

The 10th JFPS International Symposium on Fluid Power FUKUOKA 2017

Program at a glance

Ver.4.2 (2017.10.05)

	Oct. 24 (Tue.), 2017	
16:00	Registration (ACROS FUKUOKA, Cultural Gallery/2F (Room D)) (16:00-18:00) <small>http://www.acros.or.jp/english/</small>	
18:00	Welcome Party (HAKATA EXCEL HOTEL TOKYU) (18:00-19:30) <small>https://www.tokyuhotelsjapan.com/en/hotel/TE/TE_HAKAT/index.html</small>	
19:30		

	Oct. 25 (Wed.), 2017 Venue: ACROS Fukuoka	
8:30	Registration (ACROS Fukuoka, 7F Lobby) (8:30-17:30)	
9:00	Opening Ceremony (Room A)	
9:20	Invited Lecture 1 (Room A) 1A01 Prof. Koichi SUZUMORI, Japan	
10:20	Coffee Break	
10:40	Invited Lecture 2 (Room A) 1A02 Prof. Hubertus MURRENHOF, Germany	
11:40	Lunch & Exhibition (Room E)	
12:40	Parallel Session (Room A) 1A03-1A07 H1 (Energy Saving, Construction Machinery 1)	Parallel Session (Room B) 1B01-1B05 P1 (Pneumatic Valves)
14:00	Parallel Session (Room C) 1C01-1C05 W1 (Water Hydraulics 1)	
14:20	Coffee Break & Exhibition (Room E)	
14:40	Parallel Session (Room A) 1A08-1A12 H2 (Energy Saving, Construction Machinery 2)	Parallel Session (Room B) 1B06-1B10 P2 (Pneumatic Cylinder Control)
15:40	Parallel Session (Room C) 1C06-1C10 H3 (Tribology, Seals, Contamination)	
16:00	Coffee Break & Exhibition (Room E)	
17:36	Parallel Session (Room A) 1A13-1A18 H4 (Hydraulic Pumps 1)	Parallel Session (Room B) 1B11-1B16 OS3-1 (Functional Fluids 1)
	Parallel Session (Room C) 1C11-1C16 OS1 (Hydraulic Robots)	

	Oct. 26 (Thu.), 2017 Venue: ACROS Fukuoka	
8:30	Registration (ACROS Fukuoka, 7F Lobby) (8:30-17:30)	
9:00	Parallel Session (Room A) 2A01-2A06 H5 (Hydraulic Pumps 2)	Parallel Session (Room B) 2B01-2B06 OS3-2 (Functional Fluids 2)
10:36	Parallel Session (Room C) 2C01-2C06 H6 (HST, Mobile Applications)	
10:45	Poster Session (Room D) (10:45-12:05) 2D01-2D55 Core Time 10:45-11:25 : Odd Number Core Time 11:25-12:05 : Even Number OS2 (Aqua Drive Systems) 2D50-55	
11:25	Lunch & Exhibition (Room E)	
12:05	Special Lecture 1 (Room A) 2A07 Prof. Kalevi HUHTALA, Finland	
13:00	Special Lecture 1 (Room A) 2A07 Prof. Kalevi HUHTALA, Finland	
13:30	Special Lecture 1 (Room A) 2A07 Prof. Kalevi HUHTALA, Finland	
13:40	Parallel Session (Room A) 2A08-2A12 H7 (Control & Measurements 1)	Parallel Session (Room B) 2B07-2B11 P3 (Soft Actuators)
15:00	Parallel Session (Room C) 2C07-2C11 W2 (Water Hydraulics 2)	
15:30	Coffee Break & Exhibition (Room E)	
16:50	Parallel Session (Room A) 2A13-2A17 H8 (Control & Measurements 2)	Parallel Session (Room B) 2B12-2B16 P4 (Welfare, Power Assist System)
17:00	Parallel Session (Room C) 2C12-2C16 H9 (Hydraulic Valves 1)	
18:20	Parallel Session (Room A) 2A18-2A22 H10 (Control & Measurements 3)	Parallel Session (Room B) 2B17-2B21 P5 (Basic Technology of Pneumatics)
	Parallel Session (Room C) 2C17-2C21 H11 (Hydraulic Valves 2)	

	Oct. 27 (Fri.), 2017 Venue: Fukuoka Institute of Technology (FIT) <small>http://www.fit.ac.jp/en/</small>	
8:30	Technical Tour (Dazaifu Tenmangu) <small>http://www.dazaifutenmangu.or.jp/en</small>	
12:00	Lunch	
13:00	Transfer to Fukuoka Institute of Technology (FIT) by Bus	
14:30	The 10th Anniversary Ceremony in FIT Hall (Room F) Special Lecture 2 (Room F) 3F01-3F03 Prof. Kazushi SANADA, Japan Prof. Xiangdong KONG, China Prof. Kim STELSON, U.S.A.	
16:00	Awards Ceremony in FIT Hall (Room F)	
16:30	Closing Ceremony in FIT Hall (Room F)	
16:50		
17:00	Banquet (Restaurant OASIS)	
20:00	Transfer to ACROS FUKUOKA by Bus	

Oct. 25 (Wed.), 2017

Opening Ceremony

[1OP01-01] Opening Ceremony

Chair:Yukio Kawakami(Shibaura Institute of Technology)

Room A

09:00 [1OP01] Opening Ceremony

Invited Lecture

[1A-Invited-01] Invited Lecture 1

Chair:Yasuhiro Hayakawa(National Institute of Technology, Nara College)

Room A

09:20 [1A01] FLUID POWER PIONEERING NEW ROBOTICS

*Koichi SUZUMORI¹ (1. Tokyo Institute of Technology)

Invited Lecture

[1A-Invited-02] Invited Lecture 2

Chair:Yutaka Tanaka(Hosei University)

Room A

10:40 [1A02] SOME RECENT FLUID POWER RESEARCH RESULTS AT IFAS

*Hubertus MURRENHOFF¹ (1. IFAS of RWTH Aachen University)

Oral Presentation | Oil hydraulics

[1A03-07] H1 (Energy Saving, Construction Machines 1)

Chair:Kim Stelson(University of Minnesota), Yutaka Tanaka(Hosei University)

Room A

12:40 [1A03] STATE-OF-THE-ART CONSTRUCTION SITES REALIZED WITH ICT CONSTRUCTION MACHINES
(ICT based - Excavator and Bull Dozer)

*Tomohiro Nakagawa¹ (1. Komatsu Ltd., ICT Development Group)

12:56 [1A04] POWER MATCHING AND WORKING PERFORMANCE OF HYDRAULIC EXCAVATOR DRIVEN BY
VARIABLE SPEED ELECTRIC MOTOR

*Lei Ge¹, Long Quan¹, Jing Yang¹, Bin Zhao¹, Shan You Gao¹, Zhen Lu¹, Bin Li¹ (1. Key Lab of Advanced Transducers and Intelligent Control System of Ministry of Education, Taiyuan University of Technology)

13:12 [1A05] MODEL BASED EFFICIENCY ANALYSIS OF MOBILE HYDRAULIC MACHINERY (On The Example
of Material Handling Machines)

*Andre Sitte¹, Jonas Uhlmann¹, Juergen Weber¹, Bernhard MEITINGER², Yannick WEIDNER³ (1. Chair of Fluid-Mechatronic Systems, TU Dresden, 2. Liebherr-Hydraulikbagger GmbH, 3. Liebherr Machines Bulle SA)

13:28 [1A06] RESEARCH ON HYDRAULIC - GAS COMBINED DRIVING SYSTEM FOR HYDRAULIC
EXCAVATOR BOOM

*Lianpeng XIA¹, Long QUAN¹, Bin ZHAO¹, Chengbin WANG¹, Wenjing SHE¹ (1. Key Laboratory of Advanced Transducers and Intelligent Control System, Ministry of Education and Shanxi Province, Taiyuan University of Technology)

13:44 [1A07] JOINTED AND TELESCOPIC RIGID TUBULAR MEMBERS AS A FLUID CONVEYANCE DEVICE
Cheyne Southwell², *Philip McCluskey¹, Norm Mathers² (1. Quadrtech Consulting Inc, 2. Steel Safe

[1A08-12] H2 (Energy Saving, Construction Machines 2)

Chair:Kalevi Huhtala(Tampere University of Technology), Yasuo Sakurai(Ashikaga Institute of Technology)

Room A

14:20 [1A08] FAULT-TOLERANCE CONTROL ARCHITECTURE OF INDEPENDENT METERING CONTROL SYSTEM

*Ruqi Ding¹, Bing Xu², Junhui Zhang², Min Cheng³ (1. Key Laboratory of Conveyance and Equipment, Ministry of Education, East China Jiaotong University, 2. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University, 3. College of Mechanical Engineering, Chongqing University)

14:36 [1A09] ELIMINATING SIZING ERROR IN DIRECT-DRIVEN HYDRAULICS

*Tatiana Minav¹, Shuzhong Zhang^{2,1}, Matti Pietola¹ (1. Aalto University, 2. Fujian University of Technology)

14:52 [1A10] AN ELECTRIC-HYDRAULIC PROPULSION SYSTEM FOR THE URBAN RAIL TRAIN ENERGY SAVING

-- Cancelled --

*Hui Liu¹, Wei Wu^{1,2}, Yu Chao Yu¹, Bo Li¹ (1. National Key Laboratory of Vehicular Transmission, Beijing Institute of Technology, 2. State Key Laboratory of Fluid Power and Mechatronic System, Zhejiang University)

15:08 [1A11] OPERATING PRINCIPLES AND SIMULATION OF A NOVEL METER OUT CONTROL SYSTEM FOR MOBILE MACHINES

*Pietro Marani¹, Massimo Milani² (1. IMAMOTER C.N.R, 2. Department of Sciences and Methods for Engineering, University of Modena and Reggio Emilia)

15:24 [1A12] PERFORMANCE ANALYSIS OF AN AUTOMATIC IDLE SPEED CONTROL WITH A HYDRAULIC ACCUMULATOR FOR PURE ELECTRIC CONSTRUCTION MACHINERY -- Cancelled --

Tianliang LIN¹, *Haoling REN^{1,2}, Weiping HUANG¹, Shengjie FU¹, Qihuai CHEN^{1,2}, Cheng Miao¹ (1. College of Mechanical Engineering and Automation, Huaqiao University, 2. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University)

[1A13-18] H4 (Hydraulic Pumps 1)

Chair:Hubertus Murrenhoff(Institute for Fluid Power Drives and Controls (IFAS) RWTH), Yasukazu Sato(Yokohama National University)

Room A

16:00 [1A13] THE TEMPERATURE CHARACTERISTICS OF FLOW RIPPLE AND SOURCE IMPEDANCE IN AN EXTERNAL GEAR PUMP

*Takayoshi Ichianagi¹, Takao Nishiumi¹, Shuichi Nakagawa² (1. National Defense Academy, 2. Yammer Co., Ltd.)

16:16 [1A14] A SIMULATION APPROACH FOR THE EVALUATION OF POWER LOSSES IN THE AXIAL GAP OF GEROTOR UNITS

*Matteo Pellegrini¹, Andrea Vacca¹ (1. Purdue University)

16:32 [1A15] FLOW ANALYSIS IN A VANE PUMP

Junichi Suematsu¹, *Shunsuke Akiyoshi¹, Tetsuhiro Tsukiji², Yoshinari Nakamura³, Kazunari Suzuki³ (1. Graduate Program in Science and Technology, Sophia University, 2. Department of Engineering and Applied Sciences, Sophia University, 3. KYB Corporation)

16:48 [1A16] ENERGY-LOSS MODELING AND ANALYSIS OF MAIN FRICTION PAIRS OF AERIAL AXIAL PISTON PUMP

Liman Yang¹, *Chenyao Fu¹, Juexin Wu¹, Yunhua Li¹ (1. Beihang University (BUAA))

17:04 [1A17] RESULTS OF MEASURING OF PARAMETERS OF WORKING PROCESSES OF THE PISTON AXIAL PUMP

*Radovan S Petrovic¹, Josef Nevrlý², Sasa Batocanin³ (1. Faculty for Strategic and Operational Management University Union-Nikola Tesla of Belgrade, 2. Brno University of Technology Faculty of Mechanical Engineering Institute of Machine and Industrial Design, 3. Research center PPT Namenska Trstenik)

17:20 [1A18] RESEARCH ON THE AXIAL FORCE IN A NEW TYPE OF HIGH PRESSURE THREE SCREW PUMP

*Xingchen Liu¹, Guanglin Shi¹ (1. School of Mechanical Engineering, Shanghai Jiao Tong University)

Oral Presentation | Pneumatics

[1B01-05] P1 (Pneumatic Valves)

Chair: Kenji Kawashima (Tokyo Medical and Dental University), Tomonori Kato (Fukuoka Institute of Technology)

Room B

12:40 [1B01] RESEARCH OF HIGH-PRESSURE PNEUMATIC PROPORTIONAL PRESSURE REDUCING VALVE

*Bangmeng WANG¹, Guoliang TAO¹ (1. State Key Laboratory of Fluid Power & Mechatronic Systems, Zhejiang University)

12:56 [1B02] SOFT SIMPLE COMPACT VALVE INDUCING SELF-EXCITED VIBRATION

*Yuji Miyaki¹, Hideyuki Tsukagoshi¹ (1. Tokyo Institute of Technology)

13:12 [1B03] MODELING AND ANALYSIS OF HIGH-PRESSURE AND LARGE FLOW RATE PNEUMATIC PROPORTIONAL VALVE

*Longlong GAO¹, Xiaoyun FU², Baoren LI³ (1. FESTO Pneumatics Center, Huazhong University of Science & Technology, 2. Huazhong University of Science & Technology, 3. Huazhong University of Science & Technology)

13:28 [1B04] DEVELOPMENT OF POPPET-TYPE SERVO VALVE

*Takashi HASEGAWA¹, Takahiro KANNO², Kenji KAWASHIMA² (1. Graduate School of Medical and Dental Science, Tokyo Medical and Dental University, 2. Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University)

13:44 [1B05] DEVELOPMENT OF NEW PRESSURE REGULATOR WITH FLOWRATE-AMPLIFICATION USING EJECTOR VACUUM GENERATOR

*Xin LI¹, Weijun Cheng¹, Xinying Huang^{1,2} (1. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University, 2. Department of Industrial and Manufacturing Systems Engineering, The University of Hong Kong, Hong Kong)

Oral Presentation | Pneumatics

[1B06-10] P2 (Pneumatic Cylinder & Position Control)

Chair: Yasuhiro Hayakawa (National Institute of Technology, Nara College), Yukio Kawakami (Shibaura Institute of Technology)

Room B

14:20 [1B06] DEVELOPMENT OF WEARABLE WRIST REHABILITATION DEVICE USING TWISTED WIRE TYPE POTENTIOMETER AND BUILT-IN CONTROLLER WITH DISTURBANCE OBSERVER

*Naoki Kato¹, Shujirou Dohta¹, Tetsuya Akagi¹, Wataru Kobayashi¹, Kazuhisa Ito² (1. Okayama University of Science, 2. Shibaura Institute of Technology)

- 14:36 [1B07] ANALYSIS OF A CONTACTLESS AIR FILM CONVEYOR USING A VISCOUS TRACTION PRINCIPLE
*Wei Zhong¹, Jia Wang¹, Fanghua Liu¹ (1. Jiangsu University of Science and Technology)
- 14:52 [1B08] PNEUMATIC ACTUATOR FOR PRECISION MOTION CONTROL APPLICATIONS
Alex Poon¹, *Rocky Mai¹, Yeong Choi¹, Sandy Lee¹, Pai-Hsueh Yang¹, Gaurav Keswani¹, Atsushi Hara², Koichi Sakata² (1. Nikon Research Corporation of America, 2. Nikon Corporation)
- 15:08 [1B09] DEVELOPMENT AND TESTING OF A 1 DOF PNEUMATIC POWER AMPLIFIER FOR THE WEIGHT BALANCING
Michele Gabrio Antonelli¹, *Pierluigi Beomonte Zobel¹, Francesco Durante¹, Terenziano Raparelli² (1. Department of Industrial and Information Engineering and Economics - University of L'Aquila, 2. Department of Mechanical and Aerospace Engineering - Politecnico di Torino)
- 15:24 [1B10] FLOW DISTURBANCE COMPENSATOR WITH ZERO-ORDER MODEL FOR PRESSURE CONTROL
*Kei Mikami¹, Kotaro Tadano¹ (1. Tokyo Institute of Technology)

Organized Session

[1B11-16] OS3 (Functional Fluids 1)

Chair: Songjing Li (Harbin Institute of Technology), Masami Nakano (Tohoku University)

Room B

- 16:00 [1B11] MAGNETO-RHEOLOGICAL EFFECTS AND FLUIDITY IMPROVEMENT OF NOVEL DRY MR FLUIDS
*Masami NAKANO¹, Hiroya ABE², Tongfei TIAN¹, Atsushi TOTSUKA¹, Chuichiro SATO¹ (1. Institute of Fluid Science, Tohoku University, 2. Joining and Welding Research Institute, Osaka University)
- 16:16 [1B12] EFFECTIVE ARRANGEMENT OF ELECTRODES FOR ELECTRO-CONJUGATE FLUID FLOW GENERATION
*Yuichiro Kuroboshi¹, Kenjiro Takemura², Kazuya Edamura³ (1. School of Science for Open and Environmental Systems, Graduate School of Science and Technology, Keio University, 2. Department of Mechanical Engineering, Keio University, 3. New Technology Management Co., Ltd.)
- 16:32 [1B13] EFFECTS OF LIQUID PHYSICAL PROPERTIES AND CHARGE GENERATION MECHANISM ON ELECTROHYDRODYNAMIC FLOW AND PUMPING
*Masahito Nishikawara¹, Hideki Yanada¹, Kota Shomura¹, Mizuki Saigo¹ (1. Toyohashi University of Technology)
- 16:48 [1B14] NUMERICAL AND EXPERIMENTAL INVESTIGATION ON BRAKING CHARACTERISTICS OF AN ELECTRO-RHEOLOGICAL (ER) BRAKE FOR MICROMOUSE
*Jinghui Peng¹, Takanori Togawa², Yuto Utsugi³, Yutaka Tanaka³ (1. Research Center for Micro-Nano Technology, Hosei University, 2. Graduate School of Engineering and Design, Hosei University, 3. Faculty of Engineering and Design, Hosei University)
- 17:04 [1B15] DEVELOPMENT OF THE ELECTRO ADHESIVE PILLAR ARRAY BY USING ELECTROSTATIC INDUCTION LITHOGRAPHY
*Mahito Ishida¹, Yasuhiro Kakinuma¹, Hidenobu Anzai², Koji Sakurai² (1. Keio University, 2. Fujikura kasei Co., Ltd.)
- 17:20 [1B16] DEVELOPMENT OF A MEMS-BASED TWO-DOF ER BENDING ACTUATOR SYSTEM USING AN ALTERNATING PRESSURE SOURCE
Tomoya Miyoshi¹, *Kazuhiro Yoshida¹, Joon-wan Kim¹, Sang In Eom¹ (1. Tokyo Institute of Technology)

[1C01-05] W1 (Water Hydraulics 1)

Chair:Kazuhi Ito(Shibaura Institute of Technology), Kenji Suzuki(Kanagawa University)

Room C

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- 12:40 [1C01] 30 YEARS OF WATER HYDRAULIC DESIGN, DEVELOPMENT AND MARKET REALISATION
*Tony Markham¹ (1. The Water Hydraulics Company Ltd)
- 12:56 [1C02] **STUDY OF A NOVEL DIRECT-OPERATED WATER HYDRAULIC PRESSURE RELIEF VALVE -- Cancelled --**
- 13:12 [1C03] *Yousheng Yang¹, Jiaojian Yin² (1. Ocean University of China, 2. China University of Petroleum)
CONTROLS OF PITCHING AND STRAIGHTNESS ERROR MOTION OF WATER DRIVEN STAGE DURING FEED MOTION
*Yohichi NAKAO¹, Satoshi SHIBATA¹, Akio HAYASHI² (1. Kanagawa University, 2. Kanazawa Institute of Technology)
- 13:28 [1C04] ANALYSIS OF THE FLOW FORCES ON THE LARGE FLOW AND COMPLEX FLOW PASSAGE WATER-BASED HYDRAULIC DIRECTIONAL VALVE
*Yaoyao Liao¹, Zisheng Lian¹, Hongbing Yuan¹, Yongchang Guo¹ (1. College of Mechanical Engineering, Taiyuan University of Technology)
- 13:44 [1C05] LOW COST WATER HYDRAULICS TECHNOLOGY FOR MALAYSIAN TRADITIONAL COOKIES PRODUCTION
*Ahmad Anas Yusof^{1,4}, Suhaimi Misha^{1,4}, Mohamed Hafiz Md Isa^{1,4}, Mohd Qadafie Ibrahim^{2,4}, Mohd Shahir Kasim^{3,4}, Faizil Wasbari^{1,4} (1. Faculty of Mechanical Engineering, 2. Faculty of Engineering Technology, 3. Faculty of Manufacturing Engineering, 4. Universiti Teknikal Malaysia Melaka)

[1C06-10] H3 (Tribology, Seals, Contamination)

Chair:Toshiharu Kazama(Muroran Institute of Technology), Juergen Weber(Technische Universitaet Dresden)

Room C

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- 14:20 [1C06] INVESTIGATION OF INFLUENCE OF CAVITATION ON FLOW RATE OF SPOOL NOTCH USING COMPUTATIONAL FLUID DYNAMICS
*Koji Shiwaku¹, Kento Kumagai¹ (1. Hitachi Construction Machinery Co.,Ltd.)
- 14:36 [1C07] NUMERICAL PREDICTION OF EROSION WEAR FOR HYDRAULIC SPOOL VALVE
*Jiayang Yuan¹, Yaobao YIN¹, Shengrong GUO² (1. Tongji University, 2. Aviation Key Laboratory of Science and Technology on Aero Electromechanical System Integration, Nanjing Mechatronic and Hydraulic Engineering Research Centre)
- 14:52 [1C08] INVESTIGATION OF SELF-CONTAMINATION OF ELECTROHYDRAULIC COMPACT DRIVES
*Sebastian MICHEL¹, Jü rgen WEBER¹ (1. TU Dresden, Institute of Fluid Power)
- 15:08 [1C09] THE INFLUENCE OF TEMPERATURE AND SURFACE STRUCTURE ON THE FRICTION OF DYNAMIC HYDRAULIC SEALS (Numerical and Experimental Investigations)
*Julian Angerhausen¹, Hubertus Murrenhoff¹, Leonid Dorogin², Bo N.J. Persson², Michele Scaraggi³ (1. Institute for Fluid Power Drives and Controls (IFAS), RWTH Aachen University, 2. Peter Grü nberg Institut – 1, Forschungszentrum Jü lich, 3. Dipartimento di Ingegneria dell' Innovazione, Università del Salento)
- 15:24 [1C10] THERMAL EFFECTS ON THE FLUID FILM IN THE CYLINDER BLOCK/VALVE PLATE INTERFACE DUE TO COMPRESSION AND EXPANSION OF THE FLUID
*Rene Chacon¹, Monika Ivantysynova¹ (1. Purdue University)

[1C11-16] OS1 (Hydraulic Robots)

Chair:Hiroshi Yoshinada(Osaka University), Sang-Ho Hyon(Ritsumeikan University)

Room C

- 16:00 [1C11] JOINT TORQUE CONTROL OF A HYDRAULIC MANIPULATOR WITH HYBRID SERVO BOOSTER
Sang-Ho Hyon¹, *Sumihito Tanimoto¹ (1. Ritsumeikan University)
- 16:16 [1C12] A TELEOPERATED HYDRAULIC RESCUE ROBOT INTEGRATED WITH ELEMENTAL TECHNOLOGIES
*Keita Kurashiki¹, Hiroshi Yoshinada¹, Keiji Nagatani², Masayuki Tanaka³, Atsuhiko Yamashita⁴, Yasuyoshi Yokokohji⁵, Masashi Konyo² (1. Osaka Univ., 2. Tohoku Univ., 3. AIST, 4. Univ. of Tokyo, 5. Kobe Univ.)
- 16:32 [1C13] ENABLING HYDRAULICS FOR ROBOTICS AND PROSTHETICS WITH LIGHTWEIGHT COMPOSITE DIAPHRAGM ACCUMULATORS
*Kaushik Mallick¹, Michael Stewart¹, Andrew Coors¹ (1. Steelhead Composites)
- 16:48 [1C14] RESEARCH ON THE POSITION CONTROL OF SPINNING ROLLER DRIVEN BY PARALLEL ELECTRO-HYDRAULIC PROPORTIONAL VALVE-CONTROLLED CYLINDERS
*Guangyao Han¹, Guanglin Shi¹ (1. Shanghai Jiao Tong University)
- 17:04 [1C15] PASSIVITY-BASED BALANCE AND WALKING CONTROL ON HYDRAULIC QUADRUPED ROBOT
*Kengo Oda¹, Sang-Ho Hyon¹ (1. Ritsumeikan University)
- 17:20 [1C16] MULTI-AXIS COORDINATED CONTROL FOR TRAJECTORY TRACKING OF SEGMENT ERECTOR
*Mingdou Wang¹, Jianfeng Tao¹, Chengliang Liu¹ (1. Shanghai Jiao Tong University)

Oct. 26 (Thu.), 2017

[2A01-06] H5 (Hydraulic Pumps 2)

Chair:Randovan Peterovic(University Union Nikola Tesla of Belgrade), Toshiharu Kazama(Muroran Institute of Technology)

Room A

- 09:00 [2A01] ANALYTICAL, EXPERIMENTAL AND NUMERICAL METHODS TO QUANTIFY THE PRESSURIZATION IN THE PISTON CHAMBER OF AXIAL PISTON MACHINES
*Markus Gaertner¹, Philipp Kratschun¹, Hubertus Murrenhoff¹ (1. Institute for Fluid Power Drives and Controls (IFAS), RWTH Aachen University)
- 09:16 [2A02] A NEW PUMP DESIGN FOR GASOLINE DISPENSER AT THE SERVICE STATION
Yajun Liu¹, *Jiakun Ye¹, Wenhua Xie¹, Shuyan Zhan¹ (1. School of Mechanical and Automotive Engineering, South China University of Technology)
- 09:32 [2A03] SIMULATION MODEL DEVELOPMENT TO PREDICT DYNAMIC PERFORMANCE OF VARIABLE DISPLACEMENT AXIAL PISTON TYPE PUMP
*Sunghun Kim¹, Sangkyu Lee¹, Jaechan Yoo¹ (1. Doosan Corporation Mottrol BG)
- 09:48 [2A04] RESEARCH ON TRIBOLOGICAL BEHAVIOR AND LUBRICATING MECHANISM OF SLIPPER PAIR IN AXIAL PISTON PUMP UNDER THERMAL EFFECT
*tang hesheng¹, Ren yan, Xiang jiawei (1. wenzhou university)
- 10:04 [2A05] THERMODYNAMIC ANALYSIS ON COMPRESSIBLE VISCOUS FLOW AND NUMERICAL MODELING STUDY ON PISTON/CYLINDER INTERFACE IN AXIAL PISTON MACHINE
*Lizhi Shang¹, Monika Ivantysynova¹ (1. Purdue University)

10:20 [2A06] INTERACTION BETWEEN SWASH PLATE MOVEMENT AND COMMUTATION IN AXIAL PISTON MACHINES

*Florian Schoemacker¹, Hubertus Murrenhoff¹ (1. Institute for Fluid Power Drives and Controls (IFAS), RWTH Aachen University)

Special Lecture

[2A-Special-01] Special Lecture 1

Chair:Yasukazu Sato(Yokohama National University)

Room A

13:00 [2A07] SLIDING AUTONOMY WORKING MACHINES IN FUTURE WORKSITE

*Kalevi HUHTALA¹ (1. Tampere University of Technology)

Oral Presentation | Oil hydraulics

[2A08-12] H7 (Control &Measurements 1)

Chair:Hironao Yamada(Gifu University), Wataru Kobayashi(Okayama University of Science)

Room A

13:40 [2A08] VARIABLE DISPLACEMENT ALTERNATING FLOW HYDRAULIC PUMP

*Kim Adair Stelson¹, Ryan Foss¹, Mengtang Li², Eric J. Barth², James D. Van de Ven¹ (1. University of Minnesota, 2. Vanderbilt University)

13:56 [2A09] PERFORMANCE OF SPEED VARIABLE ASYMMETRIC PUMP CONTROLLED ASYMMETRIC HYDRAULIC CYLINDER

Long Quan¹, *Lei Ge¹, Bin Cheng Wang¹, Bin Li¹, Bin Zhao¹, Zhen Lu¹ (1. Key Lab of Advanced Transducers and Intelligent Control System of Ministry of Education, Taiyuan University of Technology)

14:12 [2A10] SENSORLESS POSITION CONTROL OF DIRECT DRIVEN HYDRAULIC ACTUATORS

Tom Sourander¹, Matti Pietola¹, *Tatiana Minav¹, Henri Hä ninen¹ (1. Aalto University)

14:28 [2A11] HYDROSTATIC STEERING SYSTEM AND ENERGY SAVING EVALUATION IN IDLE REGIME

*Giorgio Paolo Massarotti¹, Pietro Marani¹, Massimiliano Ruggeri¹, Esteban Codina² (1. C.N.R. - Imamoter, 2. UPC. Universitat Politè cnica de Catalunya. BarcelonaTech)

14:44 [2A12] RESEARCH ON THE CONTACT PRESSURE CONTROL OF A DIE WEAR TESTER

*Chao Yang¹, Shigang Wang¹, Li Liu¹ (1. School of Mechanical Engineering, Shanghai Jiao Tong University)

Oral Presentation | Oil hydraulics

[2A13-17] H8 (Control &Measurements 2)

Chair:Yasunori Wakasawa(National Institute of Technology, Toyota College), Kazushi Sanada(Yokohama National University)

Room A

15:30 [2A13] NEW HIGH SENSITIVITY MEMS SENSOR FOR INDIRECT PRESSURE MEASUREMENT

*Massimiliano Ruggeri¹, Giorgio Massarotti¹, Esteban CODINA² (1. CNR-IMAMOTER, 2. Universitat Politè cnica de Catalunya)

15:46 [2A14] DYNAMIC CHARACTERISTICS OF THE PRESSURE-DRIVEN DEVICE BY CONSIDERING THE PRESSURE FLUCTUATIONS INDUCED BY THE PROCESS OF DROPLET FORMATION

*Wen Zeng¹, Hai Fu¹, Shuai Yuan¹, Songjing Li¹ (1. Harbin Institute of Technology)

16:02 [2A15] A STUDY ON INTUITIVE CONFIGURATION OF JOYSTICK FOR OPERATOR IN FLATTENING TASK OF EXCAVATOR

*Quang Hoan Le¹, Soon Yong Yang¹ (1. University of Ulsan)

16:18 [2A16] ONLINE PARAMETER ESTIMATION OF HYDRAULIC SYSTEM BASED ON UNSCENTED KALMAN FILTER

*Takashi Yamada¹, Yoshiharu Nishida¹, Akira Tsutsui¹ (1. Kobe Steel, Ltd.)

16:34 [2A17] ON THE NONDIMENSIONALIZATION OF NOMINAL HYDRURIC CYLINDDER DYNAMICS

*Satoru Sakai¹ (1. Shinshu University)

Oral Presentation | Oil hydraulics

[2A18-22] H10 (Control &Measurements 3)

Chair:Kazuhisa Ito(Shibaura Institute of Technology), Wataru Kobayashi(Okayama University of Science)

Room A

17:00 [2A18] RESEARCH ON THE CHARACTERISTICS OF CONSTANT-SPEED STRETCH OF A HIGH-SPEED TENSILE MACHINE CONTROLLED BY THE ELECTRO-HYDRAULIC SERVO SYSTEM

*Enze Zhu¹, Guanglin Shi¹ (1. Shanghai Jiao Tong University)

17:16 [2A19] DEVELOPMENT OF FLEXIBLE ELECTRO-HYDRAULIC CYLINDER FOR FLEXIBLE SPHERICAL ACTUATOR

*Hiroaki Tamaki¹, Shujiro Dohta¹, Tetsuya Akagi¹, Wataru Kobayashi¹, Yasuko Matsui¹ (1. Okayama University of Science)

17:32 [2A20] HYDRAULIC RESONANCE CHARACTERISTICS OF THE HIGH-FREQUENCY EXCITATION SYSTEM CONTROLLED BY A 2D ROTARY VALVE

*Yan REN¹, Hesheng TANG¹, Jian RUAN² (1. Department of Mechanical and Electrical Engineering, Wenzhou University, 2. Department of Mechanical Engineering, Zhejiang University of Technology)

17:48 [2A21] PERCEIVED STIMULI IN HYDRAULIC OPERATION LEVER OF CONSTRUCTION MACHINERY

*Hironao Yamada¹, Fumichika Okada², Katsutoshi Otsubo¹, Takuya Kawamura¹ (1. Dept. of Mechanical Engineering, Gifu Univ., 2. Toyota Motor Corporation)

18:04 [2A22] A NOVEL INTEGRATED LOAD-SENSING ELECTRO-HYDRAULIC ACTUATOR FOR AIRCRAFT STRUCTURAL TESTS

*Yaoxing Shang¹, Xiaochao Liu¹, Zongxia Jiao¹, Jiaokang Wu¹, Liang Yan¹ (1. Beihang University)

Organized Session

[2B01-06] OS3 (Functional Fluids 2)

Chair:Kazuhiro Yoshida(Tokyo Institute of Technology), Kenjiro Takemura(Keio University)

Room B

09:00 [2B01] INFLUENCE OF CHEMICAL STRUCTURE OF SIDE CHAIN CRYSTALLINE MONOMER ON TR FLUID BEHAVIOR

*Shigeru Yao¹, Yusuke Hasebe¹, Yuri Kanazawa¹, Makoto Takeda¹, Ryoko Nakano¹, Hiroshi Sekiguchi¹ (1. Fukuoka University)

09:16 [2B02] EXPERIMENTAL CHARACTERIZATION OF A MAGNETORHEOLOGICAL DAMPER WITH MULTIPLE CYLINDRICAL PASSAGES AND TOROIDAL MAGNETIC FIELD GENERATOR

Mitsuhiro Kamezaki¹, *Peizhi Zhang¹, Kenshiro Otsuki¹, Shan He¹, Gonzalo Aguirre Dominguez¹, Shigeki Sugano¹ (1. Waseda University)

09:32 [2B03] SENSING FLUID PRESSURE WITH Co RICH Fe-Co SYSTEM MAGNETOSTRICTIVE ALLOY TUBE

*Takashi Mizoguchi¹, Tsutomu Takahashi¹, Toshiyuki Hashida², Yasubumi Furuya³ (1. Electronics Engineering Department, Technology and R&D Division, Nabtesco Corporation, 2. Fracture and Reliability Research Institute, Tohoku University, 3. Micro system Interation Center, Tohoku University)

09:48 [2B04] DEVELOPMENT OF MANIPULATOR USING A GAS-LIQUID PHASE-CHANGE ACTUATOR

*KENYA HIGASHIJIMA¹, Tomonori KATO¹, Kazuki SAKURAGI¹, Takahiro SATO¹, Manabu ONO² (1. Fukuoka Institute of Technology, 2. Tokyo Metropolitan College of Industrial Technology)

10:04 [2B05] A PUMP USING EHD FLUID

*Takahiro shimizu¹, Tetsuhiro Tsukiji¹, Keitaro Hamada¹ (1. Sophia University)

10:20 [2B06] A DEVELOPMENT OF THE NEW TYPE TOURNIQUET APPLYING EHD PHENOMENON

*Yusuke Takei¹, Shota Amemiya¹, Yuki Kakinuma¹, Hiroyuki Maeda², Hideaki Iwase², Mutsuhiro Maeda³, Kazuo Kaneko², Sumitaka Terasaka⁴, Takeharu Shimoohkawa⁴, Kazuyuki Mitsui¹ (1. Tokyo Denki University, 2. Juntendo University, 3. Yamamoto · Maeda Memorial Association Maeda Hospital, 4. Sanyo Metal Industry Co.,Ltd.)

Oral Presentation | Pneumatics

[2B07-11] P3 (Soft Actuator)

Chair:Taro Nakamura(Chuo Univ.), Kotaro Tadano(Tokyo Institute of Technology)

Room B

13:40 [2B07] SOFT ACTUATOR TRANSFORMED INTO HELICAL SHAPE AIMED FOR IN-PIPE INSPECTION ROBOT

*Ginjiro Kawano¹, Hideyuki Tsukagoshi¹ (1. Tokyo Institute of Technology)

13:56 [2B08] SOFT SHAPING GRIPPER INSPIRED BY MARINE ANIMALS

*Zhonghua Guo¹, Xiaoning Li¹, Zhongsheng Sun¹, Haopeng Lin¹, Miaoxin Xu¹ (1. Nanjing University of Science and Technology)

14:12 [2B09] DEVELOPMENT OF FLEXIBLE SPHERICAL ACTUATOR WITH 3D COORDINATE MEASURING DEVICE USING LOW-COST WIRE TYPE LINEAR POTENTIOMETERS

*Yasuko Matsui¹, Tetsuya Akagi¹, Shujiro Dohta¹, Wataru Kobayashi¹, Hiroaki Tamaki¹ (1. Okayama University of Science)

14:28 [2B10] A LOW COST MOTION SERVO CONTROL SYSTEM WITH PNEUMATIC MUSCLE ACTUATORS BASED ON PRESSURE OBSERVER AND HIGH SPEED ON/OFF VALVE

*Hao Liu¹, Xuping YAO¹, Jun TAO¹, Xinwei ZHOU¹, Pan LYU¹, Kun LIU¹ (1. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University)

14:44 [2B11] DEVELOPMENT OF PORTABLE REHABILITATION DEVICE USING FLEXIBLE EXTENSION TYPE SOFT ACTUATOR WITH BUILT-IN SMALL-SIZED QUASI-SERVO VALVE AND DISPLACEMENT SENSOR

*So Shimooka¹, Shujiro Dohta¹, Tetsuya Akagi¹, Wataru Kobayashi¹, Masataka Yoneda¹ (1. Okayama University of Science)

Oral Presentation | Pneumatics

[2B12-16] P4 (Welfare, Power Assist Systems)

Chair:Tetsuya Akagi(Okayama University of Science), Mitsuhiro Nakao(Kagoshima University)

Room B

15:30 [2B12] PERFORMANCE EVALUATION OF SUPPORTING ARM FOR REDUCING BODY LOAD USING SURFACE ELECTROMYOGRAPHY

*Tetsuro Miyazaki¹, Takuya Iijima², Yuuichi Hirahara², Kazushi Sanada² (1. Tokyo Medical and Dental University, 2. Yokohama National University)

15:46 [2B13] A HUMAN-MACHINE COOPERATION CONTROL BASED ON ELECTROMYOGRAPHY FOR UPPER LIMB POWERED EXOSKELETON DRIVEN BY PNEUMATIC MUSCLE

*Jun Tao¹, Hao Liu¹ (1. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang

University)

- 16:02 [2B14] EVALUATION OF AIR COMPRESSING METHODS FOR DEVELOPMENT OF A PORTABLE PNEUMATIC POWER SOURCE
*Manabu Okui¹, Yuki Nagura², Shingo Iikawa¹, Yasuyuki Yamada², Taro Nakamura² (1. Graduate School of Science and Engineering, Chuo University, 2. Faculty of Science and Engineering, Chuo University)
- 16:18 [2B15] WRIST REHABILITATION SIMULATOR FOR P.T. USING PNEUMATIC PARALLEL MANIPULATOR (Regulation of Wrist Viscoelastic Property and Therapy Motion Evaluation)
*Masahiro Takaiwa¹, Hiroyuki Imanaka¹ (1. Tokushima University)
- 16:34 [2B16] DEVELOPMENT OF TENDON-DRIVEN CARE ASSISTANCE ROBOT ARM DRIVEN BY AIR PRESSURE CONTROLLING
*Daichi Kimura¹, Osamu Oyama² (1. first year master's student who belongs to Professor Oyama's laboratory, 2. Meiji University)

Oral Presentation | Pneumatics

[2B17-21] P5 (Basic Technology of Pneumatics)

Chair: Xin Li (Zhejiang University), Masahiro Takaiwa (Tokushima University)

Room B

- 17:00 [2B17] THE CHARACTERISTIC ANALYSIS OF WATER SPRAY COOLING COMPRESSED AIR
*Guanwei Jia^{1,2}, Maolin Cai^{1,2}, Yan Shi^{1,2}, Weiqing Xu^{1,2}, Ziyue Du^{1,2}, Yunhua Li¹, Liman Yang¹, Yaoxing Shang¹, Dongkai Shen¹ (1. Beihang University, 2. Pneumatic and Thermodynamic energy storage and supply Beijing Key Laboratory)
- 17:16 [2B18] IMPROVEMENT OF LIFTING FORCE IN VORTEX LEVITATION BY ATTACHING A CIRCULAR COLUMN
*Yuta Yamanouchi¹, Chikahisa Kawakami², Mitsuhiro Nakao¹, Minoru Fukuhara¹ (1. Kagoshima University, 2. Panasonic Co., Ltd.)
- 17:32 [2B19] A NEW VACUUM GENERATOR BASED ON TORNADO-LIKE VORTEX FLOW
*Jyh-Chyang Renn¹, Jian-Siang Zeng¹ (1. National Yunlin University of Science and Technology)
- 17:48 [2B20] MATHEMATICAL MODELING OF A PNEUMATIC VANE MOTOR IN MATLAB/SIMULINK
*Stephan Merkelbach¹, Joan Vidal Mas¹, Hubertus Murrenhoff¹ (1. RWTH Aachen University, Institute for Fluid Power Drives and Controls (IFAS))
- 18:04 [2B21] NUMERICAL SIMULATION OF AIR JET IMPINGEMENT FOR ARCH BREAKING IN HOPPER
*Yige Fang¹, Yajun Liu¹, Cunyang Zuo¹ (1. South China University of Technology, Department of Mechanical and Automotive Engineering)

Oral Presentation | Oil hydraulics

[2C01-06] H6 (HST, Mobile Applications)

Chair: Xiangdong Kong (Yanshan University), Hideki Yanada (Toyohashi University of Technology)

Room C

- 09:00 [2C01] POSITION CONTROL OF VALVELESS HYDRAULIC CLUTCH ACTUATOR
*Chao Zhang¹, Bingzhao Gao¹, Xingjun Hu¹, Yulong Lei¹, Hong Chen¹ (1. Jilin University, China)
- 09:16 [2C02] OPTIMIZATION OF NUMBER OF BLADES IN TORQUE CONVERTER THROUGH NUMERICAL SIMULATION AND EXTENDED RADIAL BASIS FUNCTIONS -- **Cancelled** --
Yu Long Lei^{1,2}, *Hui Tang^{1,2,3}, Xing Jun Hu^{1,2}, Xing Zhong Li^{1,2}, Yao Fu^{1,2}, Ke Liu^{1,2} (1. Jilin University, 2. State Key Laboratory of Automotive Simulation and Control, 3. Osaka University)
- 09:32 [2C03] DESIGN OF A POWER REGENERATIVE HYDROSTATIC WIND TURBINE TEST PLATFORM
Biswaranjan Mohanty¹, Feng Wang², *Kim A Stelson¹ (1. University of Minnesota, 2. Zhejiang

University)

09:48 [2C04] WAVE POWER CONVERTER PENDULOR WITH HYBRID H.S.T.

*TOMIJI WATABE¹, Prasanna GUNAWARDANE², Hiroki MATSUMOTO³ (1. Director of T-Wave Consultant JAPAN (Inventor of Wave power converter Pendulor), 2. Senior Lecturer of Mechanical Eng. of Univ. of PERADENIYA SRILANKA (Reasercher of the Pendulor), 3. Lectuerer of Mechanical Eng. of MURORAN I. T. JAPAN (Researcher on the wave propagation))

10:04 [2C05] DISC BRAKE WITH HYDROMECHANICALLY CONTROLLED BRAKE TORQUE FOR RAILWAY APPLICATIONS

*Matthias Petry¹, Ahmed Zaki¹, Hubertus Murrenhoff¹ (1. Institute for Fluid Power Drives and Controls (IFAS), RWTH Aachen University)

10:20 [2C06] RESEARCH ON THE EFFECTS OF DOUBLE ARC OIL GROOVE PARAMETERS ON TORQUE CHARACTERISTICS IN HYDRO-VISCOUS DRIVE

YUANYUAN DENG¹, Zisheng LIAN², *Hongwei CUI² (1. College of Mechanical Engineering, Taiyuan University of Technology, 2. Shanxi Key Laboratory of Fully Mechanized Coal Mining Equipment, Taiyuan University of Technology)

Oral Presentation | Water hydraulics

[2C07-11] W2 (Water Hydraulics 2)

Chair:Kazushi Sanada(Yokohama National University), Hideki Yanada(Toyohashi University of Technology)

Room C

13:40 [2C07] PERFORMANCE ANALYSIS OF LARGE FLOW SAFETY VALVE FOR POWERED SUPPORT

*YongChang Guo^{1,2}, ZiSheng Lian^{1,2}, HongBing Yuan^{1,2}, YaoYao Liao^{1,2} (1. College of Mechanical Engineering, Taiyuan University of Technology, 2. Shanxi Key Laboratory of Fully Mechanized Coal Mining Equipment)

13:56 [2C08] EXPERIMENTAL RESULT FOR ENERGY-SAVING TECHNOLOGY IN WATER HYDRAULIC MOTOR SYSTEM

*Pha N. Pham¹, Kazuhisa Ito², Ryo Yagisawa², Shigeru Ikeo³ (1. National Institute of Patent and Technology Exploitation, 2. Shibaura Institute of Technology, 3. Sophia University)

14:12 [2C09] DESIGN AND EXPERIMENTAL RESULTS OF THE WATER HYDRAULIC DRIVE SYSTEM FOR NEUTRON BEAM SHUTTER PROTOTYPE AT CSNS

*Lixin Song¹, Bing Xu¹, Junhui Zhang¹ (1. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University)

14:28 [2C10] STUDY ON ACTIVE CHARGE ACCUMULATOR FOR AQUA DRIVE SYSTEM (Effective Parameters on Boosting Performance)

*Satoru Takahashi¹, Kazuhisa Maeda², Futoshi Yoshida³, Shoichiro Iio¹, Ato Kitagawa⁴ (1. Shinshu University, 2. TOYOTA AUTO BODY, 3. KYB Corporation, 4. Tokyo Institute of Technology)

14:44 [2C11] A NEW TYPE OF SPHERICAL MICRO PUMP

*Hao Pang¹, Yinshui Liu¹, Luyi Wang², Zhuang Niu² (1. Huazhong University of Science and Technology, 2. Hust-Wuxi Research Institute)

Oral Presentation | Oil hydraulics

[2C12-16] H9 (Hydraulic Valves 1)

Chair:Yinshui Liu(Huazhong University of Science and Technology), Yutaka Tanaka(Hosei University)

Room C

15:30 [2C12] ANALYSIS OF FLOW CONTROL VALVE IN HYDRAULIC SYSTEM USING PARTICLE EXCITATION

*Takahiro Ukida¹, Koichi Suzumori¹, Hiroyuki Nabae¹, Takefumi Kanda² (1. Tokyo Institute of

Technology, 2. Okayama University)

- 15:46 [2C13] COMPUTATIONAL ANALYSIS OF SOLENOID SPOOL VALVE CONSIDERED OF LEAKAGE FLOW
*Fumio Shimizu¹, Takahiro Tsukazaki¹, Takayuki Hori¹, Kazuhiro Tanaka¹, Tomohiro Yasuda², Masahito Watanabe² (1. Kyushu Institute of Technology, 2. Nidec Tosok Corporation)
- 16:02 [2C14] A NOVEL PROPORTIONAL DIRECTIONAL VALVE WITH INDEPENDENTLY CONTROLLED PILOT STAGE
*Zhenyu Lu¹, Junhui Zhang¹, Bing Xu¹, Qi Su², Di Wang¹ (1. The State Key Lab of Fluid Power and Mechatronic Systems, Zhejiang University, 2. China Aerospace Science and Technology Corporation)
- 16:18 [2C15] TRACES OF HIGH FREQUENCY FLUID BORNE VIBRATIONS IN A NOVEL PROPORTIONAL PILOT OPERATED PRESSURE RELIEF VALVE -- **Cancelled** --
*Rathindranath MAITI¹, Arindam DAS², Vineet SAHOO³, Siegfried HELDUSER⁴ (1. (Professor, Mech. Engg. Dept) Indian Institute of Technology, Kharagpur, India, 2. (Ex-Post Graduate Student) Indian Institute of Technology, Kharagpur, India, 3. (Ex-PhD Student) Indian Institute of Technology, Kharagpur, India, 4. (Retired Director) - Fluid Power Institute (IFD), TU Dresden, Germany)
- 16:34 [2C16] EXPERIMENT-BASED FLOW RATE INFERENCE MEASUREMENT METHOD OF HYDRAULIC VALVE
*Di Wang¹, Junhui Zhang¹, Bing Xu¹, Zhenyu Lu¹ (1. State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University)

Oral Presentation | Oil hydraulics

[2C17-21] H11 (Hydraulic Valves 2)

Chair:Massimiliano Ruggeri(CNR-IMAMOTER), Kazuhiro Tanaka(Kyushu Institute of Technology)

Room C

- 17:00 [2C17] SIMULATION OF THE PRESSURE CONTROL VALVE IMPROVING RESPONSIVENESS AND STABILITY BY VARIABLE RESTRICT ORIFICE
*Seiei Masuda¹ (1. Control System Engineering Department, Aero-engine &Space operation IHI Corporation)
- 17:16 [2C18] WORKING CHARACTERISTICS OF JET PIPE SERVO VALVE IN VIBRATION ENVIRONMENT
*yu wang¹, yao bao yin¹ (1. College of Mechanical Engineering, Tongji University)
- 17:32 [2C19] CROSS-DOMAIN TOLERANCE DESIGN FOR DIRECTIONAL CONTROL VALVES
*Ralf TAUTENHAHN¹, Jürgen WEBER¹ (1. TU Dresden, Institute of Fluid Power)
- 17:48 [2C20] THEORETICAL ANALYSIS ON SPOOL STUCK POSSIBILITIES OF ROTARY DIRECT DRIVE PRESSURE CONTROL SERVO VALVE
Yaobao YIN¹, Feiyan XIA¹, *Liang LU^{1,2}, Jiayang YUAN¹, Shengrong GUO³ (1. School of Mechanical Engineering, Tongji University, 2. State Key Laboratory of Fluid Power & Mechatronic Systems, 3. Aviation Key Laboratory of science and Technology on Aero Electromechanical System Integration)
- 18:04 [2C21] VALIDATION OF AN ENHANCED MODEL OF STEADY-STATE FLOW FORCES FOR SPOOL VALVES
*Patrik Bordovsky¹, Hubertus Murrenhoff¹ (1. Institute for Fluid Power Drives and Controls (IFAS), RWTH Aachen University)

Poster Presentation | Oil hydraulics

[2D01-25] Poster-Hydraulics

Room D

- 10:45 [2D01] PROPOSAL OF A COMPONENT TO REDUCE PRESSURE PULSATION IN OIL-HYDRAULIC SYSTEM

Yasuo Sakurai¹, *Betty Etinot¹, Norikazu Hyodo², Kenichi Aiba² (1. Ashikaga Institute of Technology, 2. Tokyo Keiki Corporation)

- 11:25 [2D02] A STUDY OF A CYLINDRICAL TWO-STEP POLE TYPE ELECTRO-MAGNETIC ACTUATOR FOR CONTROLLING PROPORTIONAL HYDRAULIC VALVE
(Examination of Basic Characteristics)
*Hisao Kondo¹, Yasunori Wakasawa¹ (1. Department of Mechanical Engineering, National Institute of Technology, Toyota College)
- 10:45 [2D03] DESIGN AND TEST OF HYDROSTATIC BUILT-IN GRINDING SPINDLE WITH ORIFICE RESTRICTORS
*Chun Hsien Chang¹, Shih Chieh Lin¹, Yu Wei Liu¹, Ta Hua Lai¹ (1. Department of Power Mechanical Engineering, National Tsing Hua University.)
- 11:25 [2D04] FLOW RATE CONTROL IN CLOSED HYDRAULIC CIRCUIT BY ADDITION OF SERVO FUNCTION TO SR MOTOR DRIVING HYDRAULIC PUMP
*Tomoya Nakamura¹, Yasukazu Sato¹ (1. Yokohama National University)
- 10:45 [2D05] ELECTROMAGNETIC ACTUATOR WITH ZERO CURRENT-FORCE HYSTERESIS FOR HYDRAULIC PROPORTIONAL CONTROL VALVE OPERATION
*Yuta Tominari¹, Yasukazu Sato¹ (1. Yokohama National University)
- 11:25 [2D06] COMPUTATIONAL FLUID DYNAMIC STUDY OF A HIGHPRESSURE EXTERNAL GEAR PUMP
*Emma Frosina¹, Adolfo Senatore¹, Dario Buono¹, Luigi Ricci¹, Antonio Lettini², Manuel Rigosiz², Micaela Olivetti³, Federico Monterosso³ (1. University of Naples "Federico II", 2. Casappa S.p.A., 3. OMIQ srl)
- 10:45 [2D07] RESEARCH ON CHARACTERISTICS OF LOAD-SENSING SYNCHRONOUS CONTROL
*Haigang Ding¹, Chao Cao¹, Jiyun Zhao¹, Nan Zhao¹ (1. China University of Mining and Technology)
- 11:25 [2D08] THE INFLUENCE OF PERFORATION PARAMETERS OF HYDRAULIC MUFFLER ON TURBULENCE NOISE
*Yi Xi¹, Bao-ren Li¹, Teng-fei Tang¹, Li-hui Liao¹ (1. FESTO pneumatic Technology Center Huazhong University of Science & Technology)
- 10:45 [2D09] **EXPERIMENTAL RESEARCH ON BUBBLE SIZE DISTRIBUTION IN VERTICALLY VIBRATED OIL COLUMN**
-- Cancelled --
- 11:25 [2D10] *Shuang Li¹, Bo Li¹, Chen Ji¹, Hua Zhou¹, Jun Zou¹ (1. Zhejiang University)
MEASUREMENT OF FLOW RIPPLE IN POSITIVE DISPLACEMENT PUMPS (Effect of Approximation Model of Discharge passage in Pump)
*CHOI SAERYUNG¹, ILLYEONG LEE², SANGWON JI³ (1. Graduate School, Pukyong National University, 2. Pukyong National University, 3. Korea Construction Equipment Technology Institute.)
- 10:45 [2D11] DESIGN METHOD FOR HYDRO-MECHANICAL TRANSMISSION FOR VEHICLE (Prediction of Noise Based on 1D and 3D Simulation)
*Takeshi Ouchida¹, Yasukazu Sato² (1. Prototype Group, Prototype Center, Research & Development Center, Yanmar Co., Ltd., 2. Faculty of Engineering Division of Systems Research, Yokohama National University)
- 11:25 [2D12] SPEED AND DAMPING CONTROL OF HYDRAULIC WAVE ENERGY CONVERTER
*Rongyu Zha¹, Andrew Hillis¹, Jos Darling¹, Andrew Plummer¹ (1. University of Bath)
- 10:45 [2D13] DECISION OF SYSTEM DYNAMICS PARAMETERS IN COMPLEX FLOW PASSAGE THROUGH CFD
*HIROSHI HIGO¹, TOMOYUKI NAKAMURA², TAKESHI YAMAGUCHI³, KAZUHIRO TANAKA¹, FUMIO SHIMIZU¹ (1. Kