The 11th JFPS International Symposium on Fluid Power HAKODATE 2020
Program at a glance (Final version)

Oct. 12 (Tue.), 2021 Venue: Online

9:30	Opening Ceremony
9:50	Invited Lecture 1 (Recorded video) Prof. Andrew Plummer, University of Bath, UK "Piezoelectric pumps for hydraulic actuation"
	Invited Lecture 2 (Recorded video) Prof. Zongxia Jiao, Beihang University, CHINA "Research on high performance electro-hydrostatic actuator (EHA) system"
11:00	Coffee Break
11:15	Session 1 (on Recorded Videos) [Automobile, Functional fluid, Simulation and modelling, Aqua drive, Soft actuator]
12:15	Lunch
14:00	Session 2 (on Recorded Videos) [Robotics and mechatronics, Energy saving, Medical and welfare, Tribology, Seals, and Contamination Control, Components and systems, Construction, Components and Cystems]
15:30	

Oct. 13 (Wed.), 2021 Venue: Online

9:30	Invited Lecture 3 (Recorded video) Prof. Zongxuan Sun, University of Minnesota, USA "Fluid Power: from Motion Control to Powertrain Innovation"
	Invited Lecture 4 (Recorded video) Prof. Toshiharu Kazama, Muroran Institute of Technology, JAPAN "Tribology Research on Fluid Power in Japan –Review and State of the Art"
10:40	Break
10:50	Session 3 (on Recorded Videos) [Automobile, Functional fluid, Simulation and modelling, Aqua drive, Soft actuator]
11:50	Lunch
13:30	Session 4 (on Recorded Videos) [Robotics and mechatronics, Energy saving, Medical and welfare, Tribology, Seals, and Contamination Control, Components and systems, Construction, Components and Cystems]
15:00	Break
15:15	Awards & Closing Ceremony
15:40	

Opening Ceremony | Ceremony

Opening Ceremony

Chair: Kazuhisa Ito, Shibaura Institute of Technology

[OP-01] Welcome Message

*Kazushi Sanada[1] （1. Yokohama National University）

[OP-02] Opening Address

*Yutaka Tanaka[1] （1. Hosei University）

Invited Lecture | Invited Lectures

Invited Lecture 1

[IL1-Introduction] Introduction

*Kazuhisa Ito[1] （1. Shibaura Institute of Technology）

[IL-01] Piezoelectric pumps for hydraulic actuation

*Andrew Plummer[1] （1. University of Bath）

Invited Lecture | Invited Lectures

Invited Lecture 2

[IL2-Introduction] Introduction

*Kazuhisa Ito[1] （1. Shibaura Institute of Technology）

[IL-02] Research on high performance electro-hydrostatic actuator (EHA) system

*Zongxia Jiao[1] （1. Beihang University）

Invited Lecture | Invited Lectures

Invited Lecture 3

[IL3-Introduction] Introduction

*Kazuhisa Ito[1] （1. Shibaura Institute of Technology）

[IL-03] Fluid Power: from Motion Control to Powertrain Innovation

*Zongxuan Sun[1] （1. University of Minnesota）

Invited Lecture | Invited Lectures

Invited Lecture 4

[IL4-Introduction] Introduction

*Kazuhisa Ito[1] （1. Shibaura Institute of Technology）

[IL-04] Tribology Research on Fluid Power in Japan Review and State of the Art

*Toshiharu Kazama[1] （1. Muroran Institute of Technology）

Organized Session | Organized session

Automobile

[OS1-01] A Study on Rotor Behavior of a Gerotor Pump

*Ryo Kojima[1], Takahiro Takeno[2], Hideki Yanada[1], Hiroshi Yokoyama[1] （1. Toyohashi University of Technology, 2. Toyohashi University of Technology(Currently at Terumo Corporation)）

[OS1-02] Modeling of Compact Car Active Suspension with Pneumatically Controlled Variable Damping Force Oil Damper and Variable Rigidity Air Spring

