<b>PP170</b>	241	<b>Mirror fabrication of 300 mm SiC substrates</b> Jeong-Yeol Han(Korea Astronomy and Space Science Institute), Myung Cho(National Optical Astronomy Observatory), Gary Poczulp(National Optical Astronomy Observatory), Dong-Kyun Kim(Green Optics Co., Ltd.), Hyoung Kwon Lee(Green Optics Co., Ltd.), Geon Hee Kim(Korea Basic Science Institute), Sangwon Hyun(Korea Basic Science Institute), Minwoo Jeon(Korea Basic Science Institute), Byeongjoon Jeong (Korea Basic Science Institute)
	<b>PP171</b>	186	<b>5-DOF Electron Microscope Sample Stage Design and Kinematic Analysis</b> Sang-Chul Lee(Korea Basic Science Institute), Jong-Man Jeung(Korea Basic Science Institute), Cheolsu Han(Korea Basic Science Institute), Jin-Gyu Kim(Korea Basic Science Institute)

17:00-18:00	<b>PP172</b>	305	<b>Characteristics of Zerodur glass-ceramic by high speed grinding</b> In-Ju Yeo(Korea Basic Science Institute), Byeong-Joon Jeong(Korea Basic Science Institute), Min-Woo Jeon(Korea Basic Science Institute), Hwan-Jin Choi(Korea Basic Science Institute), I-Jong Kim(Korea Basic Science Institute), Hyo-Sik Kim(Korea Basic Science Institute), Jong-Ho Won(Chungnam National University), Geon-Hee Kim(Korea Basic Science Institute)
	<b>PP173</b>	262	<b>Removal of diamond turning marks in magneto-rheological finishing of Ni-P plated off-axis mirror</b> Minwoo Jeon(Korea Basic Science Institute), Byeongjoon Jeong(Korea Basic Science Institute), Sangwon Hyun(Korea Basic Science Institute), Inju Yeo(Korea Basic Science Institute), Hwanjin Choi(Korea Basic Science Institute), Geonhee Kim(Korea Basic Science Institute)
	<b>PP174</b>	397	<b>Wide Fractional Bandwidth Airborne Ultrasound Transducer based on Capacitive Micromachined Ultrasonic Transducer and Acoustic Block</b> Yeong Min Yun(Hanyang University), Kwan Kyu Park(Hanyang University)
	<b>PP175</b>	090	<b>HEV Motor Design Comparison of IPMSM with Sintered Rare-Earth Magnet and PMASynRM with Bonded Dy Free Magnet in the Same Size</b> Yo Han Hwang(Hanyang University), Tae Hwan Kim(Hyundai-Wia), Jung Woo Park(Hyundai-Wia), Duck Woong Shin(Hyundai-Wia), Ju Lee(Hanyang University)
	<b>PP176</b>	123	<b>Study on the Correlation between Harmonic Order of the bembf wave and Torque Ripple Order of the PM Motor</b> Yo Han Hwang(Hanyang University), Yong Chul Kim(Hanyang University), Ju Lee(Hanyang University)
	<b>PP177</b>	396	<b>Fingerprint Imaging Using CMUT Impediography Method</b> Yunsang Kwak(Hanyang University), Wonyoung Choi(Hanyang University), Kwankyu Park(Hanyang University)
	<b>PP178</b>	060	<b>Low-Cost Synthesis of Fe<sub>2</sub>O<sub>3</sub> Hollow sphere for Arsenic Removal from Water</b> Sengeragchaa Bolortuya(Kumoh National Institute of Technology), Min Ji Hong(Kumoh National Institute of Technology), Sung Hyun Park(Kumoh National Institute of Technology), Yong Sik Kim(Kumoh National Institute of Technology), Hee Jin Kim(Kumoh National Institute of Technology), Sungjin Kim(Kumoh National Institute of Technology), Sunil Babu Eadi(Kumoh National Institute of Technology)
	<b>PP179</b>	258	<b>Ultra-thin film optical coatings for reflective color filters</b> Young Jin Yoo(Gwangju Institute of Science and Technology), Young Min Song(Gwangju Institute of Science and Technology)
