

Time Table (Tentative, Detail)

Monday, November 7

16:00-19:30	Registration
18:00-20:00	Welcome Party at Room 102

Tuesday, November 8

PLENARY SESSION

09:00	Opening Ceremony Chair: Yutaka TANAKA Opening Address Takeshi NAKADA (Chairperson, Organizing Committee) Welcome Remarks Shigeru IKEO (President, JFPS)
09:30	Special Lecture-1 Chair: Katsumasa SUZUKI Co-chair: Kenjiro TAKEMURA Applications of Advanced Control Theory to Fluid Power Control Prof. Tsu-Chin TSAO (University of California Los Angeles)
10:15	Special Lecture-2 Chair: Yasuhiro HAYAKAWA Co-chair: Yukio KAWAKAMI Pneumatic Soft Actuator for Human Assist Technology Prof. Toshiro NORITSUGU (Okayama University)

11:00-11:20	Coffee Break (Room 101)
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INTERNATIONAL EXCHANGE PROGRAM FROM JFPS

11:20	Lecture-1 Chair: Takeshi NAKADA Co-chair: Kazushi SANADA What Makes New Ideas in Fluid Power Succeed? Prof. Wolfgang BACKÉ (IFAS, RWTH Aachen University)
11:50	Lecture-2 Chair: Kazushi SANADA Co-chair: Takeshi NAKADA Recent Researching of Fluid Power at Yanshan University Prof. Xiangdong KONG (Vice President of Yanshan University)

12:30-13:30	Lunch Break (Room 102)
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TECHNICAL SESSIONS

Tuesday, November 8 Room A(201B), Room B(202A)

<p>13:30-15:10 1A1</p> <p>International Exchange and Education Hydraulics : New Industrial Applications Chair: Hubertus MURRENHOFF(RWTH Aachen University) Co-chair: Fu XIN(Zhejiang University)</p> <p>A Systematic Approach to Fluid Power Education in the UK : Present and Future Cliff BURROWS, Matija SOKOLA(University of Bath), John SAVAGE(National Fluid Power Centre)</p> <p>CDIO-Concept for Engineering Education in Mechatronics - Project Teams in Active and Integrated Learning Finn CONRAD(Technical University of Denmark), Torben O. ANDERSEN, Michael R. HANSEN(Aalborg University), Torben SORENSEN (Technical University of Denmark)</p> <p>Application of a Pressure Intensifier using Oil Hammer to a Hydraulic Cylinder of a Construction Machine Katsumasa SUZUKI, Kentarou YOKOYAMA, Yosuke ENDO, Yasumichi SHIBATA(Musashi Institute of Technology)</p> <p>Proposal of Multi-functional Material Handling Machine Applying Hydraulic System of Excavator Eiji EGAWA, Yoshihiro HOSHINO, Takayuki EGUCHI, Masaharu IKUTA(Hitachi Construction Machinery Co.,Ltd.)</p> <p>Electromagnetic Miniature Pump using Peristaltic Motion of Interchangeable Flexible Tube Yasukazu SATO, Masanori HASHIMOTO(Yokohama National University), Shengnian CAI, Nobuyoshi HASHIMOTO(Sinwa Controls Co. Ltd.)</p>	<p>13:30-14:50 1B1</p> <p>OS:Simulation of Fluid Power Systems and Elements-1 Hydraulics : Simulation of Elements Chair: Takehisa KOHDA(Kyoto University) Co-chair: Yasuo SAKURAI(Ashikaga Institute of Technology)</p> <p>Thermal-hydraulic Lumped Parameters Model of Servovalve to Predict their Performance Sensitivity to Temperature Jean-Charles MARE, Batoul ATTAR (Institut National des Sciences Appliquees)</p> <p>Simulation of Dynamics Processes of Hydraulic System with Axial-reciprocating Piston Pump and Electrical Engine Marijonas BOGDEVICIUS, Leonas Povilas LINGAITIS(Vilnius Gediminas Technical University)</p> <p>A Comparative Study of Modelling Techniques for Laminar Flow Transients in Hydraulic Pipelines Michail SOUMELIDIS, David JOHNSTON, Kevin EDGE, Derek TILLEY(University of Bath)</p> <p>Study on Active Cab Mount Hideki HIRONAKA, Ken ICHIRYU, Hironori YOSHINO(Tokyo University of Technology)</p>
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15:10-15:30	Coffee Break
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14:50-15:10	Coffee Break
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Notes to the Presenters

Please check the program and be sure to be in the room for your presentation.

Presentation room

- Room A 201B
- Room B 202A
- Room C 202B
- Room D 303

Pre-session meeting

You must come to the presentation room at least 10 minutes prior to the session for the pre-session meeting with the chair. We strongly recommend you to check the equipment before that meeting.

