



# ASPEN 2017

The 7<sup>th</sup> International Conference of Asian Society for  
Precision Engineering and Nanotechnology Program

November 14 Tue.  
- 17 Fri., 2017

COEX, Seoul, Korea

Organized by



Co-Organized by



Supported by





# ASPEN 2017

The 7<sup>th</sup> International Conference of Asian Society for  
Precision Engineering and Nanotechnology Program

November 14<sup>Tue.</sup>  
- 17<sup>Fri.</sup>, 2017

COEX, Seoul, Korea

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# Welcome Message



**Chun-Hong Park**

*KIMM, Korea*

*Chair of ASPEN 2017*

## Welcome to ASPEN 2017

Asian Society for Precision Engineering and Nanotechnology (ASPEN) is an academic society in the field of precision engineering and nanotechnology for Asian researchers. International conferences of ASPEN have been held biannually since 2005 in Asian cities.

This year's event will be held in Seoul, Korea from 14th to 17th of November, and I would like to express my sincere appreciation to all of you who participate in this event, the second time in Korea after Gwangju 2007, on behalf of the organizing committee.

As Asia accounts for more than 50% of the global manufacturing market, research and development in the field of precision engineering in Asian countries is more important than ever. In addition, the importance of manufacturing has recently been highlighted through the theme of 'Fourth Industrial Revolution'. For the future of manufacturing, countries around the world are striving to introduce a new paradigm beyond the traditional industrial environment.

I expect this conference to offer a good opportunity to discuss about the new industrial environment and future R&D directions in precision engineering and nanotechnology. All the members of the organizing committee will do their best to make this conference a beneficial event.

I am looking forward to seeing you in Seoul in November.

Thank you.

# Organizer, Co-organizers, Supporters

## Organized by



## Co-organized by



## Supported by



# Member of Committee

## Conference Chair, ASPEN President

<b>Chun-Hong Park</b>	Korea Inst. of Machinery & Materials (Korea)
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## ASPEN Vice President

<b>Tojiro Aoyama</b>	Keio University (Japan)
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## International Steering Committee

Honorary Chairs	<b>Shen Dong</b>	Harbin Institute of Technology (China)
	<b>Kuang-Chao Fan</b>	National Taiwan University (Taiwan)
	<b>Wing Bun Lee</b>	The Hong Kong Polytechnic University (Hong Kong)
	<b>Akira Shimokhobe</b>	Tokyo Institute of Technology (Japan)
	<b>Dong-Yol Yang</b>	GIST (Korea)
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Co-Chairs	<b>Benny C.F. Cheung</b>	The Hong Kong Polytechnic University (Hong Kong)
	<b>Fengzhou Fang</b>	Tianjin University (China)
	<b>A.Senthil Kumar</b>	National University of Singapore (Singapore)
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	<b>Kiyoshi Takamasu</b>	The University of Tokyo (Japan)
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	<b>Shih-Chi Chen</b>	Chinese University of Hong Kong (Hong Kong)
	<b>Yongsheng Gao</b>	Hong Kong University of Science & Technology (Hong Kong)
	<b>Chen Yong Hua</b>	University of Hong Kong (Hong Kong)
	<b>Jaehwan Kim</b>	Inha University (Korea)
	<b>Sun-Kyu Lee</b>	GIST (Korea)
	<b>Seung-Han Yang</b>	Kyungpook National University (Korea)
	<b>Guoxiong Zhang</b>	Tianjin University (China)
	<b>Libo Zhou</b>	Ibaraki University (Japan)

# Member of Committee

## International Science Committee

Chair	<b>Dae-Eun Kim</b>	Yonsei University (Korea)
Co-Chairs	<b>Hideki Aoyama</b>	Keio University (Japan)
	<b>Liang-Chia Chen</b>	National Taiwan University (Taiwan)
	<b>Ruxu Du</b>	Chinese University of Hong Kong (Hong Kong)
	<b>Tien-fu Lu</b>	University of Adelaide (Australia)
	<b>Liu Kui</b>	Singapore Institute of Manufacturing Technology (Singapore)
	<b>Ming Zhou</b>	Harbin Institute of Technology (China)
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	<b>Sylvie Castagne</b>	Nanyang Technological University (Singapore)
	<b>Ching-Hsiang Cheng</b>	The Hong Kong Polytechnic University (Hong Kong)
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	<b>Ping Guo</b>	Chinese University of Hong Kong (Hong Kong)
	<b>Wang Hao</b>	National University of Singapore (Singapore)
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	<b>Lau Hing Keung</b>	The Open University of Hong Kong (Hong Kong)
	<b>Tae Jo Ko</b>	Yeungnam University (Korea)
	<b>Deug Woo Lee</b>	Pusan National University (Korea)
	<b>Sung Ki Lyu</b>	Gyeongsang National University (Korea)
	<b>Keiichi Nakamoto</b>	Tokyo University of Agriculture & Technology (Japan)
	<b>Kazunori Umeda</b>	Chuo University (Japan)
	<b>Jun Wang</b>	University of New South Wales (Australia)
	<b>Kaili Zhang</b>	City University of Hong Kong (China)
	<b>Zongwei Xu</b>	Tianjin University (China)

## Organizing Committee

Chair	<b>Seong-Wook Hong</b>	Kumoh National Institute of Technology (Korea)
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	<b>Tien-fu Lu</b>	University of Adelaide (Australia)
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	<b>Geon Hee Kim</b>	Korea Basic Science Institute (Korea)
	<b>Gyu-Man Kim</b>	Kyungpook National University (Korea)
	<b>Jung-Yup Kim</b>	Seoul National University of Science and Technology (Korea)
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	<b>Deug Woo Lee</b>	Pusan National University (Korea)
	<b>Seok-Woo Lee</b>	Korea Institute of Industrial Technology (Korea)
	<b>Wonkyun Lee</b>	Chungnam National University (Korea)
	<b>Jeong Seok Oh</b>	Korea Institute of Machinery & Materials (Korea)
	<b>Hyung Wook Park</b>	UNIST (Korea)
	<b>Keun Park</b>	Seoul National University of Science and Technology (Korea)
	<b>Dongjun Shin</b>	Chung-Ang University (Korea)
	<b>Jennifer H. Shin</b>	KAIST (Korea)

## Secretary-General

<b>Byung-Kwon Min</b>	Yonsei University (Korea)
<b>Dong Yoon Lee</b>	Korea Institute of Industrial Technology (Korea)



**Young-Soo Kim**

*Principal Researcher  
Korea Astronomy and Space  
Science Institute, Korea*

## Nano Precisions in Manufacturing Giant Telescopes

*Room 5 / 11:10, 15(Wed)*

Dr. Young-Soo KIM is an Astronomer and Optical engineer, working as a Principal Researcher at Korea Astronomy and Space Science Institute. He managed the Korean Giant Magellan Telescope (GMT) project starting from initial planning and funding in Korean side up to developing the prototype of the secondary mirror system. GMT is a 25 meter next generation telescope being built by international collaboration with U.S.A., Australia, Chile, and Sao Paulo in Brazil. After having Bachelor and Master degrees in Astronomy at Yonsei University, he achieved a Ph.D. degree at UCL, London University by innovating a method for precision optical metrology. After working at European Southern Observatory in München, he made a telescope payload for a satellite at Korea Aerospace Research Institute. He currently supports small and medium companies technically by consultation, co-works, and teaching. He is also an Adjunct Professor of Chungbuk National University.



**Fengzhou Fang**

*Tianjin University, China*

## Nanomanufacturing-Perspective and Applications

**Room 3 / 15:30, 15(Wed)**

Professor Fengzhou Fang has been working in the fields of ultra-precision machining, freeform machining, micro/nano machining and metrology since 1982 when he became a faculty member at university. He holds more than 60 patents and delivered more than 90 keynote speeches and invited presentations in the international conferences, symposiums and seminars in the field of manufacturing. He initiated the series of international conferences on nanomanufacturing (nanoMan), which is one of the leading conferences in the field of manufacturing. He is the founding president of the International Society for Nanomanufacturing (ISNM), the editor-in-chief of the International Journal of Nanomanufacturing (IJNM) and council member of the International Academy for Production Engineering (CIRP). He is also a CIRP fellow, ISNM Fellow and SME Fellow.



**Wen-Yuh Jywe**

*National Formosa University,  
Taiwan*

## Industry 4.0 at National Formosa University

**Room 2 / 15:00, 16(Thu)**

The President of National Formosa University (NFU), Prof. Wen-Yuh Jywe, is a specialist in optical precision measurement, machine tool calibration measurement, and precise positioning stage design. During his doctoral study in University of Manchester Institute of Science and Technology (UMIST), he developed a measurement system for CNC machine tools based on Ball-Bar technology, which has now marketed worldwide. He has served as the dean of Engineering College, the chairperson of Department of Automation Engineering, and the President for Research and Development of NFU, etc. In 2003, he established the Precision Machine Center of NFU and served as the director. He organized a research team in which members were composed of over 10 professors in the fields including design, manufacturing, control, solid mechanics, optics, electronics and etc. He is also the independent directors of two foundations and is currently running an intelligent machine flagship-type plan founded by Taiwan Government in the next four years (2016.6~2020.5). In recent five years, he was awarded in many aspects of researches.



**A. Senthil Kumar**

*National Singapore University,  
Singapore*

## Ultra-Precision Machining of Functional Optical Features

*Room 4 / 15:30, 15(Wed)*

A. Senthil Kumar is an Associate Professor of Mechanical Engineering at the National University of Singapore. His expertise is in manufacturing with focus on Ultra precision machining, hybrid machining of micro/nano structures and fixture design. He has co-authored 2 book in fixture design and has published over 160 technical papers in International Journals and conferences. He is in the editorial board of the Journal of Manufacturing Processes, USA, International Journal for Production Technology and Management and International Journal of Materials, Manufacturing and Optimization. Earlier he has served as an associate editor of IEEE transactions of Automation Science and Engineering, USA. He is the recipient of several awards including the Outstanding Young Manufacturing Engineering Award from the Society of Manufacturing Engineering, USA and IES Prestigious Engineering Achievement Award from the Institute of Engineers, Singapore. He is a member of IIE, ASME. He has two patents to his credit and has licensed the technology and co-founded Mikrotools Pte Ltd, a spin-off company, which specializes in the manufacturing of ultra-precision machine tools. He also serves in Mikrotools as a non-executive director.



**Rongbin W.B. Lee**

*The Hong Kong Polytechnic  
University, Hong Kong*

## The Art and Science of Ultra-Precision Machining

*Room 1 / 15:00, 16(Thu)*

Professor Rongbin W.B. Lee is the Cheng Yick-chi Chair Professor of Manufacturing Engineering and Head of the State Key Laboratory of Ultra-Precision Machining Technology of The Partner Laboratory of the Hong Kong Polytechnic University. Professor Lee established the Ultra-precision Machining Centre in 1996 and the Advanced Optics Manufacturing Centre in 2003 which is the first of its kind in Hong Kong and mainland China to be engaged in the promotion and application of ultra-precision machining technology for the precision mould and advanced optics industries. Professor Lee served as the President of the Asian-Pacific Symposium on Precision Engineering and Nanotechnology (ASPEN) for the period 2009-2011. Currently he is leading an Innovation Team project funded by the Guangdong Provincial Government to develop micro-nano manufacturing capabilities in China. His research interests include advanced materials processing, ultra-precision machining, manufacturing strategy and knowledge management. He has published two books as well as more than 300 papers in international journals.

**Sun-Kyu Lee**

*Gwangju Institute of Science and Technology (GIST), Korea*

## Micro Pattern Generation Using an Electromagnetically Actuated Spindle

*Room 1 / 15:30, 15(Wed)*

Prof. Sun-Kyu Lee graduated Seoul National University in 1980, got his Ph.D. in 1991 from Tokyo Institute of Technology. He had worked in the R&D of Toyoda Machine Works and Samsung Heavy Industry. Currently he works in the Gwangju Institute of Science and Technology (GIST). Major researches are machine tool design and control, sensor and measurement. He was in charge of the president of Korean Society for Precision Engineering (KSPE) in 2015. He has published more than 70 papers in international journals. He received Paper Award from Japan Machine Tool Engineering Foundation in 2017.

**Satoru Takahashi**

*The University of Tokyo, Japan*

## New Developments for Next-generation Precision Engineering Opened with Localized Light Energy Control

*Room 2 / 15:30, 15(Wed)*

Prof. Satoru Takahashi, born 1969, received his bachelor's and master's degrees in the Mechanical Engineering for Industrial Machinery and Systems from Osaka University, Japan in 1993 and 1995, respectively. He received his doctor degree from Osaka University in 2002. He is currently working as a full professor of the University of Tokyo (U Tokyo), Japan, and leads the Photon based Advanced Manufacturing Science Division of the Research Center for Advanced Science and Technology (RCAST) of UTokyo. His research interests include the nano-in-process measurement, nano-scale-metrology, and nano/micro microfabrication using the advanced optics based on not only far-field optics but also localized photon energy such as evanescent light, near-field light, and so on. In parallel, he worked at the University of Toronto, Canada in 2011, as a visiting professor.

He is a member of the ASPE, EUSPEN, JSPE, JSME, and CIRP and has been awarded various prizes from national academic communities, including three JSPE Best Awards, four JSPE Best Paper Awards, two JSPE Numata Memorial Prize, and has also received various international awards of EUSPEN Recommended Poster (2007), IMEKO Award Certification of Merit for the Paper (2007), ASPEN Best Paper Award (2009), Outstanding Paper Award of ISMQC (2010), and Certificate of Merit for Outstanding Presentation of LEM (2013 and 2015).



**Makoto Abe**

*National Institute of Advanced  
Industrial Science and Technology  
(AIST), Japan*

## Dimensional Metrology, as Expected to Become a Key for Manufacturing Industry Today

*Room 2 / 13:30, 15(Wed)*

Dr. Makoto Abe works for Dimensional Standards Group, Research Institute for Engineering Measurement, National Metrology Institute of Japan (NMIJ) / National Institute of Advanced Industrial Science and Technology (AIST) as Research group leader. He is in charge of Dimensional Standards Group as the Research Group Leader and currently active for dissemination of state-of-the-art coordinate metrology to industry, development of dimensional X ray CT, and development of performance evaluation frame work for non-contact non-Cartesian CMS. His fields of interest are Coordinate metrology, Reliability in dimensional measurement, Dimensional X ray CT, and Optical coordinate measurement.



**Beomjoon Kim**

*The University of Tokyo, Japan*

## High-Performance Hybrid power Generator Based on Low Frequency Stochastic Resonance

*Room 3 / 13:30, 15(Wed)*

Prof. Beomjoon Kim is professor in The University of Tokyo. He received his bachelor's degree from Seoul National University and master's, Ph.D. degrees from The University of Tokyo, respectively. He works for the Institute of Industrial Science, The University of Tokyo since 2000. He has published 82 peer reviewed journal papers, 160 international conference papers, 161 domestic conference and related other academic books, patents, etc. His research fields are MEMS, Bio-NEMS, Micro/nano patterning, soft lithography, Self-assembly, Supramolecular chemistry, Heat transfer in nano structures, Micro/nano heaters for molecular Eng., Wearable/flexible POC sensors, Energy-harvesting sensors, Micro-needle based Drug Delivery Systems.