	<b>PP180</b>	274	<b>The study on the optimal condition for thermal diffusivity measurements of solids using laser lock-in thermography</b> Seonjin Kim(Korea Basic Science Institute), Geonhee Kim(Korea Basic Science Institute), Kye-Sung Lee(Korea Basic Science Institute), Hwan Hur(Korea Basic Science Institute), Soonkyu Hwang(Korea Advanced Institute of Science and Technology), Seung-hyun Kim(Korea Basic Science Institute), Hee Chan Kang(Korea Basic Science Institute), I Jong Kim(Korea Basic Science Institute)
	<b>PP181</b>	303	<b>Design of LabVIEW FPGA IP Core for OCT pre-processing</b> Kyung-Chan Jin(Korea Institute of Industrial Technology), Gye-Sung Lee(Korea Basic Science Institute), Geon-Hee Kim(Korea Basic Science Institute)

Design and Product 4 / Railway Engineering			300A (3Floor)
17:00-18:00	PP182	011	<b>Smart production control with cyber-physical systems for automobile parts manufacturing</b> Sung Il Kim(Sungkyunkwan University), Jun Kim(Sungkyunkwan University), Myoung Jun Ko(Sungkyunkwan University), JuneHyuck Lee(Sungkyunkwan University), Yong-Shin Kang(Sungkyunkwan University), Sang Do Noh(Sungkyunkwan University), Hyun-Jung Kim(Sungkyunkwan University)
	PP183	185	<b>Reconfigurability Assessments of Smart Assembly Lines using Cyber Physical System for Factory Design</b> JUNEHYUCK LEE(Sungkyunkwan University), Sang-Do Noh(Sungkyunkwan University)
	PP184	167	<b>Cyber Physical System for Service-oriented Product Design</b> Kyu-Young Hwang(Sungkyunkwan University), Jae-Tak Cho(Sungkyunkwan University), Sun-Hong Kim(Sungkyunkwan University), Young-Wook Nam(Sungkyunkwan University), Sang-Do Noh(Sungkyunkwan University)
	PP185	370	<b>EVALUATION OF WEAR BEHAVIOR OF ROLLER CHAIN BY LUBRICATING OIL</b> CHANGUK KIM(Changwon National University), DONGWOO LEE(Changwon National University), JUNGIL SONG(Changwon National University)
	PP186	229	<b>Three-dimensional printed microfluidic channels : simulation and experiment</b> Seongyong Kim(Changwon National University), Changwoo Lee(Changwon National University)
	PP187	173	<b>A Study on the Determination of Optimum Machining Conditions in Laser-Assisted Fillet Milling of Titanium Alloy</b> Wan-Sik Woo(Changwon National University), Choon-Man Lee(Changwon National University)
	PP188	211	<b>A Basic Study on the Decomposition Prevention of Cutting Oil according to the Quantity and Cross-Sectional Area of an Copper Alloy</b> Young Hun Lee(Changwon National University), Jae Hyeon Ha(Changwon National University), Ju Han Lim(IENTECO. LTD.), Choon-Man Lee(Changwon National University)
	PP189	395	<b>Surface Complexation Modeling of Arsenic-Contaminated Groundwater in Choushui River Alluvial Fan of Taiwan</b> Tsung-Nan Weng(National Taiwan University), Chen-Wuing Liu(National Taiwan University), Yi-Wen Chen(National Taiwan University)
	PP190	025	<b>Development of the Intelligent Production Management System for Smart Factory</b> Gyu-Bong Lee(Korea Institute of Industrial Technology), Joo-Sung Yoon(Korea Institute of Industrial Technology), Min-Jae Ko(Korea Institute of Industrial Technology), Il-Ha Park(Korea Institute of Industrial Technology)
	PP191	072	<b>Development of Smart MES-IoT Middleware Program for an Intelligent Production Management System for a Smart Factory</b> MinJae Ko(Korea Institute of Industrial Technology), Gyu-Bong Lee(Korea Institute of Industrial Technology), Joo-Sung Yoon(Korea Institute of Industrial Technology), Dong-Hyun Kim(Coever Information Technology Inc.)