20 minutes for presentation

Total of 20 minute is allotted for each presentation, which is to be composed as follows:

- Talk : 15 minutes
- Discussion : 5 minutes
- Total : 20 minutes

Tuesday, November 8 Room C(202B) , Room D(303)

<p>13:30-14:50 1C1</p> <p style="text-align: center;">Pneumatics : New Device</p> <p>Chair: Hidetoshi OHUCHI(University of Yamanashi) Co-chair: Xiaoning LI(Nanjing University)</p> <p>Feeding System of Aerostatic Bearings with Porous Media <i>Guido BELFORTE, Terenziano RAPARELLI, Vladimir VIKTOROV, Andrea TRIVELLA(Politecnico di Torino)</i></p> <p>Development of a New Pneumatic Silencer to Reduce Unpleasantness of a Sound <i>Hisami MURAMATSU(Numazu College of Technology), Hirokazu ONO(Mie University), Masaaki ADACHI (Numazu College of Technology)</i></p> <p>Development of a Servo System having Opto-fluid Converter <i>Makoto NOMOTO, Osamu OYAMA(Meiji University), Toshihiro YOSHIMITSU, Kenjiro YAMAMOTO (Kanagawa institute of Technology)</i></p> <p>Dynamic Characteristics of the Opto-Fluidic Conversion Device <i>Fumitaka KIKKAWA, Osamu OYAMA(Meiji University), Toshihiro YOSHIMITSU, Kenjiro YAMAMOTO (Kanagawa institute of Technology)</i></p>	<p>13:30-15:10 1D1</p> <p style="text-align: center;">OS:Human-Machine System-1</p> <p>Chair: Toshiro NORITSUGU(Okayama University) Co-chair: Kenji KAWASHIMA(Tokyo Institute of Technology)</p> <p>A Study on Control and Measurement of a Power-Assisted Chair <i>Yuuta FUJIMAKI, Kazunao SAKAINO, Masamichi FUKUTA, Kazushi SANADA(Yokohama National University)</i></p> <p>Application of Intelligent Switching Control of Pneumatic Artificial Muscle Manipulators with Magneto-Rheological Brake <i>Kyoung Kwan AHN, Diep Cong TU(University of Ulsan)</i></p> <p>Soft Mechanism by using a Sponge-Core-Soft-Rubber Actuator for Welfare Machines <i>Yasuhiro HAYAKAWA, Naoyoshi UEDA, Shogo HIROTA(Nara National College of Technology), Shunmugham PANDIAN(Tulane University)</i></p> <p>Development of Rodless Type Flexible Pneumatic Cylinder and its Application for Long Stroke McKibben Type Actuator <i>Tetsuya AKAGI, Shujiro DOHTA(Okayama University of Science)</i></p> <p>Development of Pneumatic Wearable Power Assist Device for Human Arm "ASSIST" <i>Daisuke SASAKI, Toshiro NORITSUGU, Masahiro TAKAIWA, Yusuke KATAOKA(Okayama University)</i></p>
<p>14:50-15:10 Coffee Break</p>	<p>15:10-15:30 Coffee Break</p>

Tuesday, November 8 Room A(201B), Room B(202A)	
<p>15:30-17:30 1A2</p> <p style="text-align: center;">Hydraulics : General</p> <p>Chair: John WATTON(Cardiff University) Co-chair: Paolo CASOLI(Università degli Studi di Parma)</p> <p>Fundamental Study on a PZT Jet Pump <i>Hidetoshi OHUCHI, Tetsuya WADASAKO, Tomohiro HOSAKA, Tasuku OSADA(University of Yamanashi)</i></p> <p>Motion Control of Electromagnetic Reciprocating Actuator for Metal Bellows Pump <i>Yasukazu SATO, Yasuhiro MATSUSITA(Yokohama National University)</i></p> <p>Mitigation of Machine Vibration by Means of an Active Spindle Bearing Unit <i>Hubertus MURRENHOFF, Torsten KOHMÄESCHER (RWTH Aachen University)</i></p> <p>Development of the Test System for Measuring the Impact Energy of a Hydraulic Breaker <i>Jong-Won PARK, Hyoung-Eui KIM(Korea Institute of Machinery and Materials)</i></p> <p>Development of Testing Machine using Parallel Mechanism <i>Ken ICHIRYU, Tomoyuki TANAKA(Tokyo University of Technology)</i></p> <p>Development of CNC Pipe Bending Machine using Parallel Kinematics Mechanism <i>Ken ICHIRYU, Zenko YAMAGUCHI, Hiroshi KOGA (Tokyo University of Technology)</i></p>	<p>15:10-16:10 1B2</p> <p style="text-align: center;">OS:Simulation of Fluid Power Systems and Elements-2 Hydraulics : Simulation of Systems</p> <p>Chair: Toshiyuki HAYASE(Tohoku University) Co-chair: Yasuo SAKURAI(Ashikaga Institute of Technology)</p> <p>Development of Simulator for Hydraulic Excavator <i>TaeHyeong LIM(University of Ulsan), HongSun LEE (Hyundai Heavy Industry Co.), SoonYong YANG (University of Ulsan)</i></p> <p>Pilot Study of Dynamic Simulation on Hydraulic Supply System of HAGC <i>Xiaohong JIN(Wuhan University of Science and Technology), Yachen CHEN(Continuous Casting Technology Co., LTD)</i></p> <p>Simulation Model of Heat Generation and Transfer in Oil-Hydraulic System <i>Koki TOMIOKA, Kazuhiro TANAKA, Katsuya NAGAYAMA, Kimishiro TOKUDA (Kyushu Institute of Technology)</i></p>