*Yasukazu Sato[1], Shogo Sato[1] （1. Yokohama National University）

[OS1-03] Power Absorber by Air Compression and Release Cycle with Controller for Adjusting Air Release Timing to Obtain Variable Absorbing Capacity (First Report – Basic Concept and Design)

*Takashi Shibayama[1], Toshinori Fujita[1], Sho Ueyama[1] （1. Tokyo Denki University (Japan)）

[OS1-04] Clarification of Parameters and Development of a Method for Estimating Loading Forces Acting on the Spool Valve of a Hydraulically Controlled Automotive Transmission

*Daisuke Yanagawa[1], Masahiro Kouya[1], Sho Tozuka[1], Masaru Shimada[1], Idris Tengku[1], Naoki Uezono[1] （1. Jatco,Ltd）

Organized Session | Organized session

Functional Fluid

[OS2-01] A Study on a Mathematical Model for AC Electroosmosis Micropump

Yo Makita[1], *Kazuhiro Yoshida[1], Sang In Eom[1], Joon-wan Kim[1] （1. Tokyo Institute of Technology）

[OS2-02] Multi-Layered Disk Type of Electro-Rheological Braking Device for Small Mobile Robot

*Takanori Togawa1, Yuta Sato1, Yutaka Tanaka1, Jinghui Peng2 （1. Hosei University, 2. Harbin Institute of Technology）

[OS2-03] Lightweight &Twin-driven MR Fluid Actuator for Haptic Devices

*Tetsumasa Takano1, Asaka Ikeda2, Akinori Yamaguchi1, Isao Abe2, Takehito Kikuchi2 （1. Graduate School of Engineering, Oita University, 2. Faculty of Science and Technology, Oita University）

[OS2-04] Investigation of Constant Velocity Motion with Physical Interaction System for Long- Term Stay in Microgravity Space

*Tetsuhito Fujita1, Katsuki Machida1, Yusuke Shimoda1, Manabu Okui1, Rie Nishihama2, Taro Nakamura1 （1. Chuo University, 2. Research and Development Initiative of Chuo University）

[OS2-05] Manufacturing and Evaluation of Micro Electrohydrodynamic Pumps with Different Scales and Similar Dimensions

*Kotaro Okada1, Masahito Nishikawara1,2, Shunichi Naito1, Hideki Yanada1, Hiroshi Yokoyama1 （1. Toyohashi University of Technology, 2. Worcester Polytechnic Institute）

[OS2-06] Study on a Low Pressure and Flowrate Driving of Micro Leg Joints for Soft Robots

Koji Michishita1, Kazuhiro Yoshida1, *Joon-wan Kim1 （1. Tokyo Institute of Technology）

Organized Session | Organized session

Simulation and Modeling

[OS3-01] A Study on the Virtual Simulation Model of an Excavator Equipped with a Tiltrotator Based on Simscape

*Seongwoong Choi[1], Kyungsin Kwak[1], Yongseok Kim[1], Kyoungkwan Ahn[1], Soonyong Yang[1] （1. University of Ulsan）

[OS3-02] Modeling, Simulation, and Control of Blade Pitch to Improve the Performance of a Hydrostatic Wind Turbine

*Neil Christopher Garcia[1], Kim Stelson[1] （1. University of Minnesota (United States of America)）

[OS3-03] Internal Flow and Hysteresis Characteristic of the Poppet Type Pressure Control Valve

*Seiei Masuda[1], Fumio Shimizu[2], Masaki Fuchiwaki[2], Kazuhiro Tanaka[2] （1. Control Systems Engineering Department, IHI Corporation, 2. Graduate School of Computer Science and Systems Engineering, Kyushu Institute of Technology）

[OS3-04] Flow Patterns and Hysteresis Characteristic of a Poppet Valve

*Naoki Hirose[1], Seiei Masuda[2], Fumio Shimizu[3], Masaki Fuchiwaki[3], Kazuhiro Tanaka[3] （1. Voith IHI Paper Technology, 2. IHI Corporation, 3. Kyushu Institute of Technology）

[OS3-05] Numerical Study on Identification Input for Nonlinear Hydraulic Arms.

*Teruo Kato[1], Satoru Sakai[1], Ryo Arai[1] （1. University of Shinshu）

[OS3-06] On the Analysis of Energy Behaviors in Hydraulic Cylinder Dynamics via Modeling of Experimental Excavators

*Ryo Arai[1], Satoru Sakai[1], Akihiro Tatsuoka[2] （1. Shinshu University, 2. Mitsubishi Heavy Industries）

Organized Session | Organized session

Aqua Drive 1

[OS4-1-01] Consideration of Thermal Stability of the Ultra-Precision Water-Lubricated Spindle

*Dmytro Fedorynenko[1], Yohichi Nakao[2] （1. Tohoku University (Japan), 2. Kanagawa University (Japan)）

[OS4-1-02] Multidisciplinary Design Optimization of a Tortuous Path Trim for a Labyrinth Control Valve

*Runlin Gan[1], Xukang Li[1], Song Liu[1], Baoren Li[1] （1. Huazhong University of Science &Technology, FESTO Pneumatic Technology Center (China)）

[OS4-1-03] Design of Magnetostrictive Power Generation Device from Pulsating Pressure in Hydraulic Pipeline by Using Water Hydraulic Cylinder

*Kaito Miyashita[1], Shouichiro Iio[1], Tsuyoki Tayama[2], Ryuichi Onodera[2], Shyota Abe[2] （1. Shinshu University, 2. Tohoku Steel Co., Ltd.）

[OS4-1-04] Flow Characteristics of a Cavitating Jet through a Small Rectangular Orifice with Different Aspect Ratios

*Hironori Takei[1], Kohei Terakawa[1], Shouichiro Iio[1], Kotaro Takamure[2], Tomomi Uchiyama[2], Futoshi Yoshida[3] （1. Shinshu University, 2. Nagoya University, 3. KYB Corporation）

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Aqua Drive 2

[OS4-2-01] Switching Control of Latex Balloon Expansion by using Fluidic Switching Valve mediated with Coanda Effect

*Keita Kaneko[1], Kenjiro Takemura[1] （1. Keio University）

[OS4-2-02] Comparison of Model-Free Adaptive Displacement Control and Model Predictive Displacement Control for Tap-Water-Driven Muscle Considering Load Variation during Experiments

*Satoshi Tsuruhara[1], Ryo Inada, Kazuhisa Ito[1] （1. Shibaura Institute of Technology）

[OS4-2-03] Experimental study on Dual-Layer Type Vortex Cup Driven by Aqua Drive System

*Wataru Kobayashi[1], Tetsuya Akagi[1], Shujiro Dohta[1] （1. Okayama University of Science）

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Soft Actuator 2

[OS5-2-01] Pneumatic Source Proposal for Improving Portability and Responsiveness of Artificial Muscle via Dimethyl Ether Phase Change and Combustion

*Ryuto Enjo[1], Manabu Okui[1], Taro Nakamura[1] （1. Chuo university）

[OS5-2-02] Development of Six-Legged Mobile Robot Using Tetrahedral Shaped Pneumatic Soft Actuators

*Kenta Hase[1], Tetsuya Akagi[1], Shujiro Dohta[1], Takashi Shinohara[1], Wataru Kobayashi[1], So Shimooka[2] （1. Okayama University of Science, 2. Okayama University）

[OS5-2-03] Development of the Transfer System for Bedridden Elderly and Disabled People using Pneumatic Actuators

*Feifei Cho[1], Keisei Kato[1], Ryota Endo[1], Takumi Kobayashi[2], Tetsuya Akagi[2] （1. National Institute of Technology Tsuyama College, 2. Okayama University of Science）

[OS5-2-04] Development of Pneumatic Drive Pipe Inspection Robot using Radial Bending Type Soft Actuator

*Takashi Shinohara[1], Hikaru Furuya[1], Tetsuya Akagi[1], Shujiro Dohta[1], Takumi Kobayashi[1], So Shimooka[2] （1. Okayama University of Science, 2. Okayama University）

Organized Session | Organized session

Soft Actuator 1

[OS5-1-01] Analysis and Design of Servo Valve Using Buckled Tubes for Desired Operation of Flexible Robot Arm