17:00-18:00	<b>PP192</b>	507	<b>Development of ISO 14649-based data schema for exception handling of machining active control</b> Il-Ha Park(Korea Institute of Industrial Technology), Joo-Sung Yoon(Korea Institute of Industrial Technology)
	<b>PP193</b>	372	<b>Study on safety evaluation of truck frame for high speed track measurement system</b> CHANWOO LEE(Korea Railroad Research Institute), ILYOON CHOI(Korea Railroad Research Institute)
	<b>PP194</b>	356	<b>On-board acceleration based low-cost rail surface defect detecting system</b> DongWook Kim(Korea University of Science and Technology), HyunKyu Jun(Korea Railroad Research Institute)
	<b>PP195</b>	304	<b>Fatigue and fracture behavior of wheel and rail steel for high speed rail</b> Jungwon Seo(Korea Railroad Research Institute), Seokjin Kwon(Korea Railroad Research Institute), Hyunkyu Jun(Korea Railroad Research Institute), Donghyeong Lee (Korea Railroad Research Institute)
	<b>PP196</b>	250	<b>Survey on V2X Communication for the Train Integrity in the Virtual Coupling Convoy</b> Moon-won Choi(Korea Railroad Research Institute), Han-sol Lee(Korea Railroad Research Institute), Min-soo Kim(Korea Railroad Research Institute)
	<b>PP197</b>	290	<b>Non-Destructive Diagnosis of Railway Bogie frame Using Infrared Thermography</b> Seok-Jin Kwon(Korea Railroad Research Institute)
	<b>PP198</b>	182	<b>A Study on the Safety Evaluation of Special Railway Vehicles</b> Young-Sam Ham(Korea Railroad Research Institute)
	<b>PP199</b>	247	<b>Development Trend of Virtual Coupling for Railroad Capacity Increase</b> Han-sol Lee(Korea Railroad Research Institute), Moon-won Choi(Korea Railroad Research Institute), Min-soo Kim(Korea Railroad Research Institute)
	<b>PP200</b>	388	<b>Accelerated Life Test Method for Railway Axle Bearing</b> Jaewon Lee(Sungkyunkwan University), Youngsam Ham(Korea Railroad Research Institute)

Machinery		300A (3Floor)	
17:00-18:00	PP201	462	<b>Spectral Transmittance Measurement and Visibility Performance Evaluation Methods for Vision Based Safety Sensors in Fog</b> Bong Keun Kim(AIST), Yasushi Sumi(AIST)
	PP202	054	<b>Analysis of a Spindle under Load Conditions Using Flexible Multi-body Dynamics</b> Byung-Sub Kim(Korea Institute of Machinery and Materials), Chan Hong Lee(Korea Institute of Machinery and Materials)
	PP203	445	<b>Dynamic performance analysis of a three degree of freedom 4RRR planar parallel manipulator</b> Juhyun Kim(KOREA INSTITUTE OF ROBOT AND CONVERGENCE), Yoongul Lee(Tongmyong University), Manseung Seo(Tongmyong University)
	PP204	369	<b>Development of an Electromagnetic Eddy Current Damper for Vibration Suppression applied to an Efficient Check-Weigher Model</b> ABDELHAKIM MAKROUM(Pusan National University), JUNG HWAN AHN(Pusan National University), HWA YOUNG KIM(Pusan National University)
	PP205	196	<b>Analysis of Non-holonomic Path Planning Method for Vehicle Parking Assistance System</b> Changhwan Song(Korea University), Daehie Hong(Korea University), Wooseok Seo(Korea University)
	PP206	050	<b>Development of Piezo Actuator Based Dynamic Testing System for Thin Plate Material</b> Daejhoong Yun(Pusan National University), Jung Hwan Ahn(Pusan National University)
	PP207	411	<b>Design of An Independently Driven Continuous Track System for Disaster Robot</b> Dongbin Shin(Korea University), Daehie Hong(Korea University), Yeonho Ko(Korea University)
	PP208	450	<b>Fabrication of rubber bush with multi-property phase using smart materials</b> Jin-Woo Oh(Seoul National University), Ji-Soo Kim(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	PP209	368	<b>Natural Convection Heat Transfer Enhancement by Chimney Effect in Plate-Fin Heat Sink</b> Jong-Dae Kim(Korea Institute of Machinery and Materials), Young-Bog Ham(Korea Institute of Machinery and Materials)
	PP210	093	<b>A Study on the Collision Characteristic of the Side Car Crash Simulation with various barrier</b> Min-sik Lee(Pusan National University), Chung-gil Kang(Pusan National University)
