

April 25th, 2011: Room A - C

**Plenary speech I: 9:00 ~ 10:20**

Chair person: Masaya Hagiwara(Nagoya Inst. of Tech.)

PS-01 Expansion of HV / EV / PHV and Prospects of Future Drive Train Technology  
Yuji Yasuda(Toyota Motor Corp.)

PS-02 Matching Technology for R2R Printed Electronics  
Sung Lim Ko(Konkuk Univ.)

**Plenary speech II: 10:40 ~ 12:00**

Chair person: Sun-kyu Lee(GIST)

PS-03 Present Situation and Current Problems of Developing the Mechanism for Assisting Leg Motion  
Jun Nango(Yamagata Univ.)

PS-04 **Cancelled**

April 25th, 2011: Room A

**Machine element I - Gear (1): 13:00 ~ 14:40**

Chair person: Kouitsu Miyachika(Tottri Univ.)

- A1-01 Rolling Contact Fatigue of Thermal Refining Steel Roller with a Hardness of HV 285-380  
Masahiro Fujii(Okayama Univ.), Yasunobu Miwa(Okayama Univ.), Masafumi Aoba(Mitsui Engg.&Shipbuilding Co.,LTD), Noritada Fujimura(Mitsui Engg.&Shipbuilding Co.,LTD) and Kenzo Miura(Mitsui Testing&Res. Center Co.,LTD)
- A1-02 Fatigue Strength of Steel Rollers and Gears Treated by Cavitation Peening with Short Processing Time (A Case of Processing Time of 1 minute and 5 minutes)  
Masanori Seki(Okayama Univ.), Naruto Nishie(Nakashima Propeller Co.,Ltd.), Seiya Kozai(Daikin Industries, Ltd.), Masamitsu Kakuda(Okayama Univ.), Hitoshi Soyama(Tohoku Univ.), Akima Naito(Tohoku Univ.) and Masahiro Fujii(Okayama Univ.)
- A1-03 Life Estimation of Plastic Crossed Helical Gears (Case of No Lubrication)  
Mikio Takahashi(Kisarazu Nat'l. Coll. of Tech.), Hideo Takahashi(Kisarazu Nat'l. Coll. of Tech.), Takao Koide(Tottori Univ.) and Ryozo Nemoto(Tokyo Metropolitan Coll. of Ind. Tech.)
- A1-04 Estimation of Sliding Loss in a Parallel-Axis Gear Pair  
Chanat Ratanasumawong(Chulalongkorn Univ.), Puwadon Asawapichayachot(Chulalongkorn Univ.), Haruo Houjoh(Tokyo Inst. of Tech.) and Shigeki Matsumura(Tokyo Inst. of Tech.)
- A1-05 Analysis of Transmission Error in Edge Contact of Hypoid Gear  
Takashi Kiten(Toyota Motor Corp.), Hiromi Miyamura(Toyota Motor Corp.), Yoshikatsu Shibata(Toyota Motor Corp.), Takanori Nukata(Toyota Motor Corp.) and Mitsunori Kamimura(Toyota Technical Development Corp.)

**Machine element II - Gear (2): 15:00 ~ 16:40**

Chair person: Masahiro Fujii(Okayama Univ.)

- A1-06 Heat Generation and Power Transmission Efficiency of Plastic Wheels Meshed with Steel Worm  
Takao Koide(Tottori Univ.), Mikio Takahashi(Kisarazu Nat'l. Coll. of Tech.), Hideo Takahashi(Kisarazu Nat'l. Coll. of Tech.) and Kouitsu Miyachika(Tottori Univ.)
- A1-07 Transmission Gear Noise Reduction by Control of Gear Eigenmode Frequency  
Shogo Yamada(Toyota Motor Corp.), Yuji Shimada(Toyota Motor Corp.), Takashi Shimizu(Toyota Motor Corp.) and Hiroshi Takekawa(Toyota Motor Corp.)
- A1-08 Vibration Analysis of Elliptical Gears  
Xing Liu(Hiroshima Univ.), Kazuteru Nagamura(Hiroshima Univ.), Kiyotaka Ikejo(Hiroshima Univ.), Yushiro Tachibana(Honda Motor Co., Ltd.) and Toshiyuki Matsuki(Yamazaki Mazak Corp.)
- A1-09 A Study on the Analysis of Tooth Fillet Bending Stress of Hypoid Gear that Considers Tooth Fillet Shape  
Takeshi Matsumoto(Toyota Motor Corp.) and Yoshikatsu Shibata(Toyota Motor Corp.)
- A1-10 Root Stresses of Thin-rimmed Helical Gears with Asymmetric Web Arrangement  
Daing Mohamad Nafiz Bin Daing Idris(Tottori Univ.), Kouitsu Miyachika(Tottori Univ.), Imaduddin Helmi Bin Wan Nordin(Univ. of Malaysia Perlis) and Takao Koide(Tottori Univ.)

April 25th, 2011: Room B

**Tribology I - Friction and wear(1): 13:00 ~ 14:40**

Chair person: Isami Nitta(Niigata Univ.)

- B1-01 Measurement of Hardness of Tiny Particles as Erodent in Slurry-jet Erosion  
Yoshiro Iwai(Fukui Univ.), Shota Sasaki(Fukui Univ.) and Toshiro Miyajima(Fukui Univ.)
- B1-02 Wear Particle Analysis of DLC Thin Films Focusing on Structural Changes and Characteristics under Oil Lubrication  
Toru Kamiya(Nagoya Univ.), Kenji Ohara(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.) and Noritsugu Umehara(Nagoya Univ.)
- B1-03 Friction Properties of Carbon Fiber Brush  
Yuka Otsuka(Nagoya Univ.), Yosuke Tsukiyama(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.) and Noritsugu Umehara(Nagoya Univ.)
- B1-04 Evaluation of Adhesive and Frictional Properties of Surface-Hardening Tool Using Tapered-Plug Penetration Test for Hot Aluminum  
Kazuhiko Kitamura(Nagoya Inst. of Tech.), Kazuhito Asai(Nagoya Inst. of Tech.) and Motoki Terano(Nagoya Inst. of Tech.)
- B1-05 Dynamic Friction Behaviors of Pneumatic Actuators  
Xuan Bo Tran(Toyohashi Univ. of Tech.), Yasunori Wakasawa(Toyota Nat'l. Coll. of Tech.) and Hideki Yanada(Toyota Nat'l. Coll. of Tech.)