<p>15:10-16:50 1C2</p> <p>Applications of Control Theory-1</p> <p>Chair: Jacek STECKI(Monash University) Co-chair: Yeh-Sun HONG(Hankuk Aviation University)</p> <p>Design, Simulation and Experimental Tests of Hydraulic Hydro Sounder <i>Tapio VIRVALO(Tampere University of Technology), Arto LAINE(Patria Advanced Solutions Oy)</i></p> <p>Flow vs. Pressure Control Servovalves in Force-based Position Control Applications <i>Antti MAKELA, Jouni MATTILA, Mikko SIUKO, Matti VILENIUS(Tampere University of Technology)</i></p> <p>An Adaptive Pressure Controller Design of Hydraulic Servo System with Dead Zone <i>Kazuhi ITO(Sophia University)</i></p> <p>Feedback Linearisation Applied on Hydraulic Servo System <i>Torben O. Andersen, Michael R. Hansen, Henrik C. Pedersen(Aalborg University), Finn Conrad(Technical University of Denmark)</i></p> <p>A Sliding Mode Fuzzy Force Tracking Controller for Pneumatic Cylinders <i>Bin XU(Tulane University), Yasuhiro HAYAKAWA(Nara National College of Technology), Shunmugham R. PANDIAN(Tulane University)</i></p>	<p>15:30-16:50 1D2</p> <p>OS:Human-Machine System-2</p> <p>Chair: Kazushi SANADA(Yokohama National University) Co-chair: Toshihiro YOSHIMITSU(Kanagawa institute of Technology)</p> <p>A Study on Teleoperation of Fluid Power System over Internet <i>Shuyi JING, Ato KITAGAWA(Tokyo Institute of Technology), Pingdong WU(Beijing Institute of Technology)</i></p> <p>Study of Designing a Biped Robot with Bi-articular Muscle Type Bilateral Servo Systems <i>Takeshi MATSUOKA, Yukio SAITO, Hiroshi NEGOTO (Tokyo Denki University)</i></p> <p>Development of Palpation Simulator Using Pneumatic Parallel Manipulator <i>Masahiro TAKAIWA, Toshiro NORITSUGU(Okayama University)</i></p> <p>Study of Robot with the Ability to Detect Land Mines Using Bilateral Servo of Pneumatic Bilateral Servo System <i>Kiyomi TAKEI, Yukio SAITO, Hiroshi NEGOTO(Tokyo Denki University)</i></p>
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<p>9:00-10:30 2A1</p> <p>OS:Mobile Hydraulics and Pneumatics-1 with Keynote Lecture</p> <p>Chair: Yutaka TANAKA(Hosei University) Co-chair: Toshinori FUJITA(Tokyo Denki University)</p> <p>Keynote Lecture (9:00-9:30) Experimental Investigation of Hybrid Vehicle <i>Ken ICHIRYU(Tokyo University of Technology)</i></p> <p>Technical session (9:30-10:30) Application and Study on the Hydraulic Switching Power Control <i>Takahiko ITOH, Sumiko SEKI (Yukigaya Institute Co. Ltd)</i></p> <p>Valve Actuator and Fuel Injection Pump Driver on Diesel Engine <i>Takahiko ITOH, Sumiko SEKI(Yukigaya Institute Co. Ltd)</i></p> <p>Innovative Solution for Climbing and Cleaning on Smooth Surfaces <i>Roberto GRASSI, Guido BELFORTE, Giuliana MATTIAZZO(Politecnico di Torino)</i></p>	<p>9:00-10:20 2B1</p> <p>OS:Simulation of Fluid Power Systems and Elements-3 Hydraulics : FEM and CFD</p> <p>Chair: Kazuhiro TANAKA(Kyushu Institute of Technology) Co-chair: Yasukazu SATO(Yokohama National University)</p> <p>Explicit Finite Element Analysis of Tracking Capability of Rotary Face Seal for Industrial Fluid Power Applications <i>Olof CALONIUS, Matti PIETOLA(Helsinki University of Technology)</i></p> <p>The CFD Simulation Research on Hydraulic Transformer <i>Ma JIEN, Xu BING, Ouyang XIAOPING, Yang HUAYONG(Zhejiang University)</i></p> <p>Dynamic Analysis of Jet Pipe Electrohydraulic Servo Valve using Finite Element Method <i>Somashekhar Hiremath, Y Vrushabhendrapa(Bapuji Institute of Engineering and Technology) , M Singaperumal, R Krishna Kumar(Indian Institute of Technology)</i></p> <p>Dynamic Characteristics of a Spool Valve Coupled with Electromagnetic and Mechanical Effects <i>Atsushi YUGE(Mitsubishi Heavy Industries, LTD.) , Koki TOMIKOA, Kazuhiro TANAKA, Kimishiro TOKUDA(Kyushu Institute of Technology)</i></p>
<p>10:30-10:50 Coffee Break</p>	<p>10:20-10:40 Coffee Break</p>
<p>10:50-12:10 2A2</p> <p>OS:Mobile Hydraulics and Pneumatics-2</p> <p>Chair: Ken ICHIRYU(Tokyo University of Technology) Co-chair: Xue-Fang WANG(Tsinghua University)</p> <p>Development of a Sensor-less Electro-hydraulic Valve Actuator for a Cam-less Engine <i>Hirohisa TANAKA, Nozomi TOYODA(Yokohama National University)</i></p> <p>The Inertial Simulator System Based on Hydrostatic Secondary Control <i>Zongxia JIAO, Shaoping WANG, Xiaodong WANG, Dongkai SHEN(Beijing University of Aeronautics and Astronautics)</i></p> <p>Electrohydraulic Proportional Metering Valve for Common Rail System <i>Sonam YUN, Jae Seop RYU(Korea Institute of Machinery and Materials), Go Do KIM, Jung Hyun JO(SG Servo Inc.)</i></p> <p>An Energetic Comparison between Valveless and Valve Controlled Active Vibration Damping for Off-Road Vehicles <i>Bastian EGGERS, Robert RAHMFELD, Monika IVANTYSYNOVA(Purdue University)</i></p>	<p>10:40-12:00 2B2</p> <p>OS:Simulation of Fluid Power Systems and Elements-4 Pneumatics : Simulation of System</p> <p>Chair: Eric BIDEAUX(INSa de Lyon) Co-chair: Yubin MIAO(SMC Corporation)</p> <p>Simulation of the Dynamic Characteristics of a Pneumatic Circuit by OHC-Sim <i>Yasuo SAKURAI(Ashikaga Institute of Technology), Kazuhiro TANAKA(Kyushu Institute of Technology), Takeshi NAKADA(Tokyo Denki University), Takehisa KOHDA(Kyoto University)</i></p> <p>Identification of the Pneumatic Servo System using the Self Excited Oscillations <i>Petr NOSKIEVIČ(VŠB-Technical University of Ostrava)</i></p> <p>Development of Model Selection Program for Complex Pneumatic Circuits <i>Shihong ZHANG, Huping ZHANG, Mitsuru SENOO, Naotake ONEYAMA(SMC Corporation)</i></p> <p>Dynamic Characteristics and Power Consumption on an Electro-Pneumatic Hybrid Positioning System <i>Hiroshi HIGO(Kyushu Institute of Technology), Yasuo SAKURAI(Ashikaga Institute of Technology), Takeshi NAKADA(Tokyo Denki University), Katsuya NAGAYAMA, Kazuhiro TANAKA(Kyushu Institute of Technology)</i></p>
<p>12:10-13:00 Lunch Break</p>	<p>12:00-13:00 Lunch Break</p>