	PP211	509	<b>Development of handling performance optimization of the meta model based on the CTBA vehicle model</b> Minwoo Joo(Kookmin University), Kyueun Cho(Kookmin University), Younggeul Park(Kookmin University), Jayil Jeong(Kookmin University)
	PP212	236	<b>AEBS Safety Simulation of highway cut-in scenarios</b> myoungyeon Park(Kookmin University), WooYeong Jang(Kookmin University), YoungGeul Park(Kookmin University), InSeong Choi(Korea Automobile Testing & Research Institute, Korea Transportation Safety Authority), YunSeog Hong(Korea Automobile Testing & Research Institute, Korea Transportation Safety Authority), JaeKon Shin(Korea Automobile Testing & Research Institute, Korea Transportation Safety Authority), JayIl Jeong(Kookmin University)

17:00-18:00	<b>PP213</b>	084	<b>Development of Quadrupedal Ambulatory Miniature Robot using Piezoelectric Benders</b> Seong Kyu Cheon(Changwon National University), Seong Su Jeong(Changwon National University), Min Ho Park(Changwon National University), Ho Ik Jun (Changwon National University), Jung Hwan Kim(Changwon National University), Tae Hoon Kim(Changwon National University), Tae Gone Park(Changwon National University)
	<b>PP214</b>	251	<b>Development of Ball Bearing Friction Performance Tester</b> Seung Won Choi(Kangwon National University), Hyung Jin Kim(Kangwon National University), Young Ho Seo(Kangwon National University), Byeong Hee Kim(Kangwon National University)
	<b>PP215</b>	367	<b>Modeling and analysis of linear roller bearings</b> Sun-Woong Kwon(Kumoh National Institute of Technology), Van-Canh Tong(Kumoh National Institute of Technology), Seong-Wook Hong(Kumoh National Institute of Technology)
	<b>PP216</b>	086	<b>Design of an piezoelectric actuator which has T-shaped stator</b> Tae Hoon Kim(Changwon National University), Tae Gone Park(Changwon National University), Seong Su Jeong(Changwon National University), Ho Ik Jun(Changwon National University), Seong Kyu Cheon(Changwon National University), Min Ho Park(Changwon National University), Jeong Hwan Kim(Changwon National University)
	<b>PP217</b>	166	<b>Vibration analysis of flexible rotor system supported by angular contact ball bearings</b> Seong-Wook Hong(Kumoh National Institute of Technology), Van-Canh Tong(Kumoh National Institute of Technology), Eui-Wook Jeong(Kumoh National Institute of Technology), Sun-Woong Kwon(Kumoh National Institute of Technology)
	<b>PP218</b>	147	<b>A study on the application of the right leg drive in electromyography-the effects of DC offset onto the common mode noise</b> Zinvi Fu(Universiti Teknikal Malaysia Melaka), Ahmad Yusairy Bani Hashim(Universiti Teknikal Malaysia Melaka), Zamberi Jamaludin(Universiti Teknikal Malaysia Melaka), Imran Syakir Mohamad(Universiti Teknikal Malaysia Melaka)
	<b>PP219</b>	329	<b>Experimental validation of an RTC (reaction torque compensated) Induction Motor</b> Manh-Hai HOANG(Soongsil University), Hyeong-Joon AHN(Soongsil University)

Manufacturing Processes 4			300A (3Floor)
17:00-18:00	PP220	099	<b>Investigation of the PEB(Polymer Elastic Bump) Face-Down Assembly Process for Ultra-Thin Flexible Package</b> Jae Hak Lee(Korea Institute of Machinery and Materials), Chung Woo Lee(Korea University of Science and Technology), Yong Jin Kim(Korea Institute of Machinery and Materials), Seung Man Kim(Korea Institute of Machinery and Materials), Jun-Yeob Song(Korea Institute of Machinery and Materials)
	PP221	143	<b>Double exposure sintering of conductive ink for fabrication of flexible electronics</b> Won Seok Chang(Korea University of Science and Technology), Seok Yong Ji(Korea University of Science and Technology)
	PP222	145	<b>Mapping of light-confinement effect on ZnO nanograting structure using confocal microscopy based scanning photocurrent measurement</b> Won Seok Chang(Korea Institute of Machinery and Materials), Cheolmin Park(Korea Institute of Machinery and Materials)
	PP223	364	<b>Flexible 3D Interconnection and Repair Technology for Hybrid Flexible Electronics Devices</b> Yongjin Kim(Korea Institute of Machinery and Materials), Jae Hak Lee(Korea Institute of Machinery and Materials), Seung Man Kim(Korea Institute of Machinery and Materials), Joon Yub Song(Korea Institute of Machinery and Materials)
	PP224	223	<b>Enhancing Transdermal Drug Delivery By Porous PLGA-Coated SUS Microneedles</b> Asad Ullah(Kyungpook National University), Chul Min Kim(Kyungpook National University), Gyu Man Kim(Kyungpook National University)
	PP225	203	<b>Fabrication and experiment of quantitative injection microfluidic chip applicable to chemical luminescence tests</b> Bong Su Kang(Kyungpook National University), Moon Kyu Kwak(Kyungpook National University)
	PP226	277	<b>Analysis an electric field during electrospinning process with hollow circular collector</b> DongHee Kang(Chonnam National University), HyunWook Kang(Chonnam National University)
	PP227	480	<b>The effect of generation of reverse current on relative ratio in <math>\mu</math>-EDM using deionized water</b> Hyeong Gyun Cheong(Seoul National University), Yoo Seok Kim(Seoul National University), Chong Nam Chu(Seoul National University)
	PP228	273	<b>Investigation of Flash Lamp Annealing Effects on ITO Thin Films Deposited on PI Flexible Substrates</b> Kim Yoonsuk(Hongik University), Park Seunggho(Hongik University), Hwang Jin-Ha(Hongik University), Kim Byung-Kuk(Viatron technologies), Kim Hyoung June(Viatron technologies), Choi Yoojin(Hongik University)
	PP229	483	<b>The influence of absorbent viscosity on laser-induced backside wet etching microfabrication</b> Kui Kam Kwon(Seoul National University), Haan Kim(Seoul National University), Chong Nam Chu(Seoul National University)



17:00-18:00	<b>PP230</b>	078	<b>Shape-control of 0D/1D NaFe<sub>0.9</sub>Mn<sub>0.1</sub>PO<sub>4</sub> nano-complex by electrospinning</b> Mi-Ra Shin(Korea National University of Transportation), Jong-Tae Son(Korea National University of Transportation), Jin-Ju Bae(Korea National University of Transportation), Ji-Woong Shin(Korea National University of Transportation), Kyoung-Tae Kim(Korea National University of Transportation)
	<b>PP231</b>	443	<b>An efficient water collection on a superhydrophilic surface with patterned hydrophobic regions using hierarchical nano structures</b> Na Kyong Kim(Chonnam National University), Hyun Wook Kang(Chonnam National University)
	<b>PP232</b>	423	<b>Plasmonic Metasurfaces Fabrication by Nano-Transfer method</b> SoonHyoung Hwang(Korea Institute of Machinery and Materials), Sohee Jeon(Korea Institute of Machinery and Materials), JunHo Jeong(Korea Institute of Machinery and Materials), Jae Ryoung Youn(Seoul National University)
	<b>PP233</b>	283	<b>Coloring Effect Of Various Nano-Pore Diameters On The Aluminum Alloy With Anodizing Process</b> Yoo Su Kang(Kangwon National University), Woong Ki Jang(Kangwon National University), Young Ho Seo(Kangwon National University), Byeong Hee Kim(Kangwon National University)
	<b>PP234</b>	298	<b>Optimal Arrangement of VCSEL Modules for Uniform Thermal Annealing of Large-Scale Silicon Wafers</b> Youngsu Noh(Hongik University), Seongho Park(Hongik University), Yoonsuk Kim(Hongik University), Hyoungjune Kim(Hongik University), Byungkuk Kim(Viatron Technologies, Inc.), Wangjun Park(Viatron Technologies, Inc.)
	<b>PP235</b>	422	<b>Fabrication and application of 3D cross-structure based on nanoimprint lithography and welding technology</b> Zhijun Zhao(Korea Institute of Machinery and Materials), Ji-Hye Lee(Korea Institute of Machinery and Materials), Dae-Geun Choi(Korea Institute of Machinery and Materials), Sang-Hu Park(Pusan National University), Jun-Ho Jeong(Korea Institute of Machinery and Materials)
	<b>PP236</b>	382	<b>Nanometer-scale 2D perforation of freestanding graphene via energetic ion bombardment</b> Hyung Gyu Park(ETH Zurich)

Energy / Fuel Cell		300A (3Floor)	
17:00-18:00	PP237	485	<b>A Study on the Design of a Pitch Controller of a Small-Scale Wind Turbine Simulator to Emulate a MW Wind Turbine</b> Chae Wook Lim(Hanbat National University)
	PP238	500	<b>Shape Optimization of Generator in Large-Scale Wind Turbine by Desirability Function Approach</b> Hyo-Lim Kang(Dong A University), Tae-An Kim(Dong A University), Hye-Won Han (Dong A University), Hyung-Joon Park(Dong A University), Seung-Ho Han(Dong A University)
	PP239	456	<b>Spray-Coated PbS Quantum Dot Ink Solar Cells</b> Hyekeyoung Choi(Korea Institute of Machinery and Materials), Sam S. Yoon(Korea University), Hyung Cheoul Shim(Korea Institute of Machinery and Materials), Sohee Jeong(Korea Institute of Machinery and Materials)
	PP240	109	<b>Functional composite films of nanocellulose and PDMS for improving the performance of solar cells</b> Jei Gyeong Jeon(Inha University), Tae June Kang(Inha University)
	PP241	438	<b>Appropriate Monitoring Platform for Renewable Energy Plants in Nepal</b> Jung-Wook Moon(Seoul National University), Jang-Yeob Lee(Seoul National University), Minsik Kim(Seoul National University), Sung-Hoon Ahn(Seoul National University)
	PP242	161	<b>A Study on Determining an Appropriate Power Trading Contract to Promote Renewable Energy Systems</b> Yeon Joo Choi(Keimyung University), Sung Yul Kim(Keimyung University)
	PP243	454	<b>Graphene Oxide Membrane for Energy Devices</b> MD SHAHJAHAN KABIR CHOWDURY(Kumoh National Institute of Technology), Yong-il Park(Kumoh National Institute of Technology), SungBum Park(Kumoh National Institute of Technology)
	PP244	114	<b>Battery cell arrangement and cooling air flow rate effects on the cooling performance in a battery pack</b> JAEHUN CHOI(Changwon National University), Heesung Park(Changwon National University), Hwabhin Kwon(Changwon National University)
	PP245	446	<b>Verification of Durability Performance Test and Analysis for Fatigue Life Prediction of Vibration-Based Energy Harvester</b> Ji-Won Jin(Jeonbuk Institute of Automotive convergence Technology), Jae-Hoon Kim (Korea Railroad Research Institute), Ki-Weon Kang(Kunsan National University)
	PP246	391	<b>Surface-Functionalized Triboelectric Nanogenerator as a Self-Powered Gas Sensor</b> Bui Quoc Huy Nguyen(Chonnam National University), Jingui Qian(Chonnam National University), Dong-Weon Lee(Chonnam National University)
PP247	187	<b>Preparation and Characterization of Poly(methyl methacrylate) (PMMA) Microencapsulated Phase Change Materials by Solvent Evaporation Method</b> Ying-Jun Quan(Seoul National University), In-Gyu Choi(Seoul National University), Jong-Ha Yu(Seoul National University), Won-Shik Chu(Seoul National University), Stephen M. Hsu(George Washington University), Sung-Hoon Ahn(Seoul National University)	

17:00-18:00	<b>PP248</b>	449	<b>Effect of MnO<sub>2</sub> as Stabilizer in Cu-Fe based Oxygen Carrier</b> Yong Han Jeong(Yeungnam University), No-Kuk Park(Yeungnam University), Tae Jin Lee(Yeungnam University), Si Ok Ryu(Yeungnam University), Misook Kang (Yeungnam University), Jeom-In Baek(Korea Electric Power Research Institute), Ho-Jung Ryu(Korea Institute Energy Research)
	<b>PP249</b>	350	<b>The Effect of Humidification Condition on Durability Performance of PEMFC Stack</b> Hyung-Chul Noh(SEJONG Industrial Co., Ltd.), Ho-Cheol Suh(SEJONG Industrial Co., Ltd.)
	<b>PP250</b>	453	<b>Activity Tests of Rh/Al-Ce-Zr Catalyst Coated on Metal Foam Plate for Auto-Thermal Reforming of VOC</b> No-Kuk Park(Yeungnam University), Yong Han Jeong(Yeungnam University), Tae Jin Lee(Yeungnam University), Suk Hwan Kang(Institute for Advanced Engineering)
	<b>PP251</b>	260	<b>Development of microfluidic microbial fuel cell with embossed electrodes based on low oxygen permeable material</b> Hyeong-Min Cho(Hanyang University), Cheolhee Lee(Hanyang University), Do-gyun Jung(Hanyang University), Taeseong Choi(Hanyang University), Cheon-Ho Lee(Hanyang University), Yoomin Ahn(Hanyang University)
	<b>PP252</b>	513	<b>Oxygen Reduction Reaction of Thin Film Solid Oxide Fuel Cell with Different Active Areas</b> Ikwhang Chang(Wonkwang University), Yusung Kim(Seoul National University), Suk Won Cha(Seoul National University)
	<b>PP253</b>	342	<b>Reversed Transfer Process of Tribofilm Formed on Wear Track</b> Shu-Sheng Xu(Yonsei University), Dae-Eun Kim(Yonsei University)