**Tribology II - Friction and wear(2): 15:00 ~ 17:20**

Chair person: Takayuki Tokoroyama(Nagoya Univ.)

- B1-06 Observation of Micro-slip Distributions of Rubber Roller using Laser Microscope with Wide Field of View  
Isami Nitta(Niigata Univ.), Rintaro Ebuchi(Niigata Univ.) and Tsuyoshi Tsukada(Niigata Univ.)
- B1-07 Effects of Frequency and Stroke on Marine Cylinder Liner Materials under Lubricated Reciprocating Sliding  
Toku Itoh(Oita Technical Coll.)
- B1-08 Scale Shift Consideration Concerning Mechanism of Seizuring  
Ryuta Nakamura(Iwate Univ.), Akira Iwabuchi(Iwate Univ.), Yasuhiro Yoshino(Iwate Univ.) and Michimasa Uchidate(Iwate Univ.)
- B1-09 Change in Bonding Conditions between Environmentally-Friendly Solid Lubricants and Steel Billet for Cold Forging  
Kazuhiko Kitamura(Nagoya Inst. of Tech.), Motoki Terano(Nagoya Inst. of Tech.), Itaru Ishibashi(SUMICO LUBRICANT. CO., LTD) and Masahiro Sekizawa(SUMICO LUBRICANT. CO., LTD)

April 25th, 2011: Room C

**Manufacturing I - Coolant, Polishing: 13:00 ~ 14:40**

Chair person: Sung-Lim Ko(Konkuk Univ.)

Vise chair person: Hiroo Ohzeki(Kistler Japan Co., Ltd.)

C1-01 Study on Metabolic System for Water-soluble Coolant - Development of Key Technologies to Automate the Surfactant Treatment Process -  
Yasuo Kondo(Yamagata Univ.), Kenji Yamaguchi(Yonago Nat'l. Coll. of Tech.) and Satoshi Sakamoto(Yokohama Nat'l. Univ.)

C1-02 A Study on the Characteristics of Micro Electropolishing for Stainless Steel  
Sung-Hyun Kim(Inha Univ.), Sang-Gyun Lee(Inha Univ.), Sang-Koo Won(Inha Univ.), Eun-Sang Lee(Inha Univ.) and Chul-Hee Lee(Inha Univ.)  
**Cancelled**

C1-03 Fundamental Performance of Gelatin Based Stone for Fine Polishing  
Mitsugu Yamaguchi(Shimane Univ.), Satoshi Sakamoto(Yokohama Nat'l. Univ.), Yasuo Kondo(Yamagata Univ.), Hiroshi Usuki(Shimane Univ.) and Kenji Yamaguchi(Yonago Nat'l. Coll. of Tech.)

C1-04 **Cancelled**

C1-05 Study on Possibility of Recycling of Amine-free Water-soluble Coolant  
Takuya Kodani(Yonago Nat'l. Coll. of Tech.), Kenji Yamaguchi(Yonago Nat'l. Coll. of Tech. ), Yasuo Kondo(Yamagata Univ.) and Satoshi Sakamoto(Yokohama Nat'l. Univ.)

**Manufacturing II - Cutting: 15:00 ~ 17:20**

Chair person: Yasuo Kondo(Yamagata Univ.)

C1-06 A Study on Cutting Temperature According to Inclined Surface Toolpath and Cutting Force of Ball-endmill  
Woo Hyun Lee(Dong-A Univ.), Dae Kyun Park(Dong-A Univ.), Min Sik Han(Dong-A Univ.), Kwang Woo Ahn(Dong-A Univ.), Byung Hoon Park(Dong-A Univeristy), Soon Kyung Kim(Dong-Eui Inst. of Tech.) and Eon Chan Jeon(Dong-A Univ.)  
**Cancelled**

C1-07 Drilling of CFRP Laminate with Feedback Control Based on Cutting Force  
Hiroo Ohzeki(Kistler Japan Co., Ltd.), Hikaru Hoshi(Tokyo Metropolitan Univ.), Yoshio Hasumi(IHI Jet Service Co., Ltd.) and Fumihito Arai(Nagoya Univ.)

C1-08 **Cancelled**

C1-09 An Empirical Study on Mechanized Deburring for Intersecting Holes through Crossing and Main Hole  
Thien-Phuong Ton(Konkuk Univ.), Dong-Hyun An(Konkuk Univ.) and Sung-Lim Ko(Konkuk Univ.)

April 25th, 2011: Room D

**Actuator I: 13:00 ~ 14:40**

Chair person: Yutaka Tanaka(Hosei Univ.)

D1-01 Object Handling Using Combined Display of Tactile and Force Sensation  
Satoshi Tsuboi(Nagoya Univ.) and Masahiro Ohka(Nagoya Univ.)

D1-02 Experimental Tactile Sensor Using Optical Flow  
Masahiro Ohka(Nagoya Univ.), Takuya Matsunaga(Nagoya Univ.), Daiji Noda(Univ. of Hyogo) and Tadashi Hattori(Univ. of Hyogo)

D1-03 Combination of Extending / Contracting Artificial Muscles Realizing Power Soft Mechanisms  
Kazuhiro Iwata(Okayama Univ.), Koichi Suzumori(Okayama Univ.) and Shuichi Wakimoto(Okayama Univ.)

D1-04 **Cancelled**

D1-05 **Cancelled**

**Actuator II: 15:00 ~ 17:40**

Chair person: Masahiro Ohka(Nagoya Univ.)

D1-06 A Design Concept of a Spherical Speed Reducer  
Tomaoaki Yano(AIST)

D1-07 Development of a Flat Electromagnetic Nutation Motor  
Masaki Miyake(Okayama Univ.), Koichi Suzumori(Okayama Univ.) and Kazuo Uzaka(TOK BEARING Co., Ltd.)