**Ming-Chyuan Lu**

*National Chung Hsing University,  
Taiwan*

## Sensor and Feature Selection for Tool Condition Monitoring in Intelligent Manufacturing

*Room 1 / 10:00, 16(Thu)*

Dr. Ming-Chyuan Lu is currently an associate professor at Department of Mechanical Engineering, National Chung Hsing University, Taiwan. His research interests focus on the manufacturing condition monitoring, intelligent manufacturing and micro machining. Dr. Lu received his B.S. degree in Mechanical Engineering from National Cheng Kuang University, Taiwan at 1991, M.S. degree in Power Mechanical Engineering from National Tsing Hua University, Taiwan, at 1993 and Ph.D. degree in Mechanical Engineering from University of Michigan at Ann Arbor, USA, at 2001. Prior to pursuing his Ph.D. degree in the University of Michigan at Ann Arbor, Dr. Lu was as an associate engineer of Opto-Electronics and System lab. of ITRI in Hsinchu, Taiwan, from 1993-1996 for the inkjet printer system design. During his Ph.D. study at Ann Arbor, Dr. Lu joined ERC/RMS center at University of Michigan for the research focusing on the multi-sensor applications for tool condition monitoring. Prior to joining NCHU as an assistant professor at 2006, Dr. Lu joined Nano-Architect Research Corporation in Hsinchu, Taiwan from 2001 to 2005 as a project manager/manager for the plasma equipment development, and was as a researcher of Mechanical and System Lab. of ITRI in Taichung, Taiwan for the machine tool system development. His Research Interests are Tool Condition Monitoring, Micro Machining, Manufacturing Process Monitoring.



**Jungjae Park**

*Korea Research Institute of  
Standards and Science (KRISS),  
Korea*

## Precision Dimensional Metrology on Next-generation Semiconductor and Display Industry

*Room 2 / 10:00, 16(Thu)*

Dr. Jungjae Park received his B.S., M.S and Ph.D. degrees in dept. of mechanical engineering, Korea Advanced Institute of Science and Technology (KAIST) respectively. He works at Center for Length, Division of Physical Metrology, Korea Research Institute of Standards and Science (KRISS), Korea as a senior research scientist. He has experiences; Guest researcher; Surface and Microform Metrology Group (SMM) / Mechanical Metrology Division (MMD) / Physical Measurement Laboratory (PML) / National Institute of Standards and Technology (NIST), United States(2009~2010) and Postdoctoral researcher; Ultrafast Optics for Ultraprecision Technology Research Center, Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea. Also he was awarded General Chair Prize Best Paper Award, ASPEN 2009 (Nov. 12, 2009, Kitakyushu, Japan).



**Werner Karl Schomburg**

*RWTH Aachen University,  
Germany*

## Low-Cost Fabrication of Polymer Micro Systems by Ultrasound

**Room 4 / 13:30, 15(Wed)**

Prof. Dr. Werner Karl Schomburg obtained his diploma in theoretical physics at the University of Kiel in 1983.

In 1987 at the University of Munich he obtained his Ph.D. in experimental nuclear physics. He then was working for the LIGA process at Karlsruhe and became leader of a group developing low-cost micro fluidic devices from polymers.

In 2004 he became a professor at RWTH Aachen University and the director of the newly founded institute KEmikro. His research interests are ultrasonic fabrication of micro devices from thermoplastic polymers.

From 2006 to 2009 he was every year teaching as a guest professor for 3 weeks at Tsinghua University at Beijing.

Recently, the 2nd edition of his book "Introduction to Microsystem Design" has been issued. He has published more than 240 scientific papers.



**Jeong Whan Yoon**

*KAIST, Korea /  
Deakin University, Australia*

## Recent Issues in Forming Limit and Fracture Modeling

**Room 4 / 10:00, 16(Thu)**

Jeong Whan Yoon is currently Professor of Mechanical Engineering at KAIST, Korea currently and also Professor of Applied Mechanics at Deakin University. He is leading the International Consortium for Innovative Manufacturing (ICIM) with General Motors toward high reliability design and manufacturing for lightweight materials and structures. The consortium includes six Tier-1 members, and one Tier-2 and three Tier-3 industry members. He led Boeing-chaired manufacturing research (AusAMRC) at Swinburne University from 2010 to 2013. He has published over 200 technical papers for international journals and conferences with over 4000 citations (H-index: 33, Scopus). He received "2008 International Journal of Plasticity Award" for outstanding contributions in the field of plasticity. He has been serving as an "Editorial-Board" member for International Journal of Plasticity since 2008. As guest editors, he edited seven special issues at Int. J. Plasticity and two special issues at Int. J. Solids & Structures. He also has diverse industry experiences including LG Electronics (Korea) for product development, MSC Software Corporation (USA) for MSC. Nastran & Marc source code development and Alcoa Technical Center (USA). He served as the chairman of NUMISHEET2014 held in Melbourne, Australia. He received his PhD at KAIST, Korea in 1997.

# Program at a Glance

COEX Hall E1~E8(3F, East side)

Date / Time	Room#1 / E1	Room#2 / E2	Room#3 / E3	Room#4 / E4	Room#5 / E6
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## Nov. 14 (Tue.)

15:00	<b>Registration Open</b> - Lobby of Hall E, COEX				
18:00	<b>Welcome Dinner(Invitational)</b> - Room 301, COEX				

## Nov. 15 (Wed.)

08:30	<b>Registration Open</b> - Lobby of Hall E, COEX				
09:30~10:50	Additive Manufacturing System	Precision Machine Design	MEMS/NEMS	Nano/Bio Technology	
10:50~11:00	<i>Coffee Break</i>				
11:00~11:10	<b>Opening Ceremony</b> - Room#5(E5, E6)				
11:10~11:50	<b>Plenary Speech / Young-Soo Kim (Korea)</b> - Room#5(E5, E6)				
12:00~13:30	<b>Conference Lunch</b> - Restaurant Lu, 1F, COEX		<b>* ASPEN Board Meeting</b> - Hall E7(For board members of ASPEN)		
13:30~13:50		<b>Invited Speech 1</b> Makoto Abe	<b>Invited Speech 2</b> Beomjoon Kim	<b>Invited Speech 3</b> Werner K. Schomburg	
13:50~15:10	Manufacturing Systems and Machine Tools 1	Metrology 1	Micro/Nano Fabrication Processes 1	Molding and Forming Technology	Non-traditional Manufacturing Processes 1
15:10~15:30	<i>Coffee Break</i>				
15:30~16:00	<b>Keynote Speech 1</b> Sun-Kyu Lee	<b>Keynote Speech 2</b> Satoru Takahashi	<b>Keynote Speech 3</b> Fengzhou Fang	<b>Keynote Speech 4</b> A. Senthil Kumar	
16:00~18:00	Manufacturing Systems and Machine Tools 2	Metrology 2	Micro/Nano Fabrication Processes 2	Optical Applications 1	Non-traditional Manufacturing Processes 2

## Nov. 16 (Thu.)

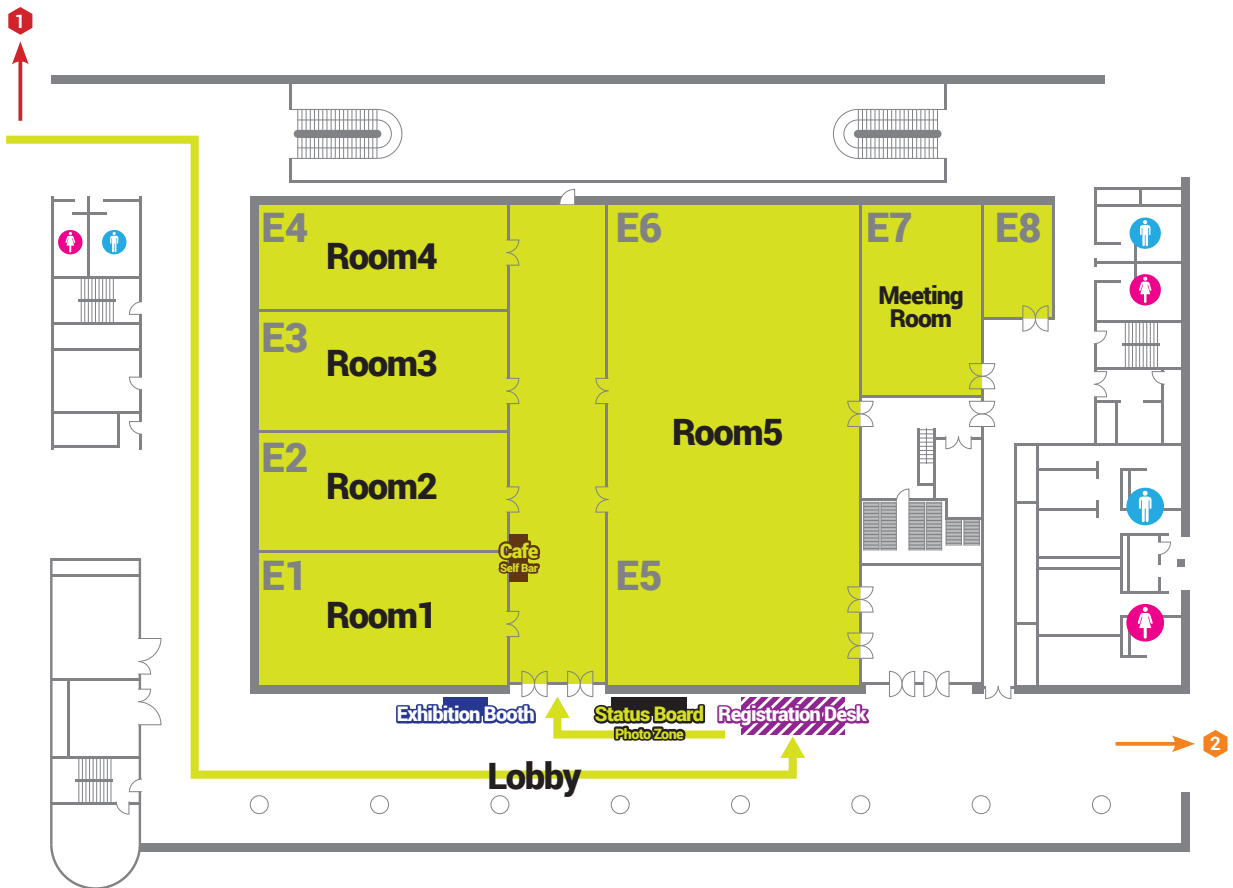
09:00	<b>Registration Open</b> - Lobby of Hall E, COEX				
10:00~10:20	<b>Invited Speech 4</b> Ming-Chyuan Lu	<b>Invited Speech 5</b> Jungjae Park		<b>Invited Speech 6</b> Jeong Whan Yoon	
10:20~12:00	High Speed and Precision Machining 1	Metrology 3	Micro/Nano Fabrication Processes 3	Optical Applications 2	
12:00~13:30	<b>Conference Lunch</b> - Restaurant Lu, 1F, COEX				
13:30~14:50	<b>Poster Presentation with Coffee &amp; Cookies</b> - Lobby				
14:50~15:00	<i>Break</i>				
15:00~15:30	<b>Keynote Speech 5</b> Rongbin WB. Lee	<b>Keynote Speech 6</b> Wen-Yuh Jywe			
15:30~17:30	High Speed and Precision Machining 2	Automation, Robotics / Mechatronics	Surface Properties and Characterization	Other Topics Related to Precision Engineering	
18:00~20:00	<b>Banquet</b> - Room#5(E5,E6)				

## Nov. 17 (Fri.)

10:00	Technical Tour	Departure
11:00		Hyundai WIA
11:50		Lunch at dormitory restaurant at Hanyang University
13:00~14:00		Cim and Robotics Laboratory, Hanyang University - Prof. Chang-Soo Han
15:00		Arrival back in Seoul



# Floor Plan



1

- Peyto Hotel / URI& Hotel
- Samsung Station(Line No.2 Green Line)
- City Airport Terminal

Exhibition Booth

Nanowin Corp.

**nanowin**  
Innovation nanotechnology

**queensgate**  
a brand of Quantum Technology

2

- InterContinental COEX Hotel
- Bongeunsa Station(Line No.9 Brown Line)

# General Information

## Registration

Category	Early & Presenter Registration	Pre & On-Site Registration
<b>Date</b>	<b>By October 20, 2017</b>	<b>From October 23, 2017</b>
<b>Regular</b>	USD <b>600</b> / KRW <b>660,000</b>	USD <b>650</b> / KRW <b>700,000</b>
<b>Student</b>	USD <b>300</b> / KRW <b>330,000</b>	USD <b>350</b> / KRW <b>400,000</b>
<b>Banquet</b>	USD <b>70</b> / KRW <b>80,000</b>	

\* Registration desk at the lobby of Hall E, COEX.

\* Early-bird : Inform the name of participants to Registration desk and Get the Name tag and conference KIT

\* On-Site : Available at registration desk(Both by Credit card or cash)

\* Receipt : Can download and Print out at <http://aspen2017.kspe.or.kr> after log-in. Also you can have the confirmation of attendance attached with name tag.

## Guidelines for Oral Presentation

**Each Regular Presentation** : 20mins / 15mins for Presentation and 5mins for Q&A

**Presentation Matters** : Please bring your presentation file by your own memory stick and upload to the lap-top computer on the podium. And be at the presentation room 10mins before the session

Please wear your name tag and follow the session chair. You can ask ASPEN staff in blue vest for help

## Guidelines for Poster Presentation

**Poster size** : Max. A0 (841mm×1,189mm) sized Printed matters

**Presentation Matters** : Please bring your presentation printed matter by your own hands and stick under the Paper ID and Title 10mins before the session

Please wear your name tag in front of your poster board. You can ask ASPEN staff in blue vest for help

# General Information

## Meeting

<b>ASPEN Board Meeting</b> (Round Table of ASPEN)	<b>12:00,</b> <b>November 15 (Wed)</b>	<b>Hall E7</b>
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## Awards

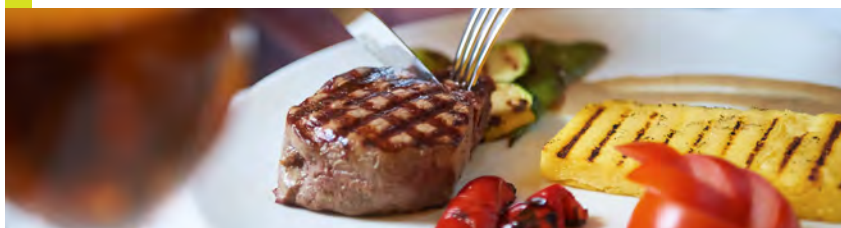
Young Researcher Awards and Best Paper Awards will be presented during Conference Banquet for ASPEN 2017.