9:00-10:20 2D1

Pneumatics :New Industrial Applications

Chair: Petr NOSKIEVIČ(VŠB-Technical University of Ostrava)
Co-chair: Kazuhiro YOSHIDA(Tokyo Institute of Technology)

Remote Control of Ordinary Backhoe Using Pneumatic Robot System

Takahiro SASAKI, Kenji KAWASHIMA, Takayuki NAGAI, Toshiharu KAGAWA(Tokyo Institute of Technology)

Control of a Vibration Isolation System using Pressure Differentiators and Spool Type Servo Valves

Tomonori KATO(Tokyo Metropolitan College of Technology), Yosuke YAMAZAKI(Sumitomo Metals), Koichi SAWAMOTO, Kenji KAWASHIMA, Toshiharu KAGAWA(Tokyo Institute of Technology)

Precise Position Control of Pneumatic Servo System

Considered Dynamic Characteristics of Servo Valve
Takashi MIYAJIMA, Iida HIDEKUNI(Tokyo Institute of Technology), Toshinori FUJITA(Tokyo Denki University), Kenji KAWASHIMA, Toshiharu KAGAWA(Tokyo Institute of Technology)

Research on Pneumatic Position Control System Based on a Newly-Developed Rotary Actuator with a Built-in Brake

Xiaoning LI, Yanhong BAI, Baijun AN (Nanjing University)

10:20-10:40

Coffee Break

10:10-12:00 2C2

OS:Water Hydraulics-1 with Keynote Lecture Control Theory and Application

Chair: Toshiharu KAZAMA(Muroran Institute of Technology)
Co-chair: Kazuhisa ITO(Sophia University)

Keynote Lecture (10:10-10:40)

Trends in Design of Water Hydraulics – Motion Control and Open-ended Solutions

Finn CONRAD(Technical University of Denmark)

Technical session (10:40-12:00)

Application of Adaptive Controller to Water Hydraulic Servo Cylinder

Hidekazu TAKAHASHI, Kazuhisa ITO, Shigeru IKEO (Sophia University, Japan)

Experimental Comparison of Teleoperation Schemes for Hydraulic Manipulators

Ali MUHAMMAD, Jouni MATTILA, Mikko SIUKO, Matti VILENIUS(Tampere University of Technology)

On Pressure/Force Control of a 3-DOF Water Hydraulic Manipulator

Jouni MATTILA, Mikko SIUKO, Matti VILENIUS (Tampere University of Technology)

Comparison of Linear Controllers for a Hydraulic Servo System

Torben O. ANDERSEN, Michael R. HANSEN, Henrik C. PEDERSEN(Aalborg University), Finn CONRAD (Technical University of Denmark)

12:00-13:00

Lunch Break

10:40-12:20 2D2

Pneumatics : Air Pump and Actuator

Chair: Ming SHIH(National Cheng-Kung University)
Co-chair: Kenji KAWASHIMA(Tokyo Institute of Technology)

Frictional Energy Analysis of a Vane Type Air Pump to Assist Paper Handling via Air Flow in Offset Printing Machines

Tadahiro UEKI(Shibaura Institute of Technology), Kazuo INABA(Napico CO., LTD), Junji SHIBATA (Shibaura Institute of Technology)

An Experiments and Characteristics Analysis of the Sealless Cylinder

DognSoo KIM, SangKyu BAE, YoungCheol KIM (Korea Institute of Machinery and Materials)

A Characteristics Analysis of the Fluidic Muscle Cylinder

DongSoo KIM, SangKyu BAE, Shin HUH, SungIn HONG (Korea Institute of Machinery and Materials)

Research on Adaptive Self-Learning Neural-PSD controller of Pneumatic Muscle Driving Humanoid Robot Arm

Li XIAONING, Wei YUFEN, Lu JIANPING(Nanjing University of Science and Technology)

Research on Pneumatic Cylinder's Exhausted-Air Reclaiming Control Devices

Xiaoning LI, Yunxu SHI, Teng YAN(Nanjing University of Science and Technology)

12:20-13:00

Lunch Break

<p>13:00-14:20 2A3</p> <p>OS:Mobile Hydraulics and Pneumatics-3 Chair: Hirohisa TANAKA(Yokohama National University) Co-chair: Zongxia JIAO(Beijing Univ. of Aeronautics and Astronautics)</p> <p>Experimental Study on the Performance Estimation Efficiency Model of a Hydraulic Axial Piston Motors <i>Dong Soo JEONG, Hyoung Eui KIM(Korea Institute of Machinery and Materials), Heon Sul JEONG(Kunsan University), Bo Sik KANG, Yong Bum LEE, Jong Ki KIM(Korea Institute of Machinery and Materials), E Sok KANG(Chungnam University)</i></p> <p>Downsizing of Oil Reservoir by Bubble Eliminator <i>Yutaka TANAKA(Hosei University), Ryushi SUZUKI (Opus System Inc.)</i></p> <p>Development of Energy Saving Power Steering <i>Fumihide KOZUMA, Tsunefumi ARITA, Hisashi TSUDA (Kayaba Industry Co., Ltd)</i></p> <p>Development of Field Robot (Steering Mechanism and Crawler Tilting Mechanism) <i>Hamad KARKI, Toshihiro YAMASHITA, Ken ICHIRYU (Tokyo University of Technology)</i></p>	<p>13:00-14:20 2B3</p> <p>OS:Simulation of Fluid Power Systems and Elements-5 Pneumatics : Simulation of Elements Chair: Jean-Charles MARE(INSA de Lyon) Co-chair: Shihong ZHANG(SMC Corporation)</p> <p>Study on the Over-shoot of Cylinder Halfway Stop System <i>Wei FAN, Guang-zheng PENG, Yu ZHOU(Beijing Institute of Technology), Huping ZHANG(SMC Corporation)</i></p> <p>Numerical Simulation of Flow Field of Diffused Pneumatic Silencer <i>Xi-Wen ZHANG, Yan ZHANG, Heng LI, Feng HE (Tsinghua University)</i></p> <p>Using Inverse Models for Determining Orifices mass Flow Rate Characteristics <i>Eric BIDEAUX, Sylvie SESMAT, Rosario de GIORGI (INSA de Lyon)</i></p> <p>The Simulation of the Sampling Pipes and Sampling Holes Network with an Aspirating Smoke Detector <i>Linn CHENG, Hua ZHOU, Huayong YANG(Zhejiang University)</i></p>
<p>14:20-15:20 Exhibition Core Time & Coffee Break</p>	
<p>15:20-16:40 2A4</p> <p>OS:Mobile Hydraulics and Pneumatics-4 Chair: Monika IVANTYSYNOVA(Purdue University) Co-chair: Huayong YANG(Zhejiang University)</p> <p>Wireless Technology and its Application in Pneumatic System <i>Hongqing XU, Pengfei HAO, Feng HE, Xinming LI (Tsinghua University)</i></p> <p>Development of a Portable Pneumatic Power Source Using Phase Transition at the Triple Point <i>Hai Fan WU, Ato KITAGAWA, Hideyuki TSUKAGOSHI(Tokyo Institute of Technology)</i></p> <p>Characteristics of Leak Detection Based on Differential Pressure Measurement <i>Harus GUNTUR, Maolin CAI, Kenji KAWASHIMA, Toshiharu KAGAWA(Tokyo Institute of Technology)</i></p> <p>Model of a Nozzle-flapper Type Pneumatic Servo Valve and Differential Pressure Control System Design <i>Tao WANG, Maolin CAI, Kenji KAWASHIMA, Toshiharu KAGAWA(Tokyo Institute of Technology)</i></p>	<p>15:20-17:20 2B4</p> <p>Applications of Control Theory-2 Chair: Terenziano RAPARELLI(Politecnico di Torino) Co-chair: Toshihiro YOSHIMITSU(Kanagawa institute of Technology)</p> <p>Concurrent Control of Velocity-Force Control and Energy-Saving Control in Hydraulic Valve-Controlled Cylinder Systems <i>Mao-Hsiung CHIANG(National Taiwan University of Science and Technology), Fei-Lung YANG, Yih-Nan CHEN(National Taiwan University), Lien-Wang LEE, Yih-Chen YEH, Shih-Tang SHENG(National Taiwan University of Science and Technology)</i></p> <p>Adaptive Fault Diagnosis of Hydraulic Actuation System <i>Shao WANG, Ming CUI, Jian SHI, Zong JIAO(Beijing University of Aeronautics and Astronautics)</i></p> <p>Application of Control Theory to the improvement of a Vane Pump for Faster Dynamic Response <i>Arie PERRY(Israel Aircraft Industries)</i></p> <p>Robust Control of an Electrohydraulic Servo System utilizing Online Estimate of its Natural Frequency <i>Hideki YANADA(Toyohashi University of Technology), Kazumasa FURUTA(Harmonic Drive Systems, Inc.)</i></p> <p>Design of Robust Position/Pressure Controller for Cylinder using Hydraulic Transformer <i>Tomohiro UENO, Kazuhisa ITO(Sophia University), Weidong MA(Kayaba Industry Co., Ltd), Shigeru IKEO(Sophia University)</i></p> <p>Application of Stage Control in Hydraulic Load-sensing Control of MTS <i>J. RUAN, Z.Q. YU(Zhejiang University of Technology), R. Burton, P. Ukrainez(University of Saskatchewan)</i></p>

<p>13:00-14:40 2C3</p> <p>OS:Water Hydraulics-2 Valves and Systems</p> <p>Chair: Ato KITAGAWA(Tokyo Institute of Technology) Co-chair: Kazuhisa ITO(Sophia University)</p> <p>Comparing Pneumatic and Water Hydraulic Positioning System for Process Valves <i>Tapio VIRVALO, Esa MÄKINEN(Tampere University of Technology)</i></p> <p>Dynamic Characteristics of a Direct-pressure Sensing Water Hydraulic Relief Valve <i>Kenji SUZUKI, Eizo URATA(Kanagawa University)</i></p> <p>Development of a Low Pressure Water Hydraulic Actuator with Self Reciprocating Motion <i>Shigeru OSHIMA, Tadashi KAGAWA(Numazu College of Technology)</i></p> <p>Innovative New ROV Technology Utilising Water Hydraulics <i>Gry Karin HAUGEN(Bergen University College), Finn CONRAD(Technical University of Denmark), Mads GRAHL-MADSEN(Bergen University College)</i></p> <p>Effect of Tank Design and Two-phased Filtration on Cleanliness Level of Water Hydraulic System <i>Hannu RIIPINEN, Sari SOINI, Jaakko PUHAKKA, Kari KOSKINEN, Matti VILENIUS (Tampere University of Technology)</i></p>	<p>13:00-14:40 2D3</p> <p>OS:Functional Fluids and Smart Fluid Power Systems-1</p> <p>Chair: Masami NAKANO(Yamagata University) Co-chair: Kiyotaka YAMASHITA(Yamagata University)</p> <p>Driving Characteristics of a Micro Artificial Muscle Actuator using Electro-conjugate Fluid <i>Kenjiro TAKEMURA, Shinichi YOKOTA(Tokyo Institute of Technology), Kazuya EDAMURA(New Technology Management, Ltd.)</i></p> <p>Development of Piston Type Linear Actuators using Electro-Conjugate Fluid <i>Kentaro KASHU, Takeshi NAKADA(Tokyo Denki University), Yasuo SAKURAI(Ashikaga Institute of Technology), Toshinori FUJITA(Tokyo Denki University)</i></p> <p>Micro-Electrohydrodynamic Pump by Dielectric Fluid <i>Ichiro KANO, Kazuya MIZUOCHI, Ichiro TAKAHASHI (Yamagata University)</i></p> <p>Development of the New Type Actuator using EHD Phenomenon <i>Sumitaka TERASAKA, Shu KUDO(Tokyo Denki University), Shinichi KURODA(Gunma University) , Hiroshi ABE(National Defense Academy), Junko NIITSUMA(National Rehabilitation Center for the Disabled) , Tsuyoshi SAITOH (National Institute of Industrial Safety), Kazuyuki MITSUI(Tokyo Denki University)</i></p> <p>Basic Performance of ER Gel on One-sided Structured Electrodes <i>Yasuhiro KAKINUMA, Tojiro AOYAMA(Keio University), Hidenobu ANZAI(Fujikura Kasei Co.,Ltd.)</i></p>
<p>14:40-15:20 Exhibition Core Time & Coffee Break</p>	
<p>15:20-17:00 2C4</p> <p>OS:Water Hydraulics-3 Actuators/Pumps and Tribology</p> <p>Chair: Tapio VIRVALO(Tampere University of Technology) Co-chair: Shigeru OSHIMA(Numazu College of Technology)</p> <p>Chain Drive vs. Vane Actuator in Water Hydraulic Rotary Joint <i>Antti MAKELA, Jouni MATTILA, Mikko SIUKO, Matti VILENIUS(Tampere University of Technology)</i></p> <p>Development of Water Drive Spindle <i>Yohichi NAKAO, Yuji SAGESAKA(Kanagawa University)</i></p> <p>A Study on the Application of Birfield Joint for Low Leakage and Friction Pumping in a Water Hydraulic Piston Pump <i>Young-Bog HAM, Yong-Bum LEE, Kyung-Min PARK, Byung-Oh CHOI(Korea Institute of Machinery and Materials)</i></p> <p>Mechatronics System Engineering for CAE/CAD, Motion Control and Design of Vane Actuators for Water Robot Applications <i>Finn CONRAD, Francesco ROLI(Technical University of Denmark)</i></p> <p>Numerical Simulation of a Slipper Model for Water Hydraulic Pumps/Motors in Mixed Lubrication <i>Toshiharu KAZAMA(Muroran Institute of Technology)</i></p>	<p>15:20-17:20 2D4</p> <p>OS:Functional Fluids and Smart Fluid Power Systems-2</p> <p>Chair: Tojiro AOYAMA(Keio University) Co-chair: Kenjiro TAKEMURA(Tokyo Institute of Technology)</p> <p>Magnetorheological (MR) Fluid and its Applications <i>Shigeru SHUTTO(Lord Far East, Inc.) , James TOSCANO (Lord Corporation)</i></p> <p>Flow of a Liquid Crystal Mixture in a Mini-Cylinder under Rotating Electric Fields <i>Tetsuhiro TSUKIJI, Yuji MURATA, Jun ITO(Sophia University)</i></p> <p>Dynamic Characteristics of Liquid Crystal Film in a Slide Bearing under Electric Field <i>Yoshiki MATSUMURA(Hitotsubashi University), Toshihiko SHIRAIISHI, Shin MORISHITA(Yokohama National University)</i></p> <p>Development of ER Clutch for the Walking Support Machine <i>Katsushi SATOH, Taro MABUCHI, Yukio KAWAKAMI, Hiroshi OKAMURA(Shibaura Institute of Technology)</i></p> <p>Dynamic Shear Flow of Electro-Rheological Fluids Between Two Rotating Parallel Disks <i>Masami NAKANO, Kiyotaka YAMASHITA, Shinya KOIZUMI, Ryosuke KEDA(Yamagata University)</i></p> <p>Semi-active and Active Control of an ERF Embedded Pneumatic Vibration Isolator <i>Ming SHIH, Teng WANG, Bien CHEN (National Cheng-Kung University)</i></p>

<p>9:00-10:40 3A1</p> <p>Hydraulics : Basic Theory and Technologies Hydraulics : Energy Saving and Environment Chair: Finn CONRAD(Technical University of Denmark) Co-chair: Gry Karin HAUGEN(Bergen University College)</p> <p>Realistic Filter Performance Evaluation -Cyclic Stabilization Test- <i>Takemi NAMBA, Kazuyasu IZAWA(Nihon Pall LTD.)</i></p> <p>Notes on Contamination Control <i>Eizo URATA(Kanagawa University)</i></p> <p>Investigation into Pressure Distribution of Spool Valve with Notches <i>Fu XIN(Zhejiang University), Ji HONG(Lanzhou University of Technology), Shohei RYU(Hitachi Construction Machinery Co.)</i></p> <p>Energy-Efficient Motion Control of a Digital Hydraulic Joint Actuator <i>Matti LINJAMA, Matti VILENIUS(Tampere University of Technology)</i></p> <p>Energy Saving System for Hydraulic Excavator (Simulation of Power Assistant System with Accumulator) <i>Hironao YAMADA(Gifu University), Shuji SHIOZAKI, Hiroshi MATSUYAMA(YANMAR Diesel Engine Co., Ltd.), Takayoshi MUTO(Gifu University)</i></p>	<p>9:00-10:20 3B1</p> <p>Micro/Nano Machines Chair: Guido BELFORTE(Politecnico di Torino) Co-chair: Hisami MURAMATSU(Numazu College of Technology)</p> <p>An Intellignt Pneumatic-Piezoelectric Servo Positioning System with High Response, Large Stroke and Nanometer Accuracy <i>Mao-Hsiung CHIANG, Chung-Chieh CHEN, Chin-Chuan HUANG, Jun-Yih CHEN(National Taiwan University of Science and Technology)</i></p> <p>Design and Fabrication of Micro Fluid Power System by Stereolithography <i>Seiya ISHIKURA, Yutaka TANAKA, Naoki TAKEMURA, Gaku MINORIKAWA(Hosei University)</i></p> <p>A Piezoelectric Micropump Using Fluid Inertia in Pipe and Its Application <i>Kazuhiro YOSHIDA, Yeon-Oh JUNG(Tokyo Institute of Technology), Takeshi SETO, Kunihiko TAKAGI(SEIKO EPSON Corporation), Jung-Ho PARK, Shinichi YOKOTA (Tokyo Institute of Technology)</i></p> <p>Development of Microvalve Mechanism Using Fluidics <i>Naoto NAKAMURA, Yutaka TANAKA, Sadahisa YAMADA, Gaku MINORIKAWA(Hosei University)</i></p>
<p>10:40-11:00 Coffee Break</p>	<p>10:20-10:40 Coffee Break</p>
<p>11:00-12:20 3A2</p> <p>Information Technology and Fluid Power Systems Chair: Mao-Hsiung CHIANG(National Taiwan Univ. of Sci. and Tech.) Co-chair: Hideki YANADA(Toyohashi University of Technology)</p> <p>A Study on Bilateral Telecontrol of Networked Robot with Variable Time-delay <i>Zhen XIU, Ato KITAGAWA(Tokyo Institute of Technology), Pingdong WU(Beijing Institute of Technology)</i></p> <p>Fault Diagnosis of Electro-hydraulic Systems <i>Oscar VILLALOBOS, Colin BURVILL(Melbourne University), Jacek STECKI(Monash University)</i></p> <p>Advances in Automotive Hydraulic Hybrid Drives <i>Jacek STECKI, Paul MATHESON(Monash University, Australia)</i></p> <p>Information Management for Failure Analysis of Fluid Power Systems <i>Takehisa KOHDA(Kyoto University), Koji YAMAMOTO (Tadano Ltd.)</i></p>	<p>10:40-12:20 3B2</p> <p>Hydraulics : Pump and Motor Chair: Arie PERRY (Israel Aircrfat Industries) Co-chair: Hironao YAMADA(Gifu University)</p> <p>Improvement of the Low-speed Friction Characteristics of a Hydraulic Piston Pump by PVD-coating of CrSiN <i>Yeh-Sun HONG, Sang-Yul LEE, Sung-Hoon KIM, Hyeon-Sik RHIM(Hankuk Avaition University)</i></p> <p>Optimisation of the Lift Characteristic of an Axial Piston Pump Grooved Slipper <i>Josep M. BERGADA(Universitat Politècnica de Catalunya), John WATTON (Cardiff University)</i></p> <p>A Numerical Model for the Simulation of External Gear Pumps <i>Paolo CASOLI, Andrea VACCA, Germano FRANZONI(Università degli Studi di Parma)</i></p> <p>Wavelet Approach for Performance Monitoring and Diagnosis of a Hydraulic Pump <i>Yingjie GAO, Xiangdong KONG(Yanshan University), Qin ZHANG(University of Illinois)</i></p> <p>A New Type of Low Speed High Torque Hydraulic Motor with Continuously Variable Displacement <i>Yong LI, Guanglin SHI, Zhaoneng CHEN(Shanghai Jiaotong University)</i></p>
<p>12:20- Lunch Break</p>	
<p>13:00- Technical Visit Tour</p>	
<p>18:00-20:00 Banquet at Multi-Purpose Hall</p>	

<p>9:00-10:40 3C1</p> <p>Medical and Welfare Equipments</p> <p>Chair: Toshiharu KAGAWA(Tokyo Institute of Technology) Co-chair: Masahiro TAKAIWA(Okayama University)</p> <p>Shape Stabilizer using an Articulation-type Passive element <i>Takashi MITSUDA, Norichika MATSUO(Ritsumeikan University)</i></p> <p>Development of Master-Slave Manipulator using Pneumatic Cylinders <i>Kenji KAWASHIMA, Kotaro TADANO, Supawat APIRAK, Toshiharu KAGAWA(Tokyo Institute of Technology)</i></p> <p>Development of Pneumatically Assisted Walking System <i>Takayoshi FUJITA, Osamu OYAMA(Meiji University), Toshihiro YOSHIMITSU(Kanagawa institute of Technology)</i></p> <p>Development of Tendon-Driven Assistance Manipulator System by Air Pressure Control <i>Takahiro TAKEUCHI, Osamu OYAMA(Meiji University), Toshihiro YOSHIMITSU (Kanagawa Institute of Technology)</i></p> <p>Development of a Haptic Glove to use a Master-slave Rehabilitation Robot Hand System <i>Takashi KOMEDA, Yoshiyuki TAKAHASHI(Shibaura Institute of Technology), Mario ELSAYEH(Royal Institute of Technology), Shinichi UCHINO, Yukio KAWAKAMI, Hiroyuki KOYAMA, Shin-ichiro YAMAMOTO(Shibaura Institute of Technology)</i></p>	<p>9:00-10:40 3D1</p> <p>Pneumatics : Valve</p> <p>Chair: Jyh-Chyang RENN(National Yunlin Univ. of Sci. and Tech.) Co-chair: Tatsuya FUNAKI(Tokyo Institute of Technology)</p> <p>Characterization and Modeling of a Proportional Valve for Control Synthesis <i>Osama OLABY, Xavier BRUN, Sylvie SESMAT, Tanneguy REDARCE (Institut National des Sciences Appliquees de Lyon)</i></p> <p>The Design of a Three Way Pneumatic Valve <i>Terenziano RAPARELLI(Politecnico di Torino), Pierluigi BEOMONTE ZOBEL, Francesco DURANTE, Gianpaolo GAGNOLATO(Università of L'Aquila)</i></p> <p>Development of Direct Drive Type Pneumatic Servo Valve <i>DongSoo KIM, WonHee LEE, ByungOh CHOI(Korea Institute of Machinery and Materials)</i></p> <p>Computational Analysis and Optimal Design of a High Speed Response and Low Power Micro Valve <i>DongSoo KIM, SangWoon PARK, HyunSup KIM, JaeSub YOO (Korea Institute of Machinery and Materials)</i></p> <p>Study on Improvement of the Suction Valve of a Compressor for an Automotive Air-Conditioner <i>Taizo SATO(Sanden Corporation), Tetsuhiro TSUKIJI (Sophia University), Yoshihito MATSUMURA(Sanden Corporation), Eitaro KOYABU(Sophia University)</i></p>
<p>10:40-11:00 Coffee Break</p>	
<p>11:00-12:20 3C2</p> <p>Pneumatics : Measurement</p> <p>Chair: Kyoung Kwan AHN(University of Ulsan) Co-chair: Maolin CAI(Tokyo Institute of Technology)</p> <p>Relationship between Oscillating Frequency and Geometry of Oscillating LPA Flow Sensor <i>Shimizu HISAKI(Ichinoseki National College of Technology), Fujio HIROKI(Kogakuin University), Keijiro YAMAMOTO(Kanagawa institute of Technology)</i></p> <p>The Investigation of Flow Field in Swirler <i>Rong-Ming TANG, Hong-Qing XU, Xue-Fang WANG, Zhan-Feng ZHANG(Tsinghua University)</i></p> <p>A New Mass Flow-rate Model of Gas through Orifice-type Restrictors in Aerostatic Bearings <i>Jyh-Chyang RENN, Jia-Feng YANG(National Yunlin University of Science and Technology)</i></p> <p>A New Measurement Method of the Flow-rate Characteristics of the Regulator <i>Guang-zheng PENG, Xi-yan CHAI, Wei FAN (Beijing Institute of Technology)</i></p>	<p>11:00-12:20 3D2</p> <p>Pneumatics : Basic Theory and Technologies</p> <p>Chair: Shujiro DOHTA(Okayama University of Science) Co-chair: Eitaro KOYABU(Sophia University)</p> <p>Development of Continuous Unsteady Flow Generator for Gases <i>Tatsuya FUNAKI, Shunpei YAMAZAKI, Kenji KAWASHIMA, Toshiharu KAGAWA(Tokyo Institute of Technology)</i></p> <p>Design and Implementation of Lab. Simulator for Vehicle Control <i>Jeongdai JO, Kwang-Young KIM, Dong-Soo KIM, Hyung-Eui KIM(Korea Institute of Machinery and Materials)</i></p> <p>A New Method to Predict the Occurrence of Stick-slip in Pneumatic Cylinders <i>Baihai ZHANG, Yanfeng MA, Haifeng CHENG, Guangzheng PENG(Beijing Institute of Technology)</i></p> <p>Study on the Compressible Flow between Two Parallel Disks <i>Koji TAKAHASHI(Sophia University), Keigo OHTANI (Suzuki Motor Corporation), Hiroyuki SATO (SMC Corporation), Shigeru IKEO(Sophia University)</i></p>
<p>12:20- Lunch Break</p>	
<p>13:00- Technical Visit Tour</p>	
<p>18:00-20:00 Banquet at Multi-Purpose Hall</p>	