D1-08 A Study on Micro Flow Generator Using AC Electroosmosis  
Kazuhiro Yoshida(Tokyo Inst. of Tech.), Keiji Muramatsu(Tokyo Inst. of Tech.), Joon-wan Kim(Tokyo Inst. of Tech.), Sang In Eom(Tokyo Inst. of Tech.) and Shinichi Yokota(Tokyo Inst. of Tech.)

D1-09 Design and Fabrication of Electrodes for High-Powered Micro Pump Using Electro-Conjugate Fluid  
Masahiro Ishida(Hosei Univ.), Yutaka Tanaka(Hosei Univ.), Shinichi Yokota(Tokyo Inst. of Tech.) and Kazuya Edamura(New Tech. Management Co.,Ltd.)

D1-10 A Design of Bolt-Clamped Langevin-Type Transducer for Cryo Ultrasonic Motor  
Daisuke Yamaguchi(Okayama Univ.), Takefumi Kanda(Okayama Univ.) and Koichi Suzumori(Okayama Univ.)

**Machine element III - Gear (3): 9:20 ~ 10:20**

Chair person: Chanat Ratanasumawong(Chulalongkorn Univ.)

Vise chair person: Masanori Seki(Okayama Univ)

- A2-01 Experimental Analysis for Tolerance Design in Assembling of EPS Worm Gear with Quality Engineering  
Takashi Itou(KYB Corp.), Satoshi Kishi(Nagano Nat'l. Coll. of Tech.), Tomio Horiuchi(Nagano Nat'l. Coll. of Tech.), Shinraku Yoshikawa(KYB Corp.), Hirohito Watanabe(KYB Corp.) and Shigeo Fukada(Shinshu Univ.)
- A2-02 Derivation of Path of Contact and Tooth Flank Modification by Minimizing Transmission Error on Face Gear  
Tetsuo Inoue(Shimano Inc.) and Syuhei Kurokawa(Kyushu Univ.)
- A2-03 Effects of Side-Face Carburizing, Face Width and Intergranular Oxidation on Bending Fatigue Strength of Case-Carburized Gears  
Kouitsu Miyachika(Tottori Univ.), Norimasa Maeta(Tottori Univ.), Shinji Kayama(Tottori Univ.) and Hidefumi Mada(Tottori Metal Heat Treatment Cooperative Association)

**Machine element IV - Bearing & Bolted joint: 10:40 ~ 12:00**

Chair person: Shoji Noguchi(Tokyo Univ. of Sci.)

- A2-04 Change of Form of Steel Ball for Rolling Bearings in High Temperature Environment  
Shoji Noguchi(Tokyo Univ. of Sci.), Akihito Zushi(Tokyo Univ. of Sci.), Tohru Kanada(Kanto Gakuin Univ.), Masakazu Ohnuki(Kanto Gakuin Univ.) and Ichiro Yoshida(Kosaka Laboratory Ltd.)
- A2-05 Asymmetric Supply Type Hydrostatic Journal Gas Bearings for Seismic ACROSS Transmitters  
Tomohiko Ise(Univ. of Hyogo), Hiroshi Miyatake(Univ. of Hyogo) and Toshihiko Asami(Univ. of Hyogo)
- A2-06 Development of Fatigue Design Method for Bolted Joints under Transverse Vibration  
Shinji Hashimura(Kurume Nat'l. Coll. of Tech.) and Yu Kurakake(Kurume Nat'l. Coll. of Tech.)
- A2-07 Effect of the Residual Stress on the Fatigue Strength of a Bolt in Bolt/Nut Assembly — Fatigue Characteristics of the Axisymmetrical Bolt Model (Leadless Bolt) with Residual Stress Generated by Preloading—  
Akihiro Furukawa(Aoyama Seisakusho Co.,Ltd.), Kazunari Kamiya(Nagoya Inst. of Tech.) and Masaya Hagiwara(Nagoya Inst. of Tech.)

## Machine design I : 14:00 ~ 15:40

Chair person: Sung-Min Kim(Dongguk Univ. Seoul)

Vise chair person: Yoshihiro Kai(Tokai Univ.)

A2-08 Prehistoric Effect of the Stamping Process on the Crash Analysis of an Automobile under Frontal Impact  
Cancelled  
Se-Ho Kim(Daegu Univ.)

A2-09 Piston Ring Projection and Catching in Cylinder Ports of Two-Stroke Cycle Engine  
Kohei Nakashima(Meijo Univ.), Kazuki Fuma(Meijo Univ.), Daisuke Kurokawa(Meijo Univ.), Yuki Nakano(Meijo Univ.), Yoshio Murakami(Meijo Univ.) and Masago Yamamoto(Meijo Univ.)

A2-10 Three-dimensional Pipe Bender using a 3-RPSR Parallel Mechanism with Six Degrees of Freedom  
Yukio Takeda(Tokyo Inst. of Tech.), Satoshi Inada(Tokyo Inst. of Tech.), Masaru Higuchi(Tokyo Inst. of Tech.), Xiao Xiao(Tokyo Inst. of Tech.), Kazuya Hirose(Kikuchi Seisakusho Co.Ltd), Yoshiki Yoshida(Kikuchi Seisakusho Co.Ltd) and Yu Ishikura(Kikuchi Seisakusho Co.Ltd)

A2-11 Development of a High Precision Parallel Robot with Flexure Revolute Joints  
Keiji Yonemoto(Tokyo Inst. of Tech.), Zheng Tong(Tokyo Inst. of Tech.), Masaru Higuchi(Tokyo Inst. of Tech.) and Yukio Takeda(Tokyo Inst. of Tech.)

A2-12 Positioning Action Assist Mechanism by the Frictional Force Feedback using Magnetic Particle Brakes  
Kazunori Kaede(Saitama Univ.) and Keiichi Watanuki(Saitama Univ.)

## Machine design II: 16:00 ~ 17:20

Chair person: Shinya Sasaki(Tokyo Univ. of Sci.)