*Takumi Kobayashi[1], Hideyuki Obayashi[1], Tetsuya Akagi[1], Shujiro Dohta[1], Wataru Kobayashi[1], Takashi Shinohara[1], So Shimooka[2] （1. Okayama University of Science, 2. Okayama University）

[OS5-1-02] Development of Pneumatic Variable Linear Stepping Actuator and Soft Stepping Actuator with Bending Motion for Rehabilitation Device of Hip Joint

*Kota Oe[1], Tetsuya Akagi[1], Shujiro Dohta[1], Takashi Shinohara[1], Wataru Kobayashi[1], So Shimooka[2] （1. Okayama University of Science, 2. Okayama University）

[OS5-1-03] Development of Extension Type Flexible Pneumatic Actuator with Displacement Sensor Using Ring-shaped Magnet and Hall Sensor for Tetrahedral-type Soft Mechanism

*Kenshiro Takeuchi[1], Takumi Kobayashi[1], Tetsuya Akagi[1], Shujiro Dohta[1], Takashi Shinohara[1], Wataru Kobayashi[1], So Shimooka[2] （1. Okayama University of Science, 2. Okayama University）

[OS5-1-04] Development of Highly Durable Straight Fiber Type Pneumatic Artificial Muscle with a Double Structural Air Chamber

*Naoki Saito[1], Daisuke Furukawa[1], Toshiyuki Satoh[1], Norihiko Saga[2] （1. Akita Prefectural University, 2. Kwansei Gakuin University）

[OS5-1-05] Evaluation of Lifting Motion with Non-wearing Type Pneumatic Power Assist Device ~ Comparison of Active and Passive Type ~

*Masashi Yokota[1], Reito Hirabayashi[1], Masahiro Takaiwa[2] （1. Tokushima University, Graduate School Advanced Technology and Science (Japan), 2. Tokushima University, Graduate School of Technology, Industrial and Social Sciences (Japan)）

Genaral Session | Pneumatics

Robotics and Mechatronics 1

[GS1-1-01] Development of a Simple Servo-Pneumatic Three DOF Pick-And-Place Manipulator

Chin-Yi Cheng[1], Jyh Chyang Renn[1], Shyang Jye Chang[1], *Ilham Saputra[1] （1. National Yunlin University of Science and Technology）

[GS1-1-02] Development of Fingertip Mechanism With Contact Point Estimation

*Kei Mikami[1], Kotaro Tadano[1] （1. Tokyo Institute of Technology）

[GS1-1-03] Development of Outdoor Activity Assist Suit

*Toshihiro Yoshimitsu[1], Rui Matsumoto （1. Kanagawa Institute of Technology）

[GS1-1-04] Examination on Attitude Control System of Hand Manipulator with Compact Pneumatic Cylinders by E-FRIT

*Shogo Tomita[1], Eiji Murayama[1], Yukio Kawakami[1] （1. Shibaura Institute of Technology）

[GS1-1-05] Design and Fabrication of a Soft Filament-polymer Jamming Actuator

*Peng Qin[1], Zhonghua Guo[1], MengYu Dou[1], Zhongsheng Sun[1], Yan Teng[1], Xiaoning Li[1] （1. Nanjing University of Science and Technology(China)）

[GS1-1-06] Robotic Blood Vessel Mechanism for Self-Healing Function of Soft Robots

Kenjiro Tadakuma[1], Shohei Inomata[1], Yuta Yamazaki[2], Fumiya Shiga[2], Masanori Kameoka[2], MD Nahi Islam Shiblee[2], *Issei Onda[1], Tomoya Takahashi[1], Yu Ozawa[1], Masahiro Watanabe[1], Hidemitsu Furukawa[2], Masashi Konyo[1], Satoshi Tadokoro[1] （1. Tohoku University (Japan), 2. Yamagata University (Japan)）

Genaral Session | Oil hydraulics

Robotics and Mechatronics 2

[GS1-2-01] Design and Manipulability Analysis of a Redundant Anthropomorphic Hydraulically Actuated Manipulator

*Fu Zhang[1], Junhui Zhang[1], Min Cheng[2], Ruqi Ding[3], Bing Xu[1], Shen Zheng[1] （1. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University, 2. State Key Laboratory of Mechanical Transmissions, Chongqing University, 3. Key Laboratory of Conveyance and Equipment, Ministry of Education, East China Jiaotong University）

[GS1-2-02] Wide Field of View Projection Display for Remote Control of Construction Robot

*Daisuke Kondo[1] （1. Osaka University）

[GS1-2-03] Experimental Implementation of a Hydraulic Turbine Access System with Six-DoF Active Motion Compensation for Taiwan Offshore Wind Farms

Mao-Hsiung Chiang[1], Bo-Yen Chen [1], *Sheng-Chia Lin[1] （1. National Taiwan University (Taiwan)）

[GS1-2-04] Modular Hydraulic Servo Booster for Multi-Axis Robots

Sang-Ho Hyon[1], *Tomoro Kai[1] （1. Ritsumeikan University）

[GS1-2-05] Comparison of Mechanical Drive System and Hydraulic Direct-Drive System for Motor Power

*Juri Shimizu[1,2], Takuya Otani[2], Kenji Hashimoto[3], Atsuo Takanishi[2] （1. Hitachi, Ltd., 2. Waseda University, 3. Meiji University）

Genaral Session | Oil hydraulics

Energy Saving

[GS2-01] Research on the Characteristics of the Cylinder Exhaust-Return Energy-Saving System

*Yuto Fujiwara1, Mitsuru Senoo1, Hiroyuki Asahara1 （1. SMC Corporation (Japan)）

[GS2-02] Design Guideline and Investigation of Accumulator Parameters for a Novel Hybrid Architecture

*Seiji Hijikata1, Kazuhisa Ito2, Hubertus Murrenhoff1 （1. Institute for Fluid Power Drives and Systems (ifas), RWTH Aachen University, 2. Department of Machinery and Control Systems, College of Systems Engineering and Science Shibaura Institute of Technology）

[GS2-03] Research Regarding the Energy Saving Conditions of the Air Blow for Removing and Drying Out Water

*Daisuke Kurakami1, Keiichirou Koga1, Gohei Harimoto1 （1. SMC Corporation (Japan)）

[GS2-04] Energy Regeneration and Reuse of Excavator Boom System with Hydraulic Constantly Variable Powertrain

*Cuong Tri Do1, Kyoung Kwan Ahn1 （1. University of Ulsan）

[GS2-05] Efficient Closed Pump Controlled Hydraulic-Gas Balanced Energy Recovery Driving Method for Hydraulic Excavator Boom

*Lianpeng Xia1, Long Quan1, Hongjuan Zhang1, Yunxiao Hao1, Lei Ge1 （1. Taiyuan University of Technology）

[GS2-06] Experimental Validation of Improvement of the Overall Efficiency for Electro-hydraulic Drive System using Efficiency Maps

*Ha Tham Phan[1], Yasukazu Sato[1] （1. Yokohama National University）

Genaral Session | Pneumatics

Medical and Welfare

[GS3-01] Development of Silicone Outer Shell Type Pneumatic Soft Actuator

*Yuma Nakanishi[1], Yasuhiro Hayakawa[1], Keisuke Kida[1], Hiroaki Ichii[1] （1. National Institute of Technology (Kosen) , Nara College. (Japan)）

[GS3-02] Development of Pneumatically Driven Verification System for Ophthalmic Needling Operation

Feng Tao[1], *Maina Sogabe[2], Taro Ito[3], Tetsuro Miyazaki[2], Toshihiro Kawase[4,1], Takahiro Kanno[5], Yoshikazu Nakajima[1], Kenji Kawashima[2] （1. Tokyo Medical and Dental University, 2. The University of Tokyo, 3. Tottori University, 4. Tokyo Institute of Technology, 5. RIVERFIELD Inc）

[GS3-03] Development of a Whole Body Training Device by Multi-directional Force Input Using Pneumatic Artificial Muscles