## Conference Lunch

Date	November 15 (Wed)	November 16 (Thu)
Time	12:00 ~ 13:30	
Restaurant	Korean Restaurant Lu: (1F, East side, COEX)	

\* Please bring your own Lunch coupons for each days

## Conference Banquet



<b>Hall E5, E6</b>	<b>18:00, November 16 (Thu)</b>
<b>Performance</b>	Korean Traditional Drum Performance, Chamber Trio with Strings

\* Please bring your own Banquet coupons for each days

# Technical Tour

## Hyundai WIA

One of the Global Leading Company for Machine Tools



## Cim and Robotics Laboratory, Hanyang University (C&R Lab.)

Various robotic technologies are studied and realized in this laboratory (led by Prof. Chang-Soo Han)



\* Departure : **10:00, Nov. 17(Fri),**  
Gate North, COEX

\* Lunch will be served by ASPEN 2017

\* Back to COEX, Seoul around 16:00

# Exhibition of Industries

**Name of  
Company**

**Nanowin Corp.**

**CEO**

Raehwan Cho

**Home Page**

[www.inanowin.com](http://www.inanowin.com)

**Address**

#403, GwangMyeong Bldg., 89, Seongnae-ro,  
Gangdong-gu, Seoul

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**Contents for  
Exhibition**

- \* Piezo Stage
- \* Piezo Actuator
- \* Objective Lens focusing system
- \* Nanopositioning system



# ASPEN 2017

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The 7<sup>th</sup> International Conference of Asian Society for  
Precision Engineering and Nanotechnology Program

November 14<sup>Tue.</sup>  
- 17<sup>Fri.</sup>, 2017

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COEX, Seoul, Korea



# Technical Program Information

- Guest Speeches
  - Oral Presentations
  - Poster Presentations
-

# Guest Speeches

Speaker / Affiliation	Title	Date / Place	Time	Paper ID
<b>Young-Soo Kim</b> Korea Astronomy and Space Science Institute, Korea	Nano Precisions in Manufacturing Giant Telescopes	<b>15 (Wed)</b> Room 5(E5,6)	11:10	PLE-01
<b>Sun-Kyu Lee</b> Gwangju Institute of Science and Technology(GIST)	Micro Pattern Generation Using an Electromagnetically Actuated Spindle	<b>15 (Wed)</b> Room 1(E1)	15:30	KEY-01
<b>Satoru Takahashi</b> The University of Tokyo	New Developments for Next-generation Precision Engineering Opened with Localized Light Energy Control	<b>15 (Wed)</b> Room 2(E2)	15:30	KEY-02
<b>Fengzhou Fang</b> Tianjin University	Nanomanufacturing-Perspective and Applications	<b>15 (Wed)</b> Room 3(E3)	15:30	KEY-03
<b>A.Senthil Kumar</b> National Singapore University	Ultra-Precision Machining of Functional Optical Features	<b>15 (Wed)</b> Room 4(E4)	15:30	KEY-04
<b>Rongbin WB. Lee</b> Hong Kong Polytech University	The Art and Science of Ultra-Precision Machining	<b>16 (Thu)</b> Room 1(E1)	15:00	KEY-05
<b>Wen-Yuh Jywe</b> National Formosa University	Industry 4.0 at National Formosa University	<b>16 (Thu)</b> Room 2(E2)	15:00	KEY-06
<b>Makoto Abe</b> AIST	Dimensional metrology, as expected to become a key for manufacturing industry today	<b>15 (Wed)</b> Room 2(E2)	13:30	IVT-01
<b>Beomjoon Kim</b> The University of Tokyo	High-Performance Hybrid power Generator based on Low Frequency Stochastic Resonance	<b>15 (Wed)</b> Room 3(E3)	13:30	IVT-02
<b>Werner K. Schomburg</b> RWTH Aachen University	Low-Cost Fabrication of Polymer Micro Systems by Ultrasound	<b>15 (Wed)</b> Room 4(E4)	13:30	IVT-03
<b>Ming-Chyuan Lu</b> National Chung Hsing University	Sensor and Feature Selection for Tool Condition Monitoring in Intelligent Manufacturing	<b>16 (Thu)</b> Room 1(E1)	10:00	IVT-04
<b>Jungjae Park</b> Korea Research Institute of Standards and Science	Precision Dimensional Metrology on Next-generation Semiconductor and Display Industry	<b>16 (Thu)</b> Room 2(E2)	10:00	IVT-05
<b>Jeong Whan Yoon</b> KAIST	Recent Issues in Forming Limit and Fracture Modeling	<b>16 (Thu)</b> Room 4(E4)	10:00	IVT-06



# Oral Presentations

Novemver 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
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## Additive Manufacturing System

Room 1(E1)

**Chair** Ta-Hsin Chou(Industrial Technology Research Institute)

09:30~09:50	AMS-O-01	<p><b>Additive Process for Flexible Printed Circuit Boards by Gravure Offset Printing Technology</b></p> <p>Ta-Hsin Chou(Industrial Technology Research Institute), Wei-Yuan Chen(Industrial Technology Research Institute), Jui-Wen Pan(National Chiao Tung University), Yu-Ming Wang(Industrial Technology Research Institute), Yi-Wei Lin(Industrial Technology Research Institute), Kai-Jiun Wang(Industrial Technology Research Institute), Sheng-Yu Lin(Industrial Technology Research Institute)</p>
09:50~10:10	AMS-O-02	<p><b>Investigation into the Fabrication Characteristics of Melting Bead in Electron Beam Melting Process using a Plasma Electron Beam</b></p> <p>Ho-Jin Lee(Chosun University), Dong-Gyu Ahn(Chosun University), BihLii Chua(Chosun University), Eun Goo Kang(Korea Institute of Industrial Technology (KITECH)), Jin-Seok Kim (Korea Institute of Industrial Technology (KITECH))</p>
10:10~10:30	AMS-O-03	<p><b>Study on Molding Conditions of Highly Accurate Metal Additive Manufacturing</b></p> <p>Tomohiro Satou(Keio University), Hideki Aoyama(Keio University)</p>

## Manufacturing Systems and Machine Tools 1

Room 1(E1)

**Chair** Dein Shaw(National Tsing Hua University)  
Jihyun Lee(Korea Institute of Machinery and Materials (KIMM))

13:50~14:10	MSM-O-01	<p><b>Rapid Geometric Calibration of Five-axis Machine Tool using Dynamic R-test</b></p> <p>Christian Brecher(Laboratory for Machine Tools and Production Engineering (WZL)), Jan Behrens(Fraunhofer Institute for Production Technology IPT), Matthias Brozio(Fraunhofer Institute for Production Technology IPT), Tae Hun Lee(Fraunhofer Institute for Production Technology IPT), Dominik Sensen(Fraunhofer Institute for Production Technology IPT)</p>
14:10~14:30	MSM-O-02	<p><b>Optimal Placements of Multiple Tuned Mass Dampers for Suppressing Vibrations</b></p> <p>Jihyun Lee(Korea Institute of Machinery and Materials (KIMM)), Changju Kim(Korea Institute of Machinery and Materials (KIMM)), Jeogseok Oh(Korea Institute of Machinery and Materials (KIMM))</p>
14:30~14:50	MSM-O-03	<p><b>Tool Design and Implementation for Thermally Assisted Ultraprecision Diamond Turning</b></p> <p>Akshay Chaudhari(National University of Singapore), Elijah Kwabena Antwi(National University of Singapore), Hao Wang(National University of Singapore), Kui Liu(Singapore Institute of Manufacturing Technology), A Senthil Kumar(National University of Singapore), Jianyu Tu (National University of Singapore), Xinquan Zhang(Singapore Institute of Manufacturing Technology)</p>
14:50~15:10	MSM-O-04	<p><b>Tool Wear Analysis on Inconel 718 Machining with High Pressure Coolant</b></p> <p>Seung Gi Kim(Korea Institute of Industrial Technology (KITECH)), Gi Dong Yang(Korea Institute of Industrial Technology (KITECH)), Kyung Hee Park(Korea Institute of Industrial Technology (KITECH)), Dong Yoon Lee(Korea Institute of Industrial Technology (KITECH))</p>

November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
<b>Manufacturing Systems and Machine Tools 2</b>		
<b>Room 1(E1)</b>		
<b>Chair</b> Joocho Hwang(Korea Institute of Machinery and Materials (KIMM))		
16:20~16:40	MSM-O-05	<b>Effect of Drawbar on Response of Spindle in Dynamics Aspect</b> Joocho Hwang(Korean Institute of Machinery and Material (KIMM)), Dang Chi Cong(University of Science and Technology), Jongyoup Shim(Korean Institute of Machinery and Material (KIMM)), Chunhong Park(Korean Institute of Machinery and Material (KIMM))
16:40~17:00	MSM-O-06	<b>Design and Analysis of the Hybrid Journal Bearing with Several Porous Pads</b> Dein Shaw(National Tsing Hua University), Hui-An Hsieh(National Tsinghua University), Yi-Yun Chen(National Tsinghua University), Yang-Jun Wang(National Tsinghua University)
17:00~17:20	MSM-O-07	<b>Design and Implementation of an Adaptive Repetitive Sliding Mode Control of Fast Tool Servo System for Diamond Cutting of Micro-structured Surface</b> Fang Duan(Zhejiang University), Anyu Sun(Zhejiang University), Cheng Chen(Zhejiang University), Bingfeng Ju(Zhejiang University)
17:20~17:40	MSM-O-08	<b>Precision Multi-Roller Leveling Machine Development for Manufacturing of Magnetic Encoding Medium</b> Brian Chen(National Tsing Hua University), Jen-Yuan (James) Chang(National Tsing Hua University)

**Precision Machine Design****Room 2(E2)**

<b>Chair</b> Hichem Nouria(Laboratoire National de Métrologie et d'Essais (LNE)) Jeong Seok Oh(Korea Institute of Machinery and Materials (KIMM))		
09:30~09:50	PMS-O-01	<b>Design of a Flow Restrictor for Hydrostatic Bearings Using Artificial Neural Network</b> Yi-Feng Chang(National Tsing Hua University), Chin-Wen Cheng(National Tsing Hua University), Cheng-Hao Shih(National Tsing Hua University), Cho-Yu Yang(National Tsing Hua University), Cheng-Kuo Sung(National Tsing Hua University)
09:50~10:10	PMS-O-02	<b>Thermal Drift Control of a Dimensional Metrology System at the Nanometer Level of Accuracy</b> Hichem Nouria(Laboratoire National de Métrologie et d'Essais (LNE)), Kamelia Bouderbala (Laboratoire National de Métrologie et d'Essais (LNE))
10:10~10:30	PMS-O-03	<b>Application of the Thermo-Friendly Concept in the Design of a Hydrostatic Spindle</b> Joseph C. H. Shin(National Tsing Hua University), Tsu-Lien Chou(National Tsing Hua University), Issac C. Y. Huang(National Applied Research Laboratories), Cho-Yo Yang(National Tsing Hua University), Cheng-Kuo Sung(National Tsing Hua University), Shuo-Wu Shih(National Tsing Hua University), Jen-Yuan Chang(National Tsing Hua University)
10:30~10:50	PMS-O-04	<b>Design and Development of Two-degree-of-freedom Parallel Manipulator for Tilting Laser Interferometry Tracking System</b> Baris Celik(Shizuoka University), Takaaki Oiwa(Shizuoka University), Junichi Asama(Shizuoka University)

## November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
<b>Metrology 1</b> <span style="float: right;"><b>Room 2(E2)</b></span>		
<b>Chair</b> Benny Cheung(The Hong Kong Polytechnic University) Chu-Shik Kang(Korea Research Institute of Standards and Science (KRISS))		
13:50~14:10	MET-O-01	<b><i>Absolute Distance Measurement Using Comb Referenced Multi-wavelength Interferometer</i></b> Yoon-Soo Jang(Korea Advanced Institute of Science and Technology (KAIST)), Guochao Wang (High-tec Institution of Xi'an), Hyun Jay Kang(Korea Advanced Institute of Science and Technology (KAIST)), Young-Jin Kim(Nanyang Technological University (NTU)), Seung-Woo Kim (Korea Advanced Institute of Science and Technology (KAIST))
14:10~14:30	MET-O-02	<b><i>A Method to Effectively Compensate the Self-heating Effect of Platinum Resistance Thermometers in Precision Dimensional Metrology</i></b> Tadesse Gergiso Gebrie(Korea University of Science and Technology (UST)), Chu-Shik Kang (Korea Research Institute of Standards and Science (KRISS)), Agustinus Praba Drijarkara (University of Science and Technology (UST))
14:30~14:50	MET-O-03	<b><i>Evaluation of Minimum Zone Fitting Algorithms for Accurate Metrology of Aspherical Surfaces</i></b> Yassir Arezki(Laboratoire National de Métrologie et d'Essais (LNE)), Charyar Mehdi-Souzani (ENS Paris-Saclay), Xiangchao Zhang(Fudan University), Nabil Anwer(ENS Paris-Saclay), Hichem Nouira(Laboratoire National de Métrologie et d'Essais (LNE))
14:50~15:10	MET-O-04	<b><i>Design of Multi-degree-of-freedom Macro-Micro Fast Integrated Detection System for Complex Structural Parts</i></b> Qirong Zhang(Beijing Institute of Technology), Xin Jin(Beijing Institute of Technology), Tingzhi Hu(Beijing Institute of Technology), Muzheng Xiao(Beijing Institute of Technology), Zhijing Zhang(Beijing Institute of Technology)

November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
<b>Metrology 2</b>		
<b>Room 2(E2)</b>		
<b>Chair</b> Jungjae Park(Korea Research Institute of Standards and Science (KRISS))		
16:00~16:20	MET-O-05	<b><i>Nanometer Profile Measurement on Large Aspheric Optical Surface</i></b> Xiang Guo(The University of Tokyo), Satoru Takahashi(The University of Tokyo), Yohan Kondo(National Institute of Advanced Industrial Science Technology), Youichi Bitou (National Institute of Advanced Industrial Science Technology), Kiyoshi Takamasu (The University of Tokyo)
16:20~16:40	MET-O-06	<b><i>The Development of an Absolute Internal Distance Measurement Between Two Ball Lenses Within Sub-Micro Accuracy</i></b> Agustinus Winarno(The University of Tokyo), Shusei Masuda(The University of Tokyo), Satoru Takahashi(The University of Tokyo), Hirokazu Matsumoto(The University of Tokyo), Kiyoshi Takamasu(The University of Tokyo)
16:40~17:00	MET-O-07	<b><i>Accuracy Evaluation of Optical Comb Probe for Coordinate Measuring Machines Verification</i></b> Shohei Hara(The University of Tokyo), Winarno Agustinus(The University of Tokyo), Satoru Takahashi(The University of Tokyo), Hirokazu Matsumoto(The University of Tokyo), Kiyoshi Takamasu(The University of Tokyo)
17:00~17:20	MET-O-08	<b><i>Monitor Resin's Curing Degree for In-process Measurement in Micro-stereolithography</i></b> Deqing Kong(The University of Tokyo), Masaki Michihata(The University of Tokyo), Kiyoshi Takamasu(The University of Tokyo), Satoru Takahashi(The University of Tokyo)
17:20~17:40	MET-O-09	<b><i>On-machine Metrology for Precision Manufacturing of Structured and Freeform Surfaces</i></b> Benny Cheung(The Hong Kong Polytechnic University), Mingyu Liu(The Hong Kong Polytechnic University), Da Li(The Hong Kong Polytechnic University), Lesley Ho(The Hong Kong Polytechnic University)
17:40~18:00	MET-O-10	<b><i>On-machine Measurement of Workpiece Inclination for Double-face Diamond Turning</i></b> Bo Wen(Tohoku University), Yuan-Liu Chen(Tohoku University), Shu Wang(Tohoku University), Yuki Shimizu(Tohoku University), Wei Gao(Tohoku University), Hiraku Matsukuma(Tohoku University)

## November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
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## MEMS/NEMS

## Room 3(E3)

**Chair** Takasi Nisisako(Tokyo institute of technology)

09:30~09:50	MEM-O-01	<b><i>Hands-off Particles Separation using a Deterministic Lateral Displacement Microfluidic Device</i></b> Naotomo Tottori(Tokyo Institute of Technology), Takasi Nisisako(Tokyo Institute of Technology)
09:50~10:10	MEM-O-02	<b><i>A Soft and Disposable Step-emulsification Device for Generating Monodisperse Emulsions and Particles</i></b> Seungman Choi(Tokyo Institute of Technology), Naotomo Tottori(Tokyo Institute of Technology), Rui Zhang(Tsinghua University), Takasi Nisisako(Tokyo Institute of Technology)
10:10~10:30	MEM-O-03	<b><i>Stage-top-incubator System for Mechanical Stimulation Real-time Monitoring of Growing Cells</i></b> Yun-Jin Jeong(Chonnam National University), Dong-Weon Lee(Chonnam National University)

## Micro/Nano Fabrication Processes 1

## Room 3(E3)

**Chair** Futoshi Iwata(Shizuoka University)  
Gyu-Man Kim(Kyungpook National University)

13:50~14:10	MNF-O-01	<b><i>Topography Modeling of 3D Elliptical Vibration-assisted Micro-texture Turning</i></b> Chen Zhang(Nanjing University of Aeronautics and Astronautics), Yun Song(Nanjing University of Aeronautics and Astronautics)
14:10~14:30	MNF-O-02	<b><i>Ultra-precision Machining of Greyscale Micro Image on Metal Surface Comprised of Inverted Pyramid Features</i></b> Rui Huang(National University of Singapore), Xinquan Zhang(Singapore Institute of Manufacturing Technology), A. Senthil Kumar(National University of Singapore), Weekeong Neo(National University of Singapore), Kui Liu(Singapore Institute of Manufacturing Technology)
14:30~14:50	MNF-O-03	<b><i>Effects of Stamp Geometry on Transfer-printing of Au Thin-film</i></b> Atsushi Kawahata(Tokyo Metropolitan University), Kazuto Nagahashi(Tokyo Metropolitan University), Arata Kaneko(Tokyo Metropolitan University)

## November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
<b>Micro/Nano Fabrication Processes 2</b> <span style="float: right;"><b>Room 3(E3)</b></span>		
<b>Chair</b> ▶ Arata Kaneko(Tokyo Metropolitan University)		
16:00~16:20	MNF-O-04	<b><i>Fabrication of ZnO Hollow Micro-spheres on a Substrate with Hydrothermal Method Using Self-assembled Particles as Nuclei and its Application to Gas Sensors</i></b> Daiki Funakawa(Tokyo Metropolitan University), Nobuyuki Moronuki(Graduate School of System Design, Tokyo Metropolitan University)
16:20~16:40	MNF-O-05	<b><i>Improvement of Fabrication of Multiple Microstructures using Quasi-multiple Spots Formed by a Spatial Light Modulator</i></b> Toshiaki Matsuura(Shizuoka University), Futoshi Iwata(Shizuoka University)
16:40~17:00	MNF-O-06	<b><i>Local Electrophoresis Deposition Using a Scanning Ion Conductance Microscope with a Theta Nanopipette</i></b> Masayoshi Yoshioka(Shizuoka University), Futoshi Iwata(Shizuoka University)
17:00~17:20	MNF-O-07	<b><i>High-precision Etching Method using Atmospheric-pressure Plasma for Channel-cut Crystal X-ray Monochromators</i></b> Yuki Morioka(Osaka University), Takashi Hirano(Osaka University), Yasuhisa Sano(Osaka University), Satoshi Matsuyama(Osaka University), Testo Katayama(Japan Synchrotron Radiation Institute), Taito Osaka(RIKEN SPring-8), Makina Yabashi(RIKEN SPring-8), Kazuto Yamauchi(Osaka University)
17:20~17:40	MNF-O-08	<b><i>Study on V-shaped Microgroove Machining of Oxygen-free Copper by Inclined Tool Cutting</i></b> Xiaobin Dong(Beijing Institute of Technology), Tianfeng Zhou(Beijing Institute of Technology), Siqin Pang(Beijing Institute of Technology), Zhiqiang Liang(Beijing Institute of Technology), Xibin Wang(Beijing Institute of Technology)

# Oral Presentations

November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
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## Nano/Bio Technology

Room 4(E4)

**Chair** Ming Chang(Chung Yuan Christian University)

09:30~09:50	NBT-O-01	<b><i>A Mathematical Investigation for the Estimation of Piezoelectric Actuator Displacement for High Speed Motion Sensorless Control</i></b> Tien-Fu Lu(University of Adelaide)
09:50~10:10	NBT-O-02	<b><i>DLC-Based Nanocomposites for Bio Applications</i></b> Oleksiy V. Penkov(Yonsei University), Mehdi Kheradmandfard(University of Tehran), Jung-Seung Lee(Yonsei University), Seung-Woo Cho(Yonsei University), Dae-Eun Kim (Yonsei University)
10:10~10:30	NBT-O-03	<b><i>High-throughput Cardiac Toxicity Screening System</i></b> Jong Yun Kim(Chonnam National University), Nomin-Erdene Oyunbaatar(Chonnam National University), Dong-Weon Lee(Chonnam National University)

## Molding and Forming Technology

Room 4(E4)

**Chair** Keun Park(Seoul National University of Science and Technology)

13:50~14:10	MFT-O-01	<b><i>Metal-polymer Injection Molded Direct Joining Using Electrolyte Jet Machining</i></b> Xiaoyan Lyu(The University of Tokyo), Fuminobu Kimura(The University of Tokyo), Yonghua Zhao(The University of Tokyo), Masanori Kunieda(The University of Tokyo), Yusuke Kajihara(The University of Tokyo)
14:10~14:30	MFT-O-02	<b><i>Effect of Vibration Transmission Direction in Ultrasonic Thermoforming</i></b> Hojin Bae(Seoul National University), Hyun-Joong Lee(Seoul National University), Keun Park(Seoul National University of Science and Technology)
14:30~14:50	MFT-O-03	<b><i>Development of the Micro-molding Technology using Ultrasonic Vibration Energy</i></b> Keun Park(Seoul National University of Science and Technology), hyun-Joong Lee (Seoul National University of Science and Technology)

November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
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## Optical Applications 1

**Room 4(E4)**

**Chair** ▶ Geon Hee Kim(Korea Basic Science Institute)

Gyungho Khim(Korea Institute of Machinery and Materials (KIMM))

16:00~16:20	OPT-O-01	<b><i>Study on Performance Evaluation for Collimating Lens of Laser Diode</i></b> Yue Zhang(Tianjin University), Fengzhou Fang(Tianjin University), Le Song(Tianjin University)
16:20~16:40	OPT-O-02	<b><i>Iodine Frequency Stabilized Laser Diode and Displacement Measuring Interferometer based on Sinusoidal Phase Modulation with a Suppression of Residual Amplitude Modulation</i></b> Quang Anh Duong(Nagaoka University of Technology), Masato Aketagawa(Nagaoka University of Technology), Masato Higuchi(Nagaoka University of Technology), Wei Dong(Nagaoka University of Technology)
16:40~17:00	OPT-O-03	<b><i>Direct Phase Determination Method for Sinusoidal Frequency Modulation Interferometer</i></b> Masato Higuchi(Nagaoka University of Technology), Masato Aketagawa(Nagaoka University of Technology), Jin Asano(Nagaoka University of Technology), Quang Anh Duong(Nagaoka University of Technology), Wei Dong(Nagaoka University of Technology)
17:00~17:20	OPT-O-04	<b><i>Strain Distribution Measuring Automatic System with Speckle Shearing Interferometer Using Laser Diodes</i></b> Takuya Nakamichi(National Institute of Technology, Nara College), Takayuki Tamaki(National Institute of Technology, Nara College), Yoshihiro Oshida(National Institute of Technology, Nara College)
17:20~17:40	OPT-O-05	<b><i>Correction of the Laser Diode Wavelength by Grating Diffraction Effect</i></b> Yindi Cai(Dalian University of Technology), Zhifeng Lou(Dalian University of Technology), Kuang-Chao Fan(Dalian University of Technology)

## Non-traditional Manufacturing Processes 1

**Room 5(E6)**

**Chair** ▶ Akira Kakuta(Tokyo National College of Technology)

Bo Hyun Kim(Soongsil University)

13:50~14:10	NTR-O-01	<b><i>Influences of Electrolyte Jet Posture and Workpiece Geometry on Performances of Electrolyte Jet Machining</i></b> Yonghua Zhao(The University of Tokyo), Masanori Kunieda(The University of Tokyo)
14:10~14:30	NTR-O-02	<b><i>Tungsten Machining with Electrostatic Induction Feeding ECM</i></b> Wei Han(The University of Tokyo), Masanori Kunieda(The University of Tokyo)
14:30~14:50	NTR-O-03	<b><i>Grain Distance Effect on the Material Removal Mechanism</i></b> Xue Yang(Tianjin University), Zhongjun Qiu(Tianjin University), Xue Li(Tianjin University)
14:50~15:10	NTR-O-04	<b><i>Development of Press Molding Preform Design and Fabrication Method with Unfolded Diagram for CFRP</i></b> Tatsuki Ikari(Sophia University), Hidetake Tanaka(Sophia University), Haruhisa Sakamoto(Sophia University), Naoki Asakawa(Kanazawa University)



## November 15 Wed.

Time	Paper ID	Title / Speaker / Affiliation
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## Non-traditional Manufacturing Processes 2

## Room 5(E6)

**Chair** Wei Han(The University of Tokyo)

Seung Kook Ro(Korea Institute of Machinery and Materials (KIMM))

16:00~16:20	NTR-O-05	<b><i>Investigating Tungsten Carbide Small Holes Drilling Characteristic by Desktop Micro ECM with NaOH Solution</i></b> Yung-Yi Wu(National Taipei University of Technology), Dong-Yea Sheu(National Taipei University of Technology)
16:20~16:40	NTR-O-06	<b><i>Thinning of SiC wafer by Plasma Chemical Vaporization Machining at Sub-atmospheric Pressure Condition</i></b> Yuuki Inoue(Osaka University), Risa Mukai(Osaka University), Satoshi Matsuyama(Osaka University), Yasuhisa Sano(Osaka University), Kazuto Yamauchi(Osaka University)
16:40~17:00	NTR-O-07	<b><i>Fabrication of Cu-electroformed Mirrors for X-ray Focusing</i></b> Gota Yamaguchi(The University of Tokyo), Hidekazu Mimura(The University of Tokyo), Takehiro Kume(The University of Tokyo)
17:00~17:20	NTR-O-08	<b><i>Fabrication of Micro Grinding Tools of PCD and PCBN using Micro EDM</i></b> Pyeong An Lee(Soongsil University), Bo Hyun Kim(Soongsil University), Seung Man Jung(Soongsil University)
17:20~17:40	NTR-O-09	<b><i>Change in Magnetic Flux Density Consider of Shape and Internal Temperature for Permanent Magnets by EDM</i></b> Shogo Toyama(Kogakuin University), Hideki Takezawa(Kogakuin University), Kengo Komathu(Kogakuin University)

November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
<div> <b>High Speed and Precision Machining 1</b> <div>Room 1(E1)</div> </div>		
<div> <div>Chair</div> Junjie Zhang(Harbin Institute of Technology)  Wonkyun Lee(Chungnam National University) </div>		
10:20~10:40	HSP-O-01	<p><b><i>Mechanical Property Induced Failure Behavior of Super Abrasives Considering Speed Sensitivity</i></b></p> <p>Geng Zhi(Tsinghua University), Xuekun Li(Tsinghua University), Liping Wang(Tsinghua University), Yiming Rong(Southern University of Science and Technology)</p>
10:40~11:00	HSP-O-02	<p><b><i>Study on the Effect of Grain Size Variation on Ground Surface Roughness</i></b></p> <p>Tomohiro Maezaki(Ibaraki University), Jun Shimizu(Ibaraki University), Teppei Onuki(Ibaraki University), Hirotaka Ojima(Ibaraki University), Masatomo Inui(Ibaraki University), Yutaro Ebina(Ibaraki University), Libo Zhou(Ibaraki University)</p>
11:00~11:20	HSP-O-03	<p><b><i>Fast Tool Servo Assisted Ultra-precision Turning of Freeform Optics on Infrared Materials</i></b></p> <p>Zexiao Li(Tianjin University), Fengzhou Fang(Tianjin University), Linlin Zhu(Tianjin University), Siyu Huang(Tianjin University), Xiaodong Zhang(Tianjin University)</p>
11:20~11:40	HSP-O-04	<p><b><i>Comparison of Different Interpolation Methods for Fast-Axis Diamond Turning</i></b></p> <p>Christian Brecher(Fraunhofer Institute for Production Technology IPT), Christian Wenzel(Innolite GmbH), Matthias Brozio(Fraunhofer Institute for Production Technology IPT), Tae Hun Lee(Fraunhofer Institute for Production Technology IPT), Dominik Sensen(Fraunhofer Institute for Production Technology IPT)</p>
11:40~12:00	HSP-O-05	<p><b><i>Study on the Evolution of Residual Stress and Distortion Evaluation of a Machined Product for AA 7085</i></b></p> <p>Hyun Sung Choi(Korea Advanced Institute of Science and Technology (KAIST)), Sudeok Kim(Korea Advanced Institute of Science and Technology (KAIST)), Jeong Whan Yoon(Korea Advanced Institute of Science and Technology (KAIST)), Yong Nam Kwon(Korea Institute of Materials Science (KIMS)), Ki-Jung Kim(LG Core Technology Team)</p>

November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
<b>High Speed and Precision Machining 2</b> <span style="float: right;"><b>Room 1(E1)</b></span>		
<p style="text-align: center;"> <b>Chair</b> ▶ Keiichi Nakamoto(Tokyo University of Agriculture and Technology)              Hyung Wook Park(Ulsan National Institute of Science and Technology (UNIST))           </p>		
15:30~15:50	HSP-O-06	<b><i>A Novel Approach in Deep Hole Drilling of Inconel 718</i></b> Afzaal Ahmed(NUS Singapore), Mustafizur Rahman(NUS Singapore), A. Senthil Kumar (NUS Singapore)
15:50~16:10	HSP-O-07	<b><i>Geometrical Process Characteristic for CFRP boring with Radius End-mill Considering Fiber Orientation</i></b> Takahiro Kawamura(Sophia University), Hidetake Tanaka(Sophia University), Ichiro Yoshida (Hosei University), Haruhisa Sakamoto(Sophia University)
16:10~16:30	HSP-O-08	<b><i>Investigation of Flow Stress and Specific Cutting Energy for the Variation of Material Grain Size in Ultra-Precision Machining</i></b> M. Azizur Rahman(National University of Singapore (NUS)), Mustafizur Rahman(National University of Singapore (NUS)), A.Senthil Kumar(National University of Singapore (NUS))
16:30~16:50	HSP-O-09	<b><i>Predictive Force Model for Cryogenic Milling Process of CGI (Compacted Graphite Iron)</i></b> Do Young Kim(Ulsan National Institute of Science and Technology (UNIST)), Dong Min Kim (Ulsan National Institute of Science and Technology (UNIST)), Hyung Wook Park(Ulsan National Institute of Science and Technology (UNIST))
16:50~17:10	HSP-O-10	<b><i>Characterization of Electroplated Diamond Wire using Evaluation System and Mathematical Model</i></b> Do-Yeon Kim(Korea Institute of Industrial Technology (KITECH)), Hyoung-Jae Kim(Korea Institute of Industrial Technology (KITECH)), Tae-Kyung Lee(Korea Institute of Industrial Technology (KITECH)), Chul-Jin Park(Korea Institute of Industrial Technology (KITECH)), Haedo Jeong(Pusan National University)
17:10~17:30	HSP-O-11	<b><i>Tool Wear Behavior during CFRP End Milling According to Machining Conditions</i></b> Min-Keon Lee(Gwangju Institute of Science and Technology (GIST)), Byoung-Kwon Sim (Gwangju Institute of Science and Technology (GIST)), Yoon-Hyung Choi(Gwangju Institute of Science and Technology (GIST)), Sun-Kyu Lee(Gwangju Institute of Science and Technology (GIST))
17:30~17:50	HSP-O-12	<b><i>An Investigation of Surface Generation by an Integrated Computer Controlled Ultra-precision Polishing Approach</i></b> Lai Ting Ho (The Hong Kong Polytechnic University), Chi Fai Cheung(The Hong Kong Polytechnic University) Sau Wa Yuen(The Hong Kong Polytechnic University)

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Time	Paper ID	Title / Speaker / Affiliation
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## Metrology 3

## Room 2(E2)

**Chair** Yung-Tien Liu(National Kaohsiung First University of Science and Technology)  
Ki-Nam Joo(Chosun University)

10:20~10:40	MET-O-11	<p><b><i>Multi-target Distance Meter and its Applications</i></b></p> <p>Seongheum Han(Korea Advanced Institute of Science and Technology (KAIST)), Heesuk Jang (Korea Advanced Institute of Science and Technology (KAIST)), Wooram Kim(Korea Advanced Institute of Science and Technology (KAIST)), Jungsuk Oh(Korea Institute of Machinery and Materials (KIMM)), Seungman Kim(Korea Institute of Machinery and Materials (KIMM)), Seung-Woo Kim(Korea Advanced Institute of Science and Technology (KAIST))</p>
10:40~11:00	MET-O-12	<p><b><i>A 3D Coordinate Measurement System Based on Absolute Distance Interferometers</i></b></p> <p>Jeong Seok Oh(Korea Institute of Machinery and Materials (KIMM)), Seungman Kim(Korea Institute of Machinery and Materials (KIMM)), Ji Hyun Lee(Korea Institute of Machinery and Materials (KIMM)), Quoc Khanh Nguyen(Korea University of Science and Technology (UST)), Seung-Woo Kim(Korea Advanced Institute of Science and Technology (KAIST)), Seong-Heum Han(Korea Advanced Institute of Science and Technology (KAIST)), Wooram Kim(Korea Advanced Institute of Science and Technology (KAIST))</p>
11:00~11:20	MET-O-13	<p><b><i>Vibration Insensitive Interferometer for Monitoring the Physical Thickness of Thin Glass Panels</i></b></p> <p>Jaeseok Bae(Korea University of Science and Technology (UST)), Jungjae Park(Korea Research Institute of Standards and Science (KRISS)), Jonghan Jin(Korea Research Institute of Standards and Science (KRISS))</p>
11:20~11:40	MET-O-14	<p><b><i>A Compact Interferometric Probe for Measuring Micro-sized Holes with High-aspect Ratio</i></b></p> <p>Heulbi Ahn(Korea University of Science and Technology (UST)), Jungjae Park(Korea Research Institute of Standards and Science (KRISS)), Jonghan Jin(Korea Research Institute of Standards and Science (KRISS))</p>
11:40~12:00	MET-O-15	<p><b><i>Precision Profile Measurement for Small Aspheric Optical Surface by an Multi-beam Angle Sensor</i></b></p> <p>Jumpei Miyachi(The University of Tokyo), Kiyoshi Takamasu(Tokyo University), Satoru Takahashi(Tokyo University)</p>

## November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
<b>Automation, Robotics/Mechatronics</b>		
<b>Room 2(E2)</b>		
<b>Chair</b> Toshiki Hirogaki(Doshisha University)		
15:30~15:50	ARM-O-01	<b><i>Investigation of Skillful Rotational Operation of Working Plate to Control of Ball Rolling Motion with a Dual Arm Robot</i></b> Yuta Mizutani(Doshisha University), Wei Wu(Doshisha University), Toshiki Hirogaki(Doshisha University), Eiichi Aoyama(Doshisha University)
15:50~16:10	ARM-O-02	<b><i>Operating Control Method of Two Industrial Robots based on Monitoring Motor Electric Current</i></b> Takuya Kadoya(Doshisha University), Toshiki Hirogaki(Doshisha University), Eiichi Aoyama(Doshisha University)
16:10~16:30	ARM-O-03	<b><i>Estimation of Transport Route Considering Homology and Intermediation Centricity for Taxi Type AGVs</i></b> Toya Takahashi(Doshisha University), Toshiki Hirogaki(Doshisha University), Eiichi Aoyama(Doshisha University), Keiji Ogawa(Ryukoku University)
16:30~16:50	ARM-O-04	<b><i>An Influence Based Error Identification for Kinematics Calibration of Serial Robotic Manipulators</i></b> Dhavalkumar Patel(University of Adelaide), Tien-Fu Lu(University of Adelaide), Lei Chen(University of Adelaide)
16:50~17:10	ARM-O-05	<b><i>Adaptive Runout Compensator Using LMS Algorithm for Micro-structuring on Inner Cylinder Surfaces</i></b> Seung Kook Ro(Korea Institute of Machinery and Materials (KIMM)), Soo-Bong Cho(Korea Institute of Machinery and Materials (KIMM)), Yangyang Guo(Korea Institute of Machinery and Materials (KIMM)), Byung-Sub Kim(Korea Institute of Machinery and Materials (KIMM)), Sungcheul Lee(Korea Institute of Machinery and Materials (KIMM)), Jong-Kweon Park(Korea Institute of Machinery and Materials (KIMM))

November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
<b>Micro/Nano Fabrication Processes 3</b>		
<b>Room 3(E3)</b>		
<b>Chair</b> Won Seok Chang(Korea Institute of Machinery and Materials (KIMM))		
10:20~10:40	MNF-O-09	<b><i>Theoretical Analysis of Multi-Beam Interference Lithography Combining Evanescent and Propagation Light</i></b> Shuzo Masui(The University of Tokyo), Yuki Suzuki(The University of Tokyo), Masaki Michihata(The University of Tokyo), Kiyoshi Takamasu(The University of Tokyo), Satoru Takahashi(The University of Tokyo)
10:40~11:00	MNF-O-10	<b><i>Double Imaging Micro-Stereolithography for One-Shot Curing of Surface Micro-Structure Unit</i></b> Yuki Matsumoto(The University of Tokyo), Yuki Suzuki(The University of Tokyo), Masaki Michihata(The University of Tokyo), Kiyoshi Takamasu(The University of Tokyo), Satoru Takahashi(The University of Tokyo)
11:00~11:20	MNF-O-11	<b><i>A Novel Technique for Precision Texturing Hard and Brittle Material Surface by Means of Laser Structured Coarse-grained Diamond Grinding Wheel</i></b> Bing Guo(Harbin Institute of technology), Mingtao Wu(Harbin Institute of technology), Qingliang Zhao(Harbin Institute of technology)
11:20~11:40	MNF-O-12	<b><i>Comparison of Removal Rate between Cu and SiO<sub>2</sub> by Ion Rich CMP Slurry</i></b> Dasol Lee(Pusan National University), Seonho Jeong(Pusan National University), Jongwoo Lee(Pusan National University), Hyunseop Lee(Tongmyong University), Haedo Jeong(Pusan National University)
11:40~12:00	MNF-O-13	<b><i>Precision Micro/Nano Machining using Fiber-based Femtosecond Laser Pulses with High Repetition Rate</i></b> Sanguk Park(Korea Advanced Institute of Science and Technology (KAIST)), Byunggi Kim(Korea Advanced Institute of Science and Technology (KAIST)), Yunseok Kim(Lasernics Co., Ltd.), Joonho You(Lasernics Co., Ltd.), Seung-Woo Kim(Korea Advanced Institute of Science and Technology (KAIST))

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Time	Paper ID	Title / Speaker / Affiliation
<b>Surface Properties and Characterization</b>		
<b>Room 3(E3)</b>		
<b>Chair</b> Jung-Chou Hung(Feng Chia University)		
15:30~15:50	SPC-O-01	<b><i>Influence of Alumina Abrasive Content on the Wear Behavior of Ti64 Alloys for Surface Finishing Operations</i></b> Indira Khadka(Nanyang Technological University), Vijay Santhanam(Nanyang Technological University), Sylvie Castagne(KU Leuven)
15:50~16:10	SPC-O-02	<b><i>An Investigation of Adhesive Surface Force on Nano-structured Surface</i></b> Kazuto Nagahashi(Tokyo Metropolitan University), Hayato Kobayashi(ELIONIX Inc.), Masayuki Hasegawa(ELIONIX Inc.), Yoshikazu Shima(ELIONIX Inc.), Arata Kaneko(Tokyo Metropolitan University)
16:10~16:30	SPC-O-03	<b><i>Nano-probing of Spontaneous Evanescent Waves on Thin Layer Films Derived from Local Noises</i></b> Akira Kikuchi(The University of Tokyo), Kuan-Ting Lin(The University of Tokyo), Hirofumi Nema(The University of Tokyo), Sunmi Kim(The University of Tokyo), Yusuke Kajihara(The University of Tokyo)
16:30~16:50	SPC-O-04	<b><i>Insulating Properties of Micro-arc Oxidation Coatings with Anodic Oxide Sealing on ECM Stainless Steel Electrode</i></b> Jung-Chou Hung(Feng-chia University), Yi-Ren Liu(Feng-chia University), Zhi-Wen Fan(Regional R&D Service Department)
16:50~17:10	SPC-O-05	<b><i>Influence of Texture Thickness on Tribological Properties of Textured Stainless Steel</i></b> Junjie Zhang(Harbin Institute of Technology), Jianguo Zhang(Nagoya University), Yelin Song(Harbin Institute of Technology), Yongda Yan(Harbin Institute of Technology), Tao Sun(Harbin Institute of Technology)
17:10~17:30	SPC-O-06	<b><i>Investigation of Tribological Characteristics of Graphene Oxide</i></b> Yuzhen Liu(Yonsei University), Mingyu Gao(Yonsei University), Dae-Eun Kim(Yonsei University)

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## Optical Applications 2

Room 4(E4)

Chair ▶ Jing-Chung Shen(National Formosa University)

10:20~10:40	OPT-O-06	<b><i>Improving Quantum Efficiency of Quantum Well-based Sensitive Terahertz Detector</i></b> Kazuyuki Yamanaka(The University of Tokyo), Sunmi Kim(The University of Tokyo), Fuminobu Kimura(The University of Tokyo), Yusuke Kajihara(The University of Tokyo)
10:40~11:00	OPT-O-07	<b><i>A New Demodulation Method for Sinusoidal Frequency/Phase Modulation Interferometer without a Lock-in Amplifier</i></b> Takehiro Nakagawa(Nagaoka University of Technology), Masato Higuchi(Nagaoka University of Technology), Wei Dong(Nagaoka University of Technology), Masato Aketagawa(Nagaoka University of Technology)
11:00~11:20	OPT-O-08	<b><i>Direct Phase Detection for Heterodyne-displacement-measuring Interferometers</i></b> Thanh Dong Nguyen(Nagaoka University of Technology), Quang Anh Duong(Nagaoka University of Technology), Masato Higuchi(Nagaoka University of Technology), Wei Dong(Nagaoka University of Technology), Masato Aketagawa(Nagaoka University of Technology)
11:20~11:40	OPT-O-09	<b><i>Effect of Amplitude Modulation on Sinusoidal Frequency Modulation Interferometer</i></b> Jin Asano(Nagaoka University of Technology), Masato Higuchi(Nagaoka University of Technology), Wei Dong(Nagaoka University of Technology), Masato Aketagawa(Nagaoka University of Technology)



# Oral Presentations

## November 16 Thu.

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### Other Topics Related to Precision Engineering

### Room 4(E4)

**Chair** Libo Zhou(Ibaraki University)

Seok-Jin Kwon(Korea Railroad Research Institute (KRII))

15:30~15:50	OPE-O-01	<p><b><i>Development of Classification Method for Micro-particle by using Acoustic Standing Wave Field</i></b></p> <p>Hirotaaka Ojima(College of Engineering, Ibaraki University), Tomohiro Inada(College of Engineering, Ibaraki University), Libo Zhou(Ibaraki University), Jun Shimizu(Ibaraki University), Teppei Onuki(College of Engineering, Ibaraki University)</p>
15:50~16:10	OPE-O-02	<p><b><i>The Study on Sound Insulation and Structural Safety of Shelter Structure by Impact Noise Generated during Shooting</i></b></p> <p>Hae Suk Lee(Agency for Defence Development), Dong-Eun Heo(Agency for Defense Development), No-Seok Park(Agency for Defense Development), Tae-Heum Na(Agency for Defense Development), Yo-Han Jang(Agency for Defense Development), Jun-Hee Hong (Chungnam National University)</p>
16:10~16:30	OPE-O-03	<p><b><i>Simulation and Analysis for Dynamic Characteristics of Servo Piston according to Pump Pressure in Axial Piston Pump</i></b></p> <p>Jeong Hwan Seo(Korea University of Science and Technology (UST)), Young Bog Ham(Korea Institute of Machinery and Materials (KIMM)), Hong Uk Kim(Korea Institute of Machinery and Materials (KIMM)), So Nam Yun(Korea Institute of Machinery and Materials (KIMM)), Young Gil Kim(DAIHO HYDRAULICS Co. Ltd.), Dang Ju Kim(DAIHO HYDRAULICS Co. Ltd.)</p>
16:30~16:50	OPE-O-04	<p><b><i>Time Delay Measurement using Multiple Orifices for Sequence Control of Injection Device</i></b></p> <p>Mojiz Abbas Trimzi(University of Science &amp; Technology(UST)/Korea Institute of Machinery &amp; Materials), Young-Bog Ham(Korea Institute of Machinery and Materials (KIMM)), Jeong-Hwan Seo(Korea University of Science and Technology (UST)), Gooy-Nam Shin(Korea Institute of Machinery and Materials (KIMM)), Jung-Ho Park(Korea Institute of Machinery and Materials (KIMM)), So-Nam Yun(Korea Institute of Machinery and Materials (KIMM))</p>

# Poster Presentations

November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
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## 1. Additive Manufacturing System

*Lobby*

13:30~14:50	AMS-P-01	<b><i>Auto Tracking Module for DED Type Metal 3D Printing System</i></b> Taeho Ha(Korea Institute of Machinery and Materials (KIMM)), Hyeonseop Shin(Korea Institute of Machinery and Materials (KIMM)), Changwoo Lee(Korea Institute of Machinery and Materials (KIMM)), Segon Heo(Korea Institute of Machinery and Materials (KIMM))
	AMS-P-02	<b><i>Preliminary Heat Transfer Analysis of Melting Process for a Powder Bed Fusion System Using an Electron Beam</i></b> Dong-Gyu Ahn(Chosun University), Bih-Lii Chua(Chosun University), Ho-Jin Lee(Chosun University)

## 2. Automation and Robotics

*Lobby*

13:30~14:50	ARM-P-01	<b><i>The Development of a DMCNET based Imaging Inspection System with Two Camera</i></b> Chun-Jen Chen(National Formosa University), Jian-Liang Xiao(National Formosa University), Hsueh-Liang Huang(National Formosa University), Tung-Hsien Hsieh(National Formosa University)
	ARM-P-02	<b><i>Design of Smart Carrying Assistance Robot for the Elderly</i></b> Jung-Yup Kim(Seoul National University of Science and Technology), Jung-Joon Kim(Seoul National University of Science and Technology)
	ARM-P-03	<b><i>Development of an Air-blowing Wing Clamp for Paper Container Forming Process</i></b> Junho Hong(Korea University), Daehie Hong(Korea University), Hyoungjong Wi(Korea University), Hakmin Kim(Korea University)
	ARM-P-04	<b><i>Automated Prestressed Wale Method using Measurement and Hydraulic Control System in Retaining Wall Construction</i></b> Myungmin Jeong(Korea University), Kyungham Kim(Korea University), Daehie Hong(Korea University)
	ARM-P-05	<b><i>Algorithm for Sloped Cutting of EPS Layer with 3D Printer using Hot Wire</i></b> Sangyeol Jeong(Korea University), Hakmin Kim(Korea University), Joon Hyuk Sim(Korea University), Dongbin Shin(Korea University), Deahie Hong(Korea University)

# Poster Presentations

## November 16 Thu.

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### 3. Die Manufacturing Processes

*Lobby*

13:30~14:50	DMP-P-01	<b><i>Intelligent Cutting Oil Supplier Based on the Cutting Force Observer</i></b> Geun Byeong Chae(Chungnam National University), Namhyun Kim(Chungnam National University), Wontaek Song(Chungnam National University), Jaeyoon Shim(Chungnam National University), Wonkyun Lee(Chungnam National University)
	DMP-P-02	<b><i>Workspace Analysis Keeping High Stiffness by using Gantry Type Robot for Robofinishing</i></b> Jong-Jae Kim(Gwangju Institute of Science and Technology (GIST)), Sang-Ki Park(Gwangju Institute of Science and Technology (GIST)), Sun-Kyu Lee(Gwangju Institute of Science and Technology (GIST))

### 4. High Speed and Precision Machining

*Lobby*

13:30~14:50	HSP-P-01	<b><i>Tool Wear Reduction Effect of MQL Jet Nanofluids in Diamond Cutting of Titanium Alloys</i></b> Pengyu Hou(Harbin Institute of Technology), Ming Zhou(Harbin Institute of Technology)
	HSP-P-02	<b><i>Improvement of Micro-end-milling Quality by High-speed Up-cut Milling for Hardened Die Steel</i></b> Keiji Ogawa(Ryukoku University), Haruki Kino(Mitsubishi Hitachi Tool Engineering, Ltd.), Takumi Imada(Industrial Research Center of Shiga Prefecture), Heisaburo Nakagawa(Nakagawa Machining R&D Center), Hitomi Kojima(Big Daishowa Seiki Co., Ltd.)
	HSP-P-03	<b><i>Motion Control of Polishing Tool by Using 3-DOF Maglev Actuator</i></b> Yang Liu(Nippon Institute of Technology), Xiaoyou Zhang(Nippon Institute of Technology), Shinichi Ninomiya(Nippon Institute of Technology)
	HSP-P-04	<b><i>A Comprehensive Model for Calculating Stiffness Matrix of Double-Row Angular Contact Ball Bearings</i></b> Van-Canh Tong(Kumoh National Institute of Technology), Seong-Wook Hong(Kumoh National Institute of Technology)
	HSP-P-05	<b><i>Fiber Pull-out Reduction Using Cryogenic Cooling in CFRP Routing Process</i></b> Tae-Gon Kim(Korea Institute of Industrial Technology (KITECH)), Kangwoo Shin(Korea Institute of Industrial Technology (KITECH)), Tae-In Ha(Yonsei University), Byung-Kwon Min(Yonsei University), Seok-Woo Lee(Korea Institute of Industrial Technology (KITECH))

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Time	Paper ID	Title / Speaker / Affiliation
<b>5. Manufacturing Systems and Machine Tools</b>		
<i>Lobby</i>		
13:30~14:50	MSM-P-01	<b><i>A Study on Automatic Compensation of Workpiece Setting Errors in Ultraprecision Machining</i></b> Ren Kitakawa(Tokyo University of Agriculture and Technology), Keiichi Nakamoto(Tokyo University of Agriculture and Technology), Yoshimi Takeuchi(Chubu University)
	MSM-P-02	<b><i>Signal Conditioning for Tool Wear Monitoring in CFRP Drilling</i></b> Chengwen Han(Kyungpook National University), Dong Sub Park(Kyungpook National University), Young Hun Jeong(Kyungpook National University)
	MSM-P-03	<b><i>Development of a Longitudinal-torsional Transducer for Ultrasonic Milling</i></b> Chenjun Wu(Harbin Institute of Technology), Shijin Chen(Harbin Institute of Technology), Caiwei Xiao(Institute of Chemical Materials), Kai Cheng(Harbin Institute of Technology), Hui Ding(Harbin Institute of Technology)
	MSM-P-04	<b><i>Machining Stability Analysis of a Head-tilting Type 5-axis Machine</i></b> Chang-Ju Kim(Korea Institute of Machinery and Materials (KIMM)), Joo-Ho Hwang(Korea Institute of Machinery and Materials (KIMM)), Chun-Hong Park(Korea Institute of Machinery and Materials (KIMM))
	MSM-P-05	<b><i>Precision On-Machine Roundness Measurement Method for Large Parts</i></b> Jongyoup Shim(Korea Institute of Machinery and Materials (KIMM)), Jeong-Seok Oh(Korea Institute of Machinery and Materials (KIMM)), Chun-Hong Park(Korea Institute of Machinery and Materials (KIMM))
	MSM-P-06	<b><i>Precompensation of Contour Errors in Machine Tool Feed Drives using State Estimator</i></b> Seong Hyeon Kim(Yonsei University), Byung-Kwon Min(Yonsei University)
	MSM-P-07	<b><i>Conical Roll Bending and Twisting Process for Fabrication of a Metallic Spiral Wind Turbine Blade</i></b> Seong Yeop Kang(Pusan National University), Sung Moon Yang(Pusan National University), Do Sik Shim(Korea Maritime and Ocean University), Sang Hu Park(Pusan National University)

# Poster Presentations

## November 16 Thu.

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### 6. Mechatronics

*Lobby*

13:30~14:50	ARM-P-06	<b><i>Human Intention Recognition Based on Contact-less Sensors to Control an Elbow and Forearm Assistive Exoskeleton</i></b> Van Tai Nguyen(The University of Adelaide), Tien-Fu Lu(The University of Adelaide), Paul Grimshaw(The University of Adelaide)
	ARM-P-07	<b><i>A Study on The Fault Diagnosis based on Ensemble Support Vector Machine Classifier</i></b> Byeonghui Park(Changwon National University), Changwoo Lee(Changwon National University)
	ARM-P-08	<b><i>Passive Repulsive Magnetic Bearing for Non-contact Vertical Transport using a Core Type Linear Motor</i></b> Hyeong-Joon Ahn(Soongsil University), Seong Jong You(Soongsil University)
	ARM-P-09	<b><i>Design of Endoscopic Auxiliary Manipulator: A Preclinical Test for Validating Feasibility</i></b> Byunggon Kim(Korea University), Junho Hong(Korea University), Sei Hoon Park(Korea University), Jun Hyuk Sim(Korea University), Dong Bin Sin(Korea University), Daehie Hong(Korea University)
	ARM-P-10	<b><i>Sensitivity Analysis of Handling Performance for MacPherson and Multilink Type Suspension Vehicles</i></b> Kyu-Eun Cho(Kookmin University), Hyun-Mo Koo(Kookmin University), Sang-Hyeop Park(Kookmin University), Young-Guel Park(Kookmin University), Minwoo Joo(Kookmin University), Jay I. Jeong(Kookmin University)

### 7. MEMS/NEMS

*Lobby*

13:30~14:50	MEM-P-01	<b><i>Fabrication of Microfluidic Device having an Embedded Porous Membrane</i></b> Jong Uk Kim(Kyungpook National University), Gyu Man Kim(Kyungpook National University), Jin Ho Choi(Gumi University), Chul Min Kim(Kyungpook National University), Han Byul Lee(Kyungpook National University)
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November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
<b>8. Metrology</b>		
13:30~14:50	MET-P-01	<b><i>Examination of Form Accuracy for Non-axisymmetric Aspheric Surface based on Levenberg-Marquardt Algorithm</i></b> Yung-Tien Liu(National Kaohsiung First University of Science and Technology), Yu-Tine Dai (National Kaohsiung First University of Science and Technology), Yutaka Yamagata(RIKEN)
	MET-P-02	<b><i>Real-time Spectroscopic Ellipsometry Using a Depolarizer</i></b> Dae Hee Kim(Chosun University), Young Ho Yun(Chosun University), Ki-Nam Joo(Chosun University)
	MET-P-03	<b><i>Development of Monitoring System for Watching Patient in the Sickroom Applying Image Processing - Construction of Basic System -</i></b> Mikio Fujio(National Institute of Technology), Hirotaka Nagashima(Kyoto University), Siho Koike (National Institute of Technology)
	MET-P-04	<b><i>Statistical Analysis of Ground Glass Surfaces</i></b> Dong Wei(Nagaoka University of Technology), Takashi Iwakura(Nagaoka University of Technology), Masato Aketagawa(Nagaoka University of Technology)
	MET-P-05	<b><i>Optical Surface Metrology using Interferometry</i></b> Tae Hyeon Kim(Gyeongnam National University), Byoung Chang Kim(Gyeongnam National University), Sun Hyuck Kim(Gyeongnam National University), Geon Hee Kim(Korea Basic Science Institute (KBSI)), Sang Won Hyun(Korea Basic Science Institute (KBSI)), Chang Kyu Kim (Nanosystemz Co.)
	MET-P-06	<b><i>Alignment and Assembly Process for Reflective Mirror Subsystem of Lithographic Projection Lens</i></b> Wei-Cheng Lin(Instrument Technology Research Center), Sheng-Tsong Chang(National Applied Laboratories), Shih-Feng Tseng(National Applied Laboratories), Cheng-Kuo Sung(National Tsing Hua University)
	MET-P-07	<b><i>Measurement of Particle on Mechanical Components of Space Launch Vehicle</i></b> Hyunwoo Kim(Korea Aerospace Research Institute), Sangyeon Cho(Korea Aerospace Research Institute), Wooseok Seol(Korea Aerospace Research Institute)
	MET-P-08	<b><i>Intelligent Sampling of Freeform and Structured Surfaces Based on Composite Kernel Regression</i></b> Mingjin Ren(Shanghai Jiao Tong University), Lijian Sun(Shanghai Jiao Tong University)

Lobby

November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
<b>9. Micro/Nano Fabrication Processes</b>		
13:30~14:50	MNF-P-01	<b><i>Microencapsulation of Phase Change Materials with Palmitic Acid Core and Polymethyl Methacrylate (PMMA) Shell for Thermal Energy Storage System</i></b> Ying-Jun Quan(Seoul National University), In-Gyu Choi(Seoul National University), Jongha Yu (Seoul National University), Won-Shik Chu(Seoul National University), Stephen Hsu(George Washington University), Sung-Hoon Ahn(Seoul National University)
	MNF-P-02	<b><i>A Laser Sintering for an EHD based Direct Writing Process on a Flexible Substrate</i></b> Seungman Kim(Korea Institute of Machinery and Materials (KIMM)), Munsung Choi(Korea Institute of Machinery and Materials (KIMM)), Yongjin Kim(Korea Institute of Machinery and Materials (KIMM)), Jae-Hak Lee(Korea Institute of Machinery and Materials (KIMM)), Jun-Yeob Song(Korea Institute of Machinery and Materials (KIMM))
	MNF-P-03	<b><i>Development of Soft X-ray Laminar-type Grating with Varied-line-spacing based on Holographic Exposure</i></b> Yuh Kamata(The University of Tokyo), Hiroto Ogimoto(The University of Tokyo), Hiroto Motoyama(The University of Tokyo), Keiichi Nakagawa(The University of Tokyo), Hidekazu Mimura(The University of Tokyo)
	MNF-P-04	<b><i>Fabrication of Bio-inspired Dry Adhesives Utilizing Precise CNC Machining and Replica Molding</i></b> Insol Hwang(Ulsan National Institute of Science and Technology (UNIST)), Minho Seong(Ulsan National Institute of Science and Technology (UNIST)), Hoon Yi(Ulsan National Institute of Science and Technology (UNIST)), Hangil Ko(Ulsan National Institute of Science and Technology (UNIST)), Hyun-Ha Park(Ulsan National Institute of Science and Technology (UNIST)), Joosung Lee(Ulsan National Institute of Science and Technology (UNIST)), Kahyun Sun(Ulsan National Institute of Science and Technology (UNIST)), Sang-Hyeon Lee(Ulsan National Institute of Science and Technology (UNIST)), Minsu Kang(Ulsan National Institute of Science and Technology (UNIST)), Hoon Eui Jeong(Ulsan National Institute of Science and Technology (UNIST))
	MNF-P-05	<b><i>Improvement of Uniformity of Micro Pattern Machining</i></b> Ki-Hyeong Song(Korea Institute of Industrial Technology (KITECH)), Young-Jae Choi(Korea Institute of Industrial Technology (KITECH)), Dong-Yoon Lee(Korea Institute of Industrial Technology (KITECH)), Hon-Zong Choi(Korea Institute of Industrial Technology (KITECH))
	MNF-P-06	<b><i>Direct Measurement of Light Confinement Effect on Nanograting Structure</i></b> Chumin Park(Korea Institute of Machinery and Materials (KIMM)), Won Seok Chang(Korea Institute of Machinery and Materials (KIMM))
	MNF-P-07	<b><i>High Precision Overlay in Multi-layer Structure using Reverse-offset Printing Process</i></b> Dongwoo Kang(Korea Institute of Machinery and Materials (KIMM)), Jeongdai Jo(Korea Institute of Machinery and Materials (KIMM)), Hyunchang Kim(Korea Institute of Machinery and Materials (KIMM)), Sin Kwon(Korea Institute of Machinery and Materials (KIMM)), Taik-Min Lee(Korea Institute of Machinery and Materials (KIMM))

Lobby

# Poster Presentations

November 16 Thu.

Time	Paper ID	Title / Speaker / Affiliation
<b>10. Molding and Forming Technology</b>		
<i>Lobby</i>		
13:30~14:50	MFTP-01	<b><i>Micro Injection Molding and Assembly of Parts in EDM Machine that was Used for Making Mold Cavities</i></b> Kazuki Oshima(The University of Tokyo), Masanori Kunieda(The University of Tokyo)
	MFTP-02	<b><i>Development of Micro-embossing Equipment for Precision Glass Optical Microstructures</i></b> Lihua Li(The Hong Kong Polytechnic University), Kin Leung Chan(The Hong Kong Polytechnic University), Chang Yuen Chan(The Hong Kong Polytechnic University), Wan Bun Lee(The Hong Kong Polytechnic University)
	MFTP-03	<b><i>Calculation of Oblique Cutting Shear Force Formula for Sheet Metal with Thickness Effect</i></b> Yiwei Zhu(Guangdong University of Technology), Qiusheng Yan(Guangdong University of Technology), Jiabin Lu(Guangdong University of Technology), Biao Tang(Guangdong University of Technology)

## 11. Nano/Bio Technology

*Lobby*

13:30~14:50	NBT-P-01	<b><i>Development of Portable Laser Lancet for Painless Blood Sampling</i></b> Taeho Ha(Korea Institute of Machinery and Materials (KIMM)), Younggyu Kim(Jinyoung HNS)
	NBT-P-02	<b><i>Antibacterial Based on Magnetically-Controlled Silver-coated Fe<sub>3</sub>O<sub>4</sub> Nanoparticles</i></b> Ming Chang(Chung Yuan Christian University), Wei-Siou Lin(Chung Yuan Christian University), Weihao Xiao(Chung Yuan Christian University)
	NBT-P-03	<b><i>Aqueous Counter Collision Water Jet Machine for Nanomaterials Processing</i></b> Lindong Zhai(Inha University), Jung Woong Kim(Inha University), Jungho Park(Inha University), Jaehwan Kim(Inha University)
	NBT-P-04	<b><i>Surface-textured Polyimide Cantilever for Cardiac Cell Study</i></b> Seonyoung Lee(Chonnam National University), Dong-Su Kim(Chonnam National University), Dong-Weon Lee(Chonnam National University)
	NBT-P-05	<b><i>Biodegradable Smart Stent for Wireless Pressure Monitoring</i></b> Jongsung Park(Chonnam National University), Ji-Kwan Kim(Gwangju University), Dong-Weon Lee(Chonnam National University)



November 16 Thu.

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Lobby

## 12. Non-traditional Manufacturing Processes

13:30~14:50	NTR-P-01	<b>Manufacturing of KDF Crystal by IBF Technology</b> Xuhui Xie(National University of Defence Technology), Shengyi Li(National University of Defence Technology), Shanyong Chen(National University of Defence Technology), Xiaoqiang Peng (National University of Defence Technology), Furen Li(National University of Defence Technology)
	NTR-P-02	<b>Electrolyte Jet Machining of Materials Prone to Passivation Using Bipolar Current</b> Satoru Kakudo(The University of Tokyo), Masanori Kunieda(The University of Tokyo)
	NTR-P-03	<b>Research on the Optimization Experiment for Precision Balls with Variable-radius Groove in Finishing Process</b> Zhen Xiang(Zhejiang University of Technology), Binghai Lyu(Zhejiang University of Technology), Julong Yuan(Zhejiang University of Technology), Ping Zhao(Zhejiang University of Technology)
	NTR-P-04	<b>Research on Machining Characteristics of Wire ECM Finishing Process using Low Concentration Electrolyte</b> Shutaro Wako(The University of Tokyo), Masanori Kunieda(The University of Tokyo), Takayuki Nakagawa(Mitsubishi Electric Corporation), Takashi Yuzawa(Mitsubishi Electric Corporation)
	NTR-P-05	<b>Autonomously Generating Nano-Micro Textured Ultra Flat Surfaces by Applying Molecular Beam Epitaxy</b> Akira Kakuta(Tokyo National College of Technology), Shunsuke Kawakami(Tokyo National College of Technology)
	NTR-P-06	<b>Proposal for Mini-KB Mirrors and Their Fabrication Processes</b> Takenori Shimamura(The University of Tokyo), Hiroto Motoyama(The University of Tokyo), Hayato Nishioka(The University of Tokyo), Hidekazu Mimura(The University of Tokyo)
	NTR-P-07	<b>Development of Differential Deposition Method for Inner Surfaces of Ellipsoidal X-ray Mirrors</b> Shunya Yokomae(The University of Tokyo), Hiroto Motoyama(The University of Tokyo), Hidekazu Mimura(The University of Tokyo)
	NTR-P-08	<b>Effect of Hydrogen Peroxide on Material Removal for Electrochemical Oxidation Assisted Machining</b> Eunseok Nam(Yonsei University), Hyunho Jo(Yonsei University), Byung-Kwon Min(Yonsei University)
	NTR-P-09	<b>Change in EDM Surface and Surface Modification with Micro-bubble Mixed EDM Fluid</b> Shingo Hayashi(Kogakuin University), Hideki Takezawa(Kogakuin University)

# Poster Presentations

November 16 Thu.

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## 13. Optical Applications

*Lobby*

13:30~14:50	OPT-P-01	<b><i>Development of an Geometric Errors Measurement System for Linear Guideway Assembly and Alignment</i></b>  Wen-Yuh Jywe(National Formosa University), Jing-Chung Shen(National Formosa University), Tung-Hsien Hsieh(National Formosa University), Hsueh-Liang Huang(National Formosa University), Zhong-Liang Hsu(National Formosa University)
	OPT-P-02	<b><i>A Study on the Application of Ultra-precision Speed Sensor to Slip-free Measurement</i></b>  Young-Sam Ham(Korea Railroad Research Institute (KRRRI))
	OPT-P-03	<b><i>Analysis of Mode-locked, Partially Mode-locked and Noise-like Pulses Generated from an All Normal Dispersion Yb Fiber Oscillator</i></b>  Munsung Choi(Korea Institute of Machinery and Materials (KIMM)), Jun-Yeob Song(Korea Institute of Machinery and Materials (KIMM)), Jae-Hak Lee(Korea Institute of Machinery and Materials (KIMM)), Yongjin Km(Korea Institute of Machinery and Materials (KIMM)), Seoungman Kim(Korea Institute of Machinery and Materials (KIMM))
	OPT-P-04	<b><i>Development of Intelligent 3D Printer</i></b>  Woo Kyung Jeon(Gyeongnam National University), Byoung Chang Kim(Gyeongnam National University), Tae Jin Park(Gyeongnam National University), Woo Song Lee(Advancement Technology Co.), Sung Jin Park(Advancement Technology Co.)

## 15. Surface Properties and Characterization

*Lobby*

13:30~14:50	SPC-P-01	<b><i>Frictional Reduction Effects of Micro Pattern Array of Rough Slider Surface Considering Asperities Contact</i></b>  Mi-Ru Kim(Pusan National University), Deug-Woo Lee(Pusan National University), Seung-Jun Lee(Pusan National University), Liang Li(Pusan National University)
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## November 16 Thu.

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## 16. Other Topics Related to Precision Engineering

Lobby

13:30~14:50	OPE-P-01	<b><i>Development of Coherent Pulse Combining Module</i></b> Jin Jang(Chosun University), Hee Won Jung(KAIST), Ki Nam Joo(Chosun University)
	OPE-P-02	<b><i>New Technique based on Reversal Method to Measure the Squareness Error of a Three-linear Axes System</i></b> Jae-Chang Lee(Kyungpook National University), Kwang-Il Lee(Kyungil University), Seung-Han Yang(Kyungpook National University)
	OPE-P-03	<b><i>Evaluation on Sub-surface Defects using Induce Focused AC Potential Drops</i></b> Seok-Jin Kwon(Korea Railroad Research Institute (KRRl)), Jung Won Seo(Korea Railroad Research Institute), Hyun Kyu Jun(Korea Railroad Research Institute), Dong Hyung Lee(Korea Railroad Research Institute), Yong Sam Ham(Korea Railroad Research Institute)
	OPE-P-04	<b><i>Eliminating Initial Oscillation in Flexible Systems by the Pole-Zero Cancellation Input Shaping Technique</i></b> Daniel Newman(University of Louisiana at Lafayette), Joshua Vaughan(University of Louisiana at Lafayette), Seong-Wook Hong(Kumoh National Institute of Technology)

Presenter	Date	Time	Paper ID	Place
<b>Guest Speakers</b>				
Kim, Young-Soo	15 (Wed)	11:10	PLE-01	Room 5(E5,6)
Lee, Sun-Kyu	15 (Wed)	15:30	KEY-01	Room 1(E1)
Takahashi, Satoru	15 (Wed)	15:30	KEY-02	Room 2(E2)
Fang, Fengzhou	15 (Wed)	15:30	KEY-03	Room 3(E3)
Kumar, A.Senthil	15 (Wed)	15:30	KEY-04	Room 4(E4)
Lee, Rongbin WB.	16 (Thu)	15:00	KEY-05	Room 1(E1)
Jywe, Wen-Yuh	16 (Thu)	15:00	KEY-06	Room 2(E2)
Abe, Makoto	15 (Wed)	13:30	IVT-01	Room 2(E2)
Kim, Beomjoon	15 (Wed)	13:30	IVT-02	Room 3(E3)
Schomburg, Werner K.	15 (Wed)	13:30	IVT-03	Room 4(E4)
Lu, Ming-Chyuan	16 (Thu)	10:00	IVT-04	Room 1(E1)
Park, Jungjae	16 (Thu)	10:00	IVT-05	Room 2(E2)
Yoon, Jeong Whan	16 (Thu)	10:00	IVT-06	Room 4(E4)

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Ahmed, Afzaal	16 (Thu)	15:30	HSP-O-06	Room 1(E1)
Ahn, Heulbi	16 (Thu)	11:20	MET-O-14	Room 2(E2)
Antwi, Elijah Kwabena	15 (Wed)	14:30	MSM-O-03	Room 1(E1)
Asano, Jin	16 (Thu)	11:20	OPT-O-09	Room 4(E4)
Bae, Jaeseok	16 (Thu)	11:00	MET-O-13	Room 2(E2)
Brozio, Matthias	16 (Thu)	11:20	HSP-O-04	Room 1(E1)
Cai, Yindi	15 (Wed)	17:20	OPT-O-05	Room 4(E4)
Celik, Baris	15 (Wed)	10:30	PMS-O-04	Room 2(E2)
Chae, Geun Byeong	16 (Thu)	13:30	DMP-P-01	Lobby
Chang, Ming	16 (Thu)	13:30	NBT-P-02	Lobby

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Chen, Brian	15 (Wed)	17:20	MSM-O-08	Room 1(E1)
Chen, Chun-Jen	16 (Thu)	13:30	ARM-P-01	Lobby
Cheung, Benny	15 (Wed)	17:20	MET-O-09	Room 2(E2)
Cho, Kyu Eun	16 (Thu)	13:30	ARM-P-10	Lobby
Choi, Hyun Sung	16 (Thu)	11:40	HSP-O-05	Room 1(E1)
Choi, Munsung	16 (Thu)	13:30	OPT-P-03	Lobby
Choi, Seungman	15 (Wed)	9:50	MEM-O-02	Room 3(E3)
Chou, Ta-Hsin	15 (Wed)	9:30	AMS-O-01	Room 1(E1)
Chua, Bih-Lii	16 (Thu)	13:30	AMS-P-02	Lobby
Dang, Chi Cong	15 (Wed)	16:20	MSM-O-05	Room 1(E1)
Dong, Xiaobin	15 (Wed)	17:20	MNF-O-08	Room 3(E3)
Duan, Fang	15 (Wed)	17:00	MSM-O-07	Room 1(E1)
Duong, Quang Anh	15 (Wed)	16:20	OPT-O-02	Room 4(E4)
Fujio, Mikio	16 (Thu)	13:30	MET-P-03	Lobby
Funakawa, Daiki	15 (Wed)	16:00	MNF-O-04	Room 3(E3)
Gebrie, Tadesse Gergiso	15 (Wed)	14:10	MET-O-02	Room 2(E2)
Guo, Bing	16 (Thu)	11:00	MNF-O-11	Room 3(E3)
Guo, Xiang	15 (Wed)	16:00	MET-O-05	Room 2(E2)
Ha, Taeho	16 (Thu)	13:30	AMS-P-01	Lobby
Ha, Taeho	16 (Thu)	13:30	NBT-P-01	Lobby
Ham, Young-Sam	16 (Thu)	13:30	OPT-P-02	Lobby
Han, Chengwen	16 (Thu)	13:30	MSM-P-02	Lobby
Han, Seongheum	16 (Thu)	10:20	MET-O-11	Room 2(E2)
Han, Wei	15 (Wed)	14:10	NTR-O-02	Room 5(E6)
Hara, Shohei	15 (Wed)	16:40	MET-O-07	Room 2(E2)
Hayashi, Shingo	16 (Thu)	13:30	NTR-O-09	Lobby
Higuchi, Masato	15 (Wed)	16:40	OPT-O-03	Room 4(E4)
Ho, Lai Ting	16 (Thu)	17:30	HSP-O-12	Room 1(E1)

Presenter	Date	Time	Paper ID	Place
Hong, Junho	16 (Thu)	13:30	ARM-P-03	Lobby
Hou, Pengyu	16 (Thu)	13:30	HSP-P-01	Lobby
Hsieh, Tung-Hsien	16 (Thu)	13:30	OPT-P-01	Lobby
Huang, Rui	15 (Wed)	14:10	MNF-O-02	Room 3(E3)
Hung, Jung-Chou	16 (Thu)	16:30	SPC-O-04	Room 3(E3)
Ikari, Tatsuki	15 (Wed)	14:50	NTR-O-04	Room 5(E6)
Inoue, Yuuki	15 (Wed)	16:20	NTR-O-06	Room 5(E6)
Jang, Jin	16 (Thu)	13:30	OPE-P-01	Lobby
Jang, Yoon-Soo	15 (Wed)	13:50	MET-O-01	Room 2(E2)
Jeon, Woo Kyung	16 (Thu)	13:30	OPT-P-04	Lobby
Jeong, Myungmin	16 (Thu)	13:30	ARM-P-04	Lobby
Jeong, Sangyeol	16 (Thu)	13:30	ARM-P-05	Lobby
Jeong, Yun-Jin	15 (Wed)	10:10	MEM-O-03	Room 3(E3)

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Kadoya, Takuya	16 (Thu)	15:50	ARM-O-02	Room 2(E2)
Kakudo, Satoru	16 (Thu)	13:30	NTR-O-02	Lobby
Kakuta, Akira	16 (Thu)	13:30	NTR-O-05	Lobby
Kamata, Yuh	16 (Thu)	13:30	MNF-P-03	Lobby
Kang, Dongwoo	16 (Thu)	13:30	MNF-P-07	Lobby
Kang, Seong Yeop	16 (Thu)	13:30	MSM-P-07	Lobby
Kawahata, Atsushi	15 (Wed)	14:30	MNF-O-03	Room 3(E3)
Kawamura, Takahiro	16 (Thu)	15:50	HSP-O-07	Room 1(E1)
Kikuchi, Akira	16 (Thu)	14:30	SPC-O-03	Room 3(E3)
Kim, Bo Hyun	15 (Wed)	17:00	NTR-O-08	Room 5(E6)
Kim, Byunggon	16 (Thu)	13:30	ARM-P-09	Lobby
Kim, Chang-Ju	16 (Thu)	13:30	MSM-P-04	Lobby

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Kim, Do Young	16 (Thu)	16:30	HSP-O-09	Room 1(E1)
Kim, Do-Yeon	16 (Thu)	16:50	HSP-O-10	Room 1(E1)
Kim, Hyunwoo	16 (Thu)	13:30	MET-P-07	Lobby
Kim, Jong Uk	16 (Thu)	13:30	MEM-P-01	Lobby
Kim, Jong Yun	15 (Wed)	10:10	NBT-O-03	Room 4(E4)
Kim, Jong-Jae	16 (Thu)	13:30	DMP-P-02	Lobby
Kim, Jung-Joon	16 (Thu)	13:30	ARM-P-02	Lobby
Kim, Mi-Ru	16 (Thu)	13:30	SPC-P-01	Lobby
Kim, Seong Hyeon	16 (Thu)	13:30	MSM-P-06	Lobby
Kim, Seung Gi	15 (Wed)	14:50	MSM-O-04	Room 1(E1)
Kim, Seungman	16 (Thu)	13:30	MNF-P-02	Lobby
Kim, Tae Hyeon	16 (Thu)	13:30	MET-P-05	Lobby
Kim, Tae-Gon	16 (Thu)	13:30	HSP-P-04	Lobby
Kitakawa, Ren	16 (Thu)	13:30	MSM-P-01	Lobby
Kong, Deqing	15 (Wed)	17:00	MET-O-08	Room 2(E2)
Kwon, Seok-Jin	16 (Thu)	13:30	OPE-P-03	Lobby
Lee, Dasol	16 (Thu)	11:20	MNF-O-12	Room 3(E3)
Lee, Hae Suk	16 (Thu)	15:50	OPE-O-02	Room 4(E4)
Lee, Ho-Jin	15 (Wed)	9:50	AMS-O-02	Room 1(E1)
Lee, Hyun-Joong	15 (Wed)	14:30	MFT-O-03	Room 4(E4)
Lee, Jae-Chang	16 (Thu)	13:30	OPE-P-02	Lobby
Lee, Jihyun	15 (Wed)	14:10	MSM-O-02	Room 1(E1)
Lee, Min-Keon	16 (Thu)	17:10	HSP-O-11	Room 1(E1)
Lee, Seonyoung	16 (Thu)	13:30	NBT-P-04	Lobby
Lee, Tae Hun	15 (Wed)	13:50	MSM-O-01	Room 1(E1)
Li, Lihua	16 (Thu)	13:30	MFT-P-02	Lobby
Li, Zexiao	16 (Thu)	11:00	HSP-O-03	Room 1(E1)
Lin, Wei-Cheng	16 (Thu)	13:30	MET-P-06	Lobby

Presenter	Date	Time	Paper ID	Place
Liu, Yang	16 (Thu)	13:30	HSP-P-03	Lobby
Liu, Yung-Tien	16 (Thu)	13:30	MET-P-01	Lobby
Liu, Yuzhen	16 (Thu)	17:10	SPC-O-06	Room 3(E3)
Lu, Tien-Fu	15 (Wed)	9:30	NBT-O-01	Room 4(E4)
Lyu, Xiaoyan	15 (Wed)	13:50	MFT-O-01	Room 4(E4)
Maezaki, Tomohiro	16 (Thu)	10:40	HSP-O-02	Room 1(E1)
Masui, Shuzo	16 (Thu)	10:20	MNF-O-09	Room 3(E3)
Matsumoto, Yuki	16 (Thu)	10:40	MNF-O-10	Room 3(E3)
Matsuura, Toshiaki	15 (Wed)	16:20	MNF-O-05	Room 3(E3)
Miyachi, Jumpei	16 (Thu)	11:40	MET-O-15	Room 2(E2)
Mizutani, Yuta	16 (Thu)	15:30	ARM-O-01	Room 2(E2)
Morioka, Yuki	15 (Wed)	17:00	MNF-O-07	Room 3(E3)

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Nagahashi, Kazuto	16 (Thu)	15:50	SPC-O-02	Room 3(E3)
Nakagawa, Takehiro	16 (Thu)	10:40	OPT-O-07	Room 4(E4)
Nakamichi, Takuya	15 (Wed)	17:00	OPT-O-04	Room 4(E4)
Nam, Eunseok	16 (Thu)	13:30	NTR-O-08	Lobby
Newman, Daniel	16 (Thu)	13:30	OPE-P-04	Lobby
Nguyen, Thanh Dong	16 (Thu)	11:00	OPT-O-08	Room 4(E4)
Nguyen, Van Tai	16 (Thu)	13:30	ARM-P-06	Lobby
Nouira, Hichem	15 (Wed)	9:50	PMS-O-02	Room 2(E2)
Nouira, Hichem	15 (Wed)	14:30	MET-O-03	Room 2(E2)
Ogawa, Keiji	16 (Thu)	13:30	HSP-P-02	Lobby
Oh, Jeong Seok	16 (Thu)	10:40	MET-O-12	Room 2(E2)
Ojima, Hirotaka	16 (Thu)	15:30	OPE-O-01	Room 4(E4)
Oshima, Kazuki	16 (Thu)	13:30	MFT-P-01	Lobby



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Park, Jongsung	16 (Thu)	13:30	NBT-P-05	Lobby
Park, Keun	15 (Wed)	14:10	MFT-O-02	Room 4(E4)
Park, Sanguk	16 (Thu)	11:40	MNF-O-13	Room 3(E3)
Patel, Dhavalkumar	16 (Thu)	16:30	ARM-O-04	Room 2(E2)
Penkov, Oleksit	15 (Wed)	9:50	NBT-O-02	Room 4(E4)
Quan, Ying-Jun	16 (Thu)	13:30	MNF-P-01	Lobby
Rahman, Muhommad A.	16 (Thu)	16:10	HSP-O-08	Room 1(E1)
Ren, Mingjun	16 (Thu)	13:30	MET-P-08	Lobby
Ro, Seung Kook	16 (Thu)	16:50	ARM-O-05	Room 2(E2)
Santhanam, Vijay	16 (Thu)	15:30	SPC-O-01	Room 3(E3)
Satou, Tomohiro	15 (Wed)	10:10	AMS-O-03	Room 1(E1)
Seo, Jeong Hwan	16 (Thu)	16:10	OPE-O-03	Room 4(E4)
Seong, Minho	16 (Thu)	13:30	MNF-P-04	Lobby
Shaw, Dein	15 (Wed)	16:40	MSM-O-06	Room 1(E1)
Shim, Jongyoun	16 (Thu)	13:30	MSM-P-05	Lobby
Shimamura, Takenori	16 (Thu)	13:30	NTR-O-06	Lobby
Song, Ki-Hyeong	16 (Thu)	13:30	MNF-P-05	Lobby
Sung, Cheng-Kuo	15 (Wed)	9:30	PMS-O-01	Room 2(E2)
Sung, Cheng-Kuo	15 (Wed)	10:10	PMS-O-03	Room 2(E2)
Takahashi, Toya	16 (Thu)	16:10	ARM-O-03	Room 2(E2)
Tong, Van-Canh	16 (Thu)	13:30	HSP-P-05	Lobby
Tottori, Naotomo	15 (Wed)	9:30	MEM-O-01	Room 3(E3)
Toyama, Shogo	15 (Wed)	17:20	NTR-O-09	Room 5(E6)
Trimzi, Mojiz Abbas	16 (Thu)	16:30	OPE-O-04	Room 4(E4)
Wako, Shutaro	16 (Thu)	13:30	NTR-O-04	Lobby
Wei, Dong	16 (Thu)	13:30	MET-P-04	Lobby
Wen, Bo	15 (Wed)	17:40	MET-O-10	Room 2(E2)
Winarno, Agustinus	15 (Wed)	16:20	MET-O-06	Room 2(E2)

Presenter	Date	Time	Paper ID	Place
Wu, Chenjun	16 (Thu)	13:30	MSM-P-03	Lobby
Wu, Yung-Yi	15 (Wed)	16:00	NTR-O-05	Room 5(E6)
Xiang, Zhen	16 (Thu)	13:30	NTR-O-03	Lobby
Xie, Xuhui	16 (Thu)	13:30	NTR-O-01	Lobby
Yamaguchi, Gota	15 (Wed)	16:40	NTR-O-07	Room 5(E6)
Yamanaka, Kazuyuki	16 (Thu)	10:20	OPT-O-06	Room 4(E4)
Yan, Qiusheng	16 (Thu)	13:30	MFT-P-03	Lobby
Yang, Xue	15 (Wed)	14:30	NTR-O-03	Room 5(E6)
Yokomae, Shunya	16 (Thu)	13:30	NTR-O-07	Lobby
Yoshioka, Masayoshi	15 (Wed)	16:40	MNF-O-06	Room 3(E3)
You, Seong Jong	16 (Thu)	13:30	ARM-P-08	Lobby
Zhai, Lindong	16 (Thu)	13:30	NBT-P-03	Lobby
Zhang, Chen	15 (Wed)	13:50	MNF-O-01	Room 3(E3)
Zhang, Junjie	16 (Thu)	16:50	SPC-O-05	Room 3(E3)
Zhang, Qirong	15 (Wed)	14:50	MET-O-04	Room 2(E2)
Zhang, Yue	15 (Wed)	16:00	OPT-O-01	Room 4(E4)
Zhao, Yonghua	15 (Wed)	13:50	NTR-O-01	Room 5(E6)
Zhi, Geng	16 (Thu)	10:20	HSP-O-01	Room 1(E1)

# Positioning to the nanometre

Queensgate Instruments, an Elektron Technology brand, specialize in creating nanopositioning and sensing solutions for high-technology industries with variants suitable for precision measurement in UHV, radiation environments and cryogenic temperatures.

## Nanopositioning



Imaging techniques often require short settle times, high resolution, high linearity, and insensitivity to objective mass variations. A short settle time reduces the imaging time, and has the potential to reduce the error resulting from movement during the scan. High resolution and high linearity will secure accurate positioning and stable focusing.

Queensgate's high-performance, precise positioning systems are piezo-driven, flexure-guided stages with integrated capacitance position sensors incorporated into a single system. They offer sub-nanometre resolution, repeatability and positional stability, and are often the choice for applications in environments where there is UHV, radiation or magnetic fields.



## Objective positioning

- Up to 400  $\mu$ m range
- Settle times in the low-millisecond range
- Suitable for objective masses up to 600 g
- Sub-nanometre positioning
- Option of dual sensor technology
- Titanium construction offering lower position drift

## Dual sensor technology

The dual-sensor-control technology provides active damping to the system, therefore significantly increasing the damping ratio and servo bandwidth, which secures minimal settling time with stable performance, regardless of the objective mass.



## Applications needing precision motion

- More precise manufacture and inspection (wafer inspection, lithography)
- Advanced scientific instruments and research (laser, beam, mirror steering, interferometry)
- Microscopy (sample scanning, 3D imaging)
- Advanced sensing (pressure, position, stress etc.)
- Photonic device manufacture
- Data storage (Hard disk test)
- Metrology
- Laser communication (point ahead mechanisms) and guidance

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queensgate  
a brand of Elektron Technology

# Call for Papers

November 12-15, 2019  
Matsue, Japan



# ASPEN 2019

## 8<sup>th</sup> International Conference of Asian Society for Precision Engineering and Nanotechnology

### Conference venue

KUNIBIKI MESSE, Shimane Prefectural Convention Center

### Conference date

Nov. 12, 2019 : Welcome  
Nov. 13 –14, 2019 : Conference  
Nov. 15, 2019 : Technical tour

### Conference topics

Additive manufacturing  
Automation, Mechatronics and Robotics  
Die Manufacturing Processes  
High Speed and Precision Machining  
Manufacturing Systems and Machine Tools  
MEMS/NEMS  
Metrology  
Micro/Nano Fabrication Processes  
Molding and Forming Technology  
Non-traditional Manufacturing Processes  
Optical/Bio/Medical Applications  
Precision Machine Design  
Surface Properties and Characterization  
Other Topics Related to Precision Engineering  
(ex. Service engineering, Green manufacturing)

### Conference committee

Conference chair: Prof. Kiyoshi Takamasu (The Univ. of Tokyo, Japan)  
Conference secretary: Prof. Satoru Takahashi (The Univ. of Tokyo, Japan)  
Program chair: Prof. Hirofumi Hidai (Chiba Univ., Japan)

### Important date

Abstract submission ————— Mar. 31, 2019  
Notification of abstract acceptance — Apr. 30, 2019  
Full paper submission ————— Jun. 15, 2019  
Notification of final acceptance — Aug. 31, 2019  
Camera-ready manuscript ————— Sep. 15, 2019  
Early registration ————— Sep. 15, 2019



<http://www.aspen-soc.org/aspen2019/>