A2-13 Development of a Walking Support Machine with Mechanical Safety Devices  
Yoshihiro Kai(Tokai Univ.)

A2-14 The Analysis of Human Joint Moment Using Wearable Walking Assistant Robot: Experiment and Computational Simulation  
SungMin Kim(Dongguk Univ.), SungYun Park(Dongguk Univ.), HoChul Kang(Dongguk Univ.) and JaeHoon Jeong(Dongguk Univ.)

A2-15 Design and Properties of a Redundant 8-link Parallel Kinematic Machine  
Hiroyuki Goto(JSPMI), Yutaka Tanaka(Hosei Univ.) and Kazuya Hirose(Kikuchi Seisakusho)

A2-16 Measurement of Brain Activity under Virtual Reality Skills Training Using Near-Infrared  
Lei Hou(Saitama Univ.) and Keiichi Watanuki(Saitama Univ.)

April 26th, 2011: Room B

**Tribology III - Lubrication: 9:20 ~ 10:20**

Chair person: Yoshiro Iwai(Fukui univ.)

- B2-01 Evaluation of Oil Insufficiency in Ball Bearing with Ultrasonic Technique  
Akitoshi Takeuchi(Kochi Univ. of Tech.)
- B2-02 Optimum Design of Fluid Dynamic Bearing for HDD Spindle Motor using Statistical Method  
Yuta Sunami(Tokai Univ.), Masayuki Ochiai(Tokai Univ.) and Hiromu Hashimoto(Tokai Univ.)
- B2-03 Reaearch on Lubricity of Ionic Liquids for Bearing Steel  
Takahiro Koyama(Tokyo Univ. of Sci.), Shinya Sasaki(Tokyo Univ. of Sci.), Koji Miyake(AIST) and Miki Nakano(AIST)

**MEMS/Nano/Micro: 10:40 ~ 12:00**

Chair person: Noritsugu Umehara(Nagoya Univ.)

- B2-04 Suggestion of New X-ray Mask Using Carbon Membrane  
Daiji Noda(Univ. of Hyogo), Atsushi Tokuoka(Univ. of Hyogo), Megumi Katori(Nanocreate Co. Ltd.) and Tadashi Hattori(Univ. of Hyogo)

- B2-05 Prediction of Real Contact Area from Micro-topography on the CMP Pad  
Hobin Jeong(Pusan Nat'l. Univ.), Hyunseop ~~Geun~~ **Cancelled** California, Berkeley), Sungha Choi(Pusan Nat'l. Univ.),  
Youngkyun Lee(Pusan Nat'l. Univ.) and Haedo Jeong(Pusan Nat'l. Univ.)

- B2-06 Experiment of Punch Indentation Process to Manufacture Micro Nozzle  
Kazuhiko Kitamura(Nagoya Inst. of Tech.), Fumihiro Itoigawa(Nagoya Inst. of Tech.), Takafumi Kobayashi(Nagoya Inst. of Tech.) and Shin Nakasai(Nagoya Inst. of Tech.)

- B2-07 Measurement of Pull-off Force on the Micro-element with the Wet Surface  
Seung Chol Choi(AIST), Mikio Horie(Tokyo Inst. of Tech.) and Yasuhisa Ando(AIST)

## Coatings I - Diamond like carbon: 14:00 ~ 15:40

Chair person: HaeWoon Choi(Keimyung Univ.)

Vise chair person: Yosuke Tsukiyama(Nagoya Univ.)

### B2-08 Impact Wear Mechanism of DLC

Yuto Yamaguchi(Nagoya Univ.), Mohd Fadzli(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.), Noritsugu Umehara(Nagoya Univ.), Naruhiko Inayoshi(DENSO Corp.), Tsuyoshi Akao(DENSO Corp.) and Nobuyuki Miyamoto(DENSO Corp.)

### B2-09 Effects of Substrate Bias Voltages on Tribological Properties of DLC Films under Rolling-Sliding Contact with High Pressure

Morimasa Nakamura(Kyoto Inst. of Tech.), Hiromi Kodama(Kyoto Inst. of Tech.), Ken-ichi Miura(Tech. Res. Inst. of Osaka Prefecture), Kei Demizu(Tech. Res. Inst. of Osaka Prefecture), Daisuke Iba(Kyoto Inst. of Tech.) and Ichiro Moriwaki(Kyoto Inst. of Tech.)

### B2-10 Effect of Film Property on Static and Kinetic Friction Coefficients of Si-containing DIAMOND-LIKE CARBON

Akinobu Hanihara(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.) and Noritugu Umehara(Nagoya Univ.)

### B2-11 Tribological Properties of Laser Surface Textured DLC Coating

Ryo Sato(Tokyo Univ. of Sci.), Ryo Tsuboi(Tokyo Univ. of Sci.) and Shinya Sasaki(Tokyo Univ. of Sci.)

### B2-12 The Effect of UV Irradiation on Friction Coefficient of DLC and CNx Coating

Takayuki Tokoroyama(Nagoya Univ.) and Noritsugu Umehara(Nagoya Univ.)

## Coatings II - Other coatings & Related topics: 16:00 ~ 17:40

Chair person:Morimasa Nakamura(Kyoto Inst. of Tech.)

### B2-13 Effect of Geometrical Product Specification on Tribological Properties of Steel under Boundary Lubrication

Kazuma Yamaguchi(Tokyo Univ. of Sci.), Ryo Tsuboi(Tokyo Univ. of Sci.) and Shinya Sasaki(Tokyo Univ. of Sci.)

### B2-14 Study on the Covering Material Elimination Techniques after Plating for 2-shot MID

Hee-Jin Jeong(Gyeongbuk Hybrid Tech. Inst.), Dong-Woo Kim(Ajin Ind. Co., Ltd.), Seok-Ho Lee(Ajin Ind. Co., Ltd.), Sun-Gil Jeon(Ajin Ind. Co., Ltd.) and Bum-Sik So(Gyeongbuk Hybrid Tech. Inst.)

### B2-15 Effect of Micro Texturing on Friction Properties of CNx Coating under Boundary Lubrication

Yosuke Tsukiyama(Nagoya Univ.), Tomoyo Kaneko(Nagoya Univ.), Takayuki Tokoroyama(Nagoya Univ.) and Noritsugu Umehara(Nagoya Univ.)

### B2-16 Tribological Properties of Porous Cu Based alloy Containing Nano Sized Sulfide Particles

Tomohiro Sato(Kurimoto,LTD. ), Yoshimasa Hirai(Kurimoto,LTD. ), Takehisa Fukui(Kurimoto,LTD. ), Kazuki Tanizawa(Meijo Univ.) and Hatsuhiko Usami(Meijo Univ.)

### B2-17 Thin Ceramic Coatings on Metal Filter for Medical Applications

Hae Woon Choi(Keimyung Univ.), Jun He Cha(Keimyung Univ.) and Yi Tang(Keimyung Univ.)

April 26th, 2011: Room C

**Manufacturing III - Non-conventional machining: 9:20 ~ 10:20**

Chair person: Sangho Park (Chungnam Nat'l Univ.),

Vise chair person: Kazuhiko Kitamura (Nagoya Inst. of Tech.)

C2-01 **Cancelled**

C2-02 Fuzzy Control of the Lateral Position of Web Using a Displacement Guide  
Nguyen Hoang (Konkuk Univ.) and Sangyoon Lee (Konkuk Univ.) **Cancelled**

C2-03 Orbiting Electrical Discharge Machining: Tool Design Principle in CAD

Tutik Sriani (Keio Univ.) and Hideki Aoyama (Keio Univ.)

**Manufacturing IV - CAM/CAE: 10:40 ~ 12:00**

Chair person: Heeyoung Maeng (Seoul Nat'l. Univ. of Sci. and Tech.)

Vise chair person: Kenji Yamaguchi (Yonago Nat'l. Coll. of Tech.)

C2-04 A Study on the Development of Automatic CAM Module for the Manufacture of Impellers

Hyoun Chul Jung (Changwon Nat'l. Univ.), Jong Dae Hwang (Cheju Tourism Coll.), Yoon Gyo Jung (Changwon Nat'l. Univ.) and C. S. Kim (Changwon Nat'l. Univ.)

C2-05 **Cancelled**

C2-06 The Online Operation Planning System Supporting Manufacturing Process Improvement for SMEs  
Hyunjei Jo (KITECH) and Yongju Cho (KITECH) **Cancelled**

C2-07 A Matrix-based Method for Machining Setup Sequencing

Jae Kwan Kim (Korea Inst. of Sci. and Tech.), Hyunil Lee (Korea Inst. of Sci. and Tech.) and Choong Soo Lee (Gwangju Univ.) **Cancelled**

## General I: 14:00 ~ 15:20

Chair person: Keun Park (Seoul Nat'l. Univ. of Sci. and Tech.)

Vice chair person: Satoshi Sakamoto (Yokohama Nat'l Univ.)

C2-08 Design Evolution with TRIZ: Development of a Manipulator Arm for Tele-presence Applications  
Cancelled  
Hunkeon Ko (Korea Univ.), Kwonhee Kim (Korea Univ.), Hyochan Kwon (Korea Univ.) and Changehee Cho (Korea Univ.)

C2-09 Framework for Concurrently Collaborative Design in Distributed Environment  
Jiin Shin (Yonsei Univ.), Wonbin Ann (Yonsei Univ.), Taewoo Lee (Yonsei University) and Soo Hong Lee (Yonsei Univ.)

C2-10 Designing Sensing Probe for Determining Direction of Chemical Flow  
Tomomi Makishita (Tokyo Univ. of Agri. and Tech.) and Hiroshi Ishida (Tokyo Univ. of Agri. and Tech.)

C2-11 Liquid Bridge System Design Based on the Pressure Analysis for LEDs Cooling Application  
Su-Heon Jeong (GIST), Wataru Nakayama (ThermTech International), Sung-Ki Nam (GIST) and Sun-Kyu Lee (GIST)

## General II: 15:40 ~ 17:00

Chair person: Hiroshi Ishida (Tokyo Univ. of Agri. And Tech.)

C2-12 A Study for FCAW Welding Characteristics of Steel for Marine Structure by Deposited Metal for the Alloy for Low Temperature Use  
Cancelled  
MyoungJe Jo (Dong-A Univ.), Suyong Lee (Dong-A Univ.), Jungdo Chun (Dong-A Univ.), Seungseop Roh (Dong-A Univ.), Suyong Kim (Dong-A Univ.), Seonggyu Chang (Dong-Eui Inst. of Tech.) and Eonchan Jeon (Dong-A Univ.)

C2-13 A Temperature-Time Map of Pressure-Assisted Diffusion Bonding in Al/Cu Bimetal and its Properties  
Cancelled  
Sangmok Lee (KITECH), Geun-An Lee (KITECH), Jongsup Lee (KITECH), Young-Bae Kim (KITECH), Seong-Joo Lim (KITECH) and Dong-Su Bae (Dong-Eui Univ.)

C2-14 **Cancelled**

C2-15 Study on the Pressure Measurement at Parting Surface to Prevent Flashing in Injection Molds  
Jae-Hyuk Choi (Ajou Univ.), Soon-Ho Choi (Ajou Univ.), Joon-Sung Tae (Ajou Univ.), Byung-Ohk Rhee (Ajou Univ.) and Hyung-Pil Park (Korea Inst. of Ind. Tech.)

- P-01 Performance Comparison of Differential Rotary to Linear Conversion Mechanisms with Multiple Ball Screws and Gears  
Yoshiki Ototake(Okayama Univ.), Masanori Seki(Okayama Univ.), Ichiro Shimizu(Okayama Univ.), Takafumi Matsui(Mitsubishi Motors Corp.) and Masahiro Fujii(Okayama Univ.)
- P-02 Wearable Tactile Display using Ultrasonic Vibration  
Shunsuke Ninomiya(Keio Univ.) and Kenjiro Takemura(Keio Univ.)
- P-03 Behavior of Piezoelectric Actuator under Loaded Condition  
Nobuhiko Henmi(Shinshu Univ.) and Wataru Ochiai(Shinshu Univ.)
- P-04 Deployment of a Flexible Actuator Using a Coiled Shape Memory Alloy Wire  
Hironari Taniguchi(Tsuyama Nat'l. Coll. of Tech.) and Yuya Takehara(Tsuyama Nat'l. Coll. of Tech.)
- P-05 Friction Reduction and Lubricity Improvement for Meshed Gears Based on Ultrasonic Oscillation  
Yohei Makino(Shizuoka Univ.), Takaaki Oiwa(Shizuoka Univ.), Motohiro Sato(Shizuoka Univ.) and Junichi Asama(Shizuoka Univ.)
- P-06 Estimation Method of Mesh Excitation Waveform of a Running Gear Pair (Fitting Method of Vibration Analysis and Measured Results)  
Shigeki Matsumura(Tokyo Inst. of Tech.), Toshiya Nagumo(Sumitomo Heavy Industries) and Haruo Houjoh(Tokyo Inst. of Tech.)
- P-07 Torsional Stiffness Calculation of Double-Enveloping Cycloid Drive  
Jingya Liu(Chongqing Univ.), Shigeki Matsumura(Tokyo Inst. of Tech.), Bingkui Chen(Chongqing Univ.) and Haruo Houjoh(Tokyo Inst. of Tech.)
- P-08 Development of Gear Damage Diagnosis using Wavelet Analysis of the Variation of Laser Reflection  
Eiichirou Tanaka(Shibaura Inst. of Tech.), Kazunari Okabe(Mitsubishi Heavy Industries, Ltd.), Yoshihito Nakazawa(Shibaura Inst. of Tech.), Kazuhiro Ohkubo(Shibaura Inst. of Tech.), Hitoshi Takebe(Mitsubishi Heavy Industries, Ltd.), Satoshi Wada(Mitsubishi Heavy Industries, Ltd.) and Ryoza Nemoto(Tokyo Metropolitan Coll. of Ind. Engineering)
- P-09 Study on Mechanism and Behavior of Biped Walking Pet Robot with Short Leg  
Yuichi Nakazato(Nippon Inst. of Tech.), Takashi Yamanaka(Nippon Inst. of Tech.), Daiki Tamura(Nippon Inst. of Tech.) and Masayoshi Takeuchi(Nippon Inst. of Tech.)
- P-10 **Cancelled**
- P-11 Basic Research of Wearable Walker Using Planar Link Mechanism Driven By One Input Motion  
Jun Nango(Yamagata Univ.), Yohei Miyahara(Yamagata Univ.), Masato Takayama(Yamagata Univ.) and Kazuki Miyata(Yamagata Univ.)
- P-12 Driving Performance of Water Driven Stage  
Toshiaki Sano(Kanagawa Univ.), Midori Nagashima(Kanagawa Univ.), Yohichi Nakao(Kanagawa Univ.) and Kenji Suzuki(Kanagawa Univ.)
- P-13 Three-dimensional Touch Trigger Probe Using Optical Fiber Bundle  
Kimitaka Kitano(Shizuoka Univ.), Takaaki Oiwa(Shizuoka Univ.) and Junichi Asama(Shizuoka Univ.)

- P-14 Flexibility Control of a Planar Redundant Multi-loop Mechanism with Torsional Springs at Passive Joint  
Shuai Ma(Tokyo Inst. of Tech.) and Nobuyuki Iwatsuki(Tokyo Inst. of Tech.)
- P-15 The Development of a Shape-Guided Automatic Deburring Machine for Mold Products  
Sang Myung Kim(Changwon Nat'l. Univ.), Eun Seong Lim(Changwon Nat'l. Univ.), Jong Dae Hwang(Cheju Tourism Coll.) and Yoon Gyo Jung(Changwon Nat'l. Univ.)
- P-16 Performance Improvement of a Bearingless Motor with Harmonics Reduction in Magneto-Motive Force Distribution  
Ryo Kawata(Shizuoka Univ.), Tomoyasu Tamura(Shizuoka Univ.), Junichi Asama(Shizuoka Univ.), Takaaki Oiwa(Shizuoka Univ.) and Akira Chiba(Tokyo Inst. of Tech.)
- P-17 Gravity-Cast AM60B Behavior Researched by SP Test and FEM Model in Loading Speed  
Deokryong Kim(Chonbuk Nat'l Univ.), Sungmo Yoo(Chonbuk Nat'l Univ.), Hyosun Yu(Chonbuk Nat'l Univ.), Sanggi Kim(Chonbuk Nat'l Univ.), JoonHyuk Song(Jeonju Inst. of Machinery and Carbon Composites) and Jaeyun Kim(Chonbuk Nat'l Univ.)  
**Cancelled**
- P-18 Actively-Controlled Hydrostatic Bearing using Elastic Hinges and a Voice Coil Motor  
Shunsuke Saito(Tokyo Univ. of Sci.), Kei Somaya(Tokyo Univ. of Sci.) and Shigeka Yoshimoto(Tokyo Univ. of Sci.)
- P-19 Kinematic Synthesis of a Leg Mechanism Unit in Which a Certain Link Can Generate Motions of Two Legs  
Nobuyuki Iwatsuki(Tokyo Inst. of Tech.) and Kunat Tharasrisuthi(Tokyo Inst. of Tech.)
- P-20 Experimental and Numerical Investigations of Bearing Characteristics of Aerostatic Thrust Bearings with Small Feed Holes  
Uichiro Nishio(Tokyo Univ. of science), Kei Somaya(Tokyo Univ. of science) and Shigeka Yoshimoto(Tokyo Univ. of science)
- P-21 Multi-sensorial Field Display: Using Airflow Jets to Present Spatially Distributed Odor  
Haruka Matsukura(Tokyo Univ. of Agri. and Tech.), Tomohiko Nihei(Tokyo Univ. of Agri. and Tech.) and Hiroshi Ishida(Tokyo Univ. of Agri. and Tech.)
- P-22 Design for a High-speed Spindle System with Piezo-electric Load-sensor Ring  
Hyunjin Choi(Daegu Machinery Inst. of Components & Mater.), Seongdae Choi(Kumoh Nat'l. Inst. of Tech.), Taeho Lee(Taesung) and Chulwoo Park(Daegu Machinery Inst. of Components & Mater.)  
**Cancelled**
- P-23 **Cancelled**
- P-24 Development of Grinding Mechanism for the OrthoMTA Compacters  
Heeyoung Maeng(Seoul Nat'l. Univ. of Sci. and Tech.), Younghak Cho (Seoul Nat'l. Univ. of Sci. and Tech.) and Jun-sang Yoo(BioMTA company)
- P-25 Development of Automatic Jig Vise Mechanism for CNC Milling Machine  
Heeyoung Maeng(Seoul Nat'l. Univ. of Sci. and Tech.), Younghak Cho (Seoul Nat'l. Univ. of Sci. and Tech.) and Youngil Park(Seoul Nat'l. Univ. of Sci. and Tech.)
- P-26 Exposure Time Variation Method for Micro-stereolithography  
Ho-chan Kim(Andong Natl. Univ.), In-Hwan Lee(Chungbuk Natl. Univ.), Taejo Ko(Yeungnam Univ.), Hae-Ryong Yoon(Andong Natl. Univ.), In Baek Park(Pusan Natl. Univ.), Young Myoung Ha(Pusan Natl. Univ.) and Seok-hee Lee(Pusan Natl. Univ.)
- P-27 A Novel Measurement System to Evaluate the Six Geometric Error of Rotary Table  
Kwang-II Lee(Kyungpook Nat'l. Univ.), Nanda Lee(Kyungpook Nat'l. Univ.) and Seung-Han Yang(Kyungpook Nat'l. Univ.)  
**Cancelled**
- P-28 Mitigating Idler Roller Bending in Roll-to-roll Process

Deokkyun Yoon(Korea Inst. of Machinery and Mater.), Seung-Hyun Lee(Korea Inst. of Machinery and Mater.) and Dong-soo Kim(Korea Inst. of Machinery and Mater.)

P-29 **Development of Compact-type Roll-to-roll Printing Machine with Multiple Printing Methods**  
Chung Hwan Kim(Chungnam Nat'l. Univ.), Ha Myung(Korea Inst. of Machinery and Mater.), Jeongdai Jo(Korea Inst. of Machinery and Mater.) and Dong Soo Kim(Korea Inst. of Machinery and Mater.)  
**Cancelled**

P-30 **Cancelled**

P-31 **Cancelled**

P-32 **Cancelled**

P-33 **Flow Visualization Experiment of Ink Transfer Process for Gravure Offset Printing**  
Seung-Hyun Lee(Korea Inst. of Machinery & Mater.), Deokkyun Yoon(Korea Inst. of Machinery & Mater.), Taik-Min Lee(Korea Inst. of Machinery & Mater.), Dong-Soo Kim(Korea Inst. of Machinery & Mater.) and Seung-Woo Lee(Nanoscope System Inc.)

P-34 **The Development of Aluminum Alloy Piston for Two-Stroke Cycle Engine by Powder Forging**  
Chul-woo Park(KISTI)  
**Cancelled**

P-35 **Effect of Feed Rate on Tool/Chip Friction When using Tool with Two Cutting Edges**  
Yoshinao Miyahara(Nagoya Inst. of Tech.), Fumihiro Itoigawa(Nagoya Inst. of Tech.) and Takashi Nakamura(Nagoya Inst. of Tech.)

P-36 **Reduction Effect of Stable Built-up Edge on Tool Wear in Cutting of Inconel 718**  
Atsushi Kakihara(Nagoya Inst. of Tech.), Fumihiro Itoigawa(Nagoya Inst. of Tech.), Hiroki Kiyota(Nagoya Inst. of Tech.) and Takashi Nakamura(Nagoya Inst. of Tech.)

P-37 **Application of Laser Grinding to Form Smooth Cutting Edge for High-Precision Turning**  
Daisuke Suzuki(Nagoya Inst. of Tech.), Keiichi Kawata(Aichi Ind. Tech. Inst.), Fumihiro Itoigawa(Nagoya Inst. of Tech.) and Takashi Nakamura(Nagoya Inst. of Tech.)

P-38 **Effect of Built-up Edge on Depth-of-Cut Notch Wear in CBN Tool Edge**  
Hiroki Kiyota(Nagoya Inst. of Tech.), Fumihiro Itoigawa(Nagoya Inst. of Tech.), Atsushi Kakihara(Nagoya Inst. of Tech.) and Takashi Nakamura(Nagoya Inst. of Tech.)

P-39 **ECF-jet Micro-generator with Multiple Needle-Hole Electrode Pairs**  
Joon-wan Kim(Tokyo Inst. of Tech.), Shinichi Yokota(Tokyo Inst. of Tech.) and Kazuya Edamura(New Tech. Management Co., Ltd)

P-40 **Nonlinear Spring Characteristics Analyzed by a Macro Model of an Electrostatically Driven Micromirror Device - Extending Range of Mirror Rotation Based on Nonlinear Spring of Torsion Bar**  
Shinya Kumagai(Toyota Technological Inst.), Gyu Il Shim(Toyota Technological Inst.), Ryoichi Mimoto(Toyota Technological Inst.) and Minoru Sasaki(Toyota Technological Inst.)

P-41 **Wireless Driving of a Micromirror through Electromagnetic Induction**  
Shinya Kumagai(Toyota Technological Inst.), Narimune Ohnishi(Toyota Technological Inst.) and Minoru Sasaki(Toyota Technological Inst.)

P-42 **Cancelled**

P-43 **Cancelled**

P-44 **Cancelled**

P-45 **Cancelled**

P-46 **Cancelled**

P-47 A Study on the Measuring System of Contact Force of Pantograph for the High-speed Train  
ChanKyoung Park(Korea Railroad Res. Inst.), Young-Guk Kim(Korea Railroad Res. Inst.), Ki-Hwan Kim(Korea Railroad Res. Inst.) and Jin-Sung Paik(Korea Railroad Res. Inst.)

P-48 A Study on the LPG Duo-type Cylinder Design and Manufacturing for Sport Utility Vehicles  
Jun-Yong Choi(Canall Corp.), Geun-ho Kim(Canall Corp.) and Kap-man Jang(Korea Gas Safety Corp.)

P-49 A Study on the Performance and Safety Evaluation Test of a LPG Duo-type Cylinder for Vehicles  
Kap-man Jang(Korea Gas Safety Corp.), Young-Seob Kim(Korea Gas Safety Corp.), Jae-hun Lee(Korea Gas Corp.), Jun-Yong Choi(Canall Corporation) and Chunk Kyun Kim(Hongik Univ.)

P-50 Analysis of Correlation between Running Time and Energy Consumption According to Train Travel  
Young-Guk Kim(Korea railroad Res. Inst.), Chan-Kyoung Park(Korea railroad Res. Inst.), Ki-Hwan Kim(Korea railroad Res. Inst.), Jin-Sung Paik(Korea railroad Res. Inst.) and Jin-Sung Paik(Korea railroad Res. Inst.)

P-51 Design and Sensibility Evaluation of Vibration Patterns from a Haptic Device  
Sungmin Kim(Yonsei Univ.)

P-52 Stamping Tool Design of a Center Pillar Inner with Quantitative Information of Shape Accuracy According to Tool Compensation Histories  
**Cancelled**  
Se-Ho Kim(Daegu Univ.), Dae-Gun Jung(Daegu Univ.) and Kee-Poong Kim(KITECH)

P-53 A Study on Injection-structure Coupled Analysis for the Prediction of the Plastic Deformation of Metallic Inner Tube of Electric Power Plug  
Hyung-Pil Park(Korea Inst. of Ind. Tech.), Baeg-Soon Cha(Korea Inst. of Ind. Tech.), Jae-Hyuk Choi(Ajou Univ.) and Byung-Ohk Rhee(Akou University)

P-54 Hybrid Manufactured LED Based Compact Illumination Optics  
Jae Young Joo(Korea Photonics Tech. Inst.), Dong Yoon Yoo(Gwangju Inst. of Sci. and Tech.), Soon Sub Park(Korea Inst. of Ind. Tech.) and Sun-Kyu Lee(Gwangju Inst. of Sci. and Tech.)

P-55 Analysis of Influencing Factors to Mold Temperature Stabilization in Injection Molding  
Joon-Sung Tae(Ajou Univ.), Jang-Hwan Kim(Ajou Univ.), Jae-Hyuk Choi(Ajou Univ.), Hyung-Pil Park(Korea Inst. of Ind. Tech.) and Byung-Ohk Rhee(Ajou Univ.)

P-56 Design of Over-molding Mold with a Volumetric Heat Sink for a Plastic Component of Automotive Wafer  
Dong-Gi Lee(Chosun Univ.), Min-Woo Park(Chosun Univ.) and Dong-Gyu Ahn(Chosun Univ.)

P-57 Tool and Process Design for Progressive Forming of an Automotive Bracket Part with the Finite Element Analysis  
**Cancelled**  
Se-Ho Kim(Daegu Univ.) and Kee Poong Kim(Korea Inst. of Ind. Tech.)

- P-58 Construction of a Design Template for Gating System  
Wonchul Cho(Yonsei Univ.), Sungmin Kim(Yonsei Univ.), Nyamsuresn Purevdorj(Yonsei Universtiy), Jungwoo Sohn(Yonsei Univ.) and Soo-Hong Lee(Yonsei Univ.)
- P-59 Design of Progressive Die and Characteristic Shape for Airbag Housing Case  
Dong-Gyu Ahn(Chosun Univ.), Min-Woo Park(Chosun Univ.) and Sun-Dal Kim(Machine Nano Tech Ltd.)
- P-60 The Influence of Hydrophilicity on the Friction of Porous Rubber  
Tomoaki Iwai(Kanazawa Univ.), Yutaro Kosugi(Kanazawa Univ.), Yusuke Minami(Kanazawa Univ.), Yutaka Shokaku(Kanazawa Univ.), Naoya Amino(Yokohama Rubber Co. Ltd.) and Takamasa Kitamura(Yokohama Rubber Co. Ltd.)
- P-61 Running-in Behavior in the Combination of Diamond - like Carbon Film and AC8A Aluminum Alloy  
Tomomi Honda(Univ. of Fukui), Toshiyuki Nagai(Univ. of Fukui), Toshiro Miyajima(Univ. of Fukui), Yoshiro Iwai(Univ. of Fukui) and Yoshio Fuwa(Toyota Motor Co. Ltd.)
- P-62 Observation of Change in Bearing Profile and Oil Film Pressure Distribution of Parallel Sliders during Running-in  
Hidenori Nagahama(Nagoya Inst. of Tech.), Fumihiro Itoigawa(Nagoya Inst. of Tech.), Takashi Nakamura(Nagoya Inst. of Tech.) and Sanemasa Kawabata(DENSO Corp.)
- P-63 Effects of Zinc Dialkyl Monothiophosphate Coexisting with Various Additives on Tribological Characteristics of Lubricating Oils  
Yusuke Okubo(Kagawa Univ.), Kanako Takahara(Kagawa Univ.), Kazuhiro Yagishita(JX Nippon Oil & Energy Corp.) and Toshiaki Wakabayashi(Kagawa Univ.)
- P-64 **Cancelled**
- P-65 Observations of Peeling off of DLC Films in Heating and Cooling Process  
Daiki Sannomiya(Nagoya Univ.), Hiroyuki Kousaka(Nagoya Univ.) and Noritsugu Umehara(Nagoya Univ.)
- P-66 Development of a New Non-contact Handling Device Using Swirl Vanes  
Xin Li(Tokyo Inst. of Tech.), Mikio Horie(Tokyo Inst. of Tech.) and Toshiharu Kagawa(Tokyo Inst. of Tech.)