Soichiro Ito[1], *Tetsuro Miyazaki[2], Junya Aizawa[3], Toshihiro Kawase[1,4], Maina Sogabe[2], Takahiro Kanno[5], Yoshikazu Nakajima[1], Kenji Kawashima[2] （1. Tokyo Medical and Dental University, 2. The University of Tokyo, 3. Juntendo University, 4. Tokyo Institute of Technology, 5. RIVERFIELD Inc.）

[GS3-04] Development of Robotic Forceps Driven by Soft Actuator with Built-In Displacement Sensor

*Osamu Azami[1], Takahiro Kanno[1], Toshihiro Kawase[2,3], Maina Sogabe[4], Tetsuro Miyazaki[4], Kenji Kawashima[4] （1. Riverfield Inc., 2. Tokyo Medical and Dental University, 3. Tokyo Institute of Technology, 4. Tokyo University）

Genaral Session | Oil hydraulics

Tribology, Seals, and Contamination Control

[GS4-01] Effect of Sealing Surface Flatness on Leakage Characteristics of Flange-Type Gasket Model Using Oil Viscosity-Temperature Relations

*Song Gao[1], Toshiharu Kazama[1] （1. Muroran Institute of Technology）

[GS4-02] Experimental Analysis of Rotational Motion of Pistons and Slippers of a Swashplate Axial Piston Pump Using Visualization Technique

*Takumi Furuya[2], Toshiki Haga[2], Toshiharu Kazama[1] （1. Muroran Institute of Technology, 2. Graduate School of Muroran Institute of Technology）

[GS4-03] Feasibility and Precision Analysis of a Test Rig with Adjustable Oil Film Thickness

*Haiji Wang[1], Guanglin Shi[1] （1. Shanghai Jiaotong University）

Genaral Session | Pneumatics

Components and Systems 1

[GS5-1-01] Magnetic Sensor Study for Improving Air Turbine Spindle Performance

*Vanisara Kaewnamchai[1], Tomonori Kato[1], Kazuki Kawakubo[1], Kazumasa Yamashita[1] （1. Fukuoka Institute of Technology）

[GS5-1-02] Study on Multi-Cylinder Type Wind Powered Air Compressor Applied Hypocycloid

*Ryota Tanoue[1], Toshinori Fujita[1] （1. Tokyo Denki University）

[GS5-1-03] Development of Bidirectional Arm Curl Machine Using Pneumatic Artificial Rubber Muscles

*Toshihiro Kawase[1,2], Tomoya Nakanishi[1], Shintaro Yoshida[3], Shingo Ohno[3], Ryo Sakurai[3], Tetsuro Miyazaki[4]

, Takahiro Kanno[5], Maina Sogabe[4], Yoshikazu Nakajima[1], Kenji Kawashima[4] （1. Tokyo Medical and Dental University, 2. Tokyo Institute of Technology, 3. Bridgestone Corporation, 4. The University of Tokyo, 5. RIVERFIELD, Inc.）

[GS5-1-04] Design of a Pneumatic Oscillator for Paper Machine's Doctor Blade Systems

Stefano Colaiuda[1], *Michele Gabrio Antonelli[2], Pierluigi Beomonte Zobel[2], Massimiliano Centofanti[1] （1. SMC Italia S.p.A. (Italy), 2. Department of Industrial and Information Engineering and Economics, University of L'Aquila (Italy)）

Genaral Session | Oil hydraulics

Components and Systems 2

[GS5-2-01] Leakage Characteristics of a 3-port Pressure Reducing Valve

*Haroon Ahmad Khan[1], Byeong-Il Choi[2], Jung-Ho Park[2], So-Nam Yun[2] （1. University of Science and Technology, Korea, 2. Korea Institute of Machinery and Materials）

[GS5-2-02] Generation Mechanism of Flow Force Acting on Spool Valve

*Fumio Shimizu[1], Kazuhiro Tanaka[1] （1. Kyushu Institute of Technology）

[GS5-2-03] The Effect of the Spline Coupling on the Rotating Assembly Tilt Behavior in a High-speed Axial Piston Pump

*Haogong Xu[1], Junhui Zhang[1], Weidi Huang[1], Bing Xu[1], Fei Lyv[1], Xiaochen Huang[1] （1. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University）

[GS5-2-04] First-order Trajectory Sensitivity Analysis of Multi-level Pressure Switching Control System

Jing Yao[1,2,3], *Pei Wang[1], Xinhao Li[1], Yuwang Cheng[1], Xiaoming Cao[1] （1. School of Mechanical Engineering, Yanshan University, 2. Key Laboratory of Advanced Forging &Stamping Technology and Science of Ministry of Education of China, 3. Hebei Key Laboratory of Heavy Machinery Fluid Power Transmission and Control）

[GS5-2-05] A Study on the Pulse Analysis and Vibration Characteristics of Hydraulic System for Prediction of Check Valve Behavior

*Jeong-Woo Park[1,2], So-Nam Yun[1], Young-Bog Ham[1], Eun-A Jeong[1] （1. Korea Institute of Machinery &Materials, 2. Chungnam National University）

[GS5-2-06] Research on an Oil-hydraulic Component to Reduce Pressure Pulsation

*Yasuo Sakurai[1], Misaki Hashimoto[2], Moritaka Maehara[3], Norikazu Hyodo[4] （1. Ashikaga University, 2. MITSUBA Corporation, 3. SAWAFUJI ELECTRIC CO., LTD., 4. TOKYO KEIKI INC.）

Genaral Session | Oil hydraulics

Construction, Components and Systems

[GS6-01] Operating Information Presentation for Hydraulic Construction Robot

*Hironao Yamada[1], Takahiro Ikeda[1], Satoshi Ueki[1], Kazuma Shinkai[2], Katsutoshi Ootsubo[3] （1. Gifu University, 2. Sumitomo Heavy Industries, Ltd., 3. Kinjo Gakuin University）

[GS6-02] Frequency Response Analysis of Parallel Link Mechanism using Oil-hydraulic Cylinders of Tunnel Boring Machines

Ryo Yamamoto[1], *Kazushi Sanada[1], Shigeaki Ashikaga[2] （1. Yokohama National University, 2. Komatsu Ltd.）

[GS6-03] A Power-Split Hybrid Transmission to Drive Conventional Hydraulic Valve Controlled Architectures in Off-road Vehicles: The Case of a Mini-Excavator

*Mateus Bertolin[1], Andrea Vacca[1] （1. Purdue University）

[GS6-04] Control of Air Bubble Content in Working Oil by Swirling Flow

Sayako Sakama[2], *Yutaka Tanaka[1], Yasuhiro Kodera[3], Yoshiaki Kitamura[3] （1. Hosei University, 2. National Institute of Advanced Industrial Science and Technology, 3. KYB Corporation）

[GS6-05] Pulse Tests on Additive Manufactured Valve Blocks – Damage Analysis and New Design Possibilities

*Sebastian Deuster[1], Stefan Aengenheister[1], Gunnar Matthiesen[1], Katharina Schmitz[1] （1. RWTH Aachen University, Institute for Fluid Power Drives and Systems (ifas)）

[GS6-06] The Potential in Fluid Power Systems for a Sustainable Future

*Katharina Schmitz[1] （1. RWTH Aachen University, Institute for Fluidpower Drives and Systems (ifas)）

[GS6-07] New Intelligent Hydraulic Power Control System

*Takahiro Urai[1], Ken Shindo[1] （1. Bosch Rexroth corporation）

Award &Closing Ceremony | Ceremony

Awards &Closing Ceremony

Chair: Kazuhisa Ito, Shibaura Institute of Technology

[CL-01] JFPS Best Paper Award/JFPS Best Student Paper Award/GFPS Best Paper Award

*Hideyuki Tsukagoshi[1] （1. Tokyo Institute of Technology）

[CL-02] Announcement of JFPS 2024

*Yukio Kawakami[1] （1. Shibaura Institute of Technology）

[CL-03] Closing Remark

*Toshiharu Kazama[1] （1. Muroran Institute of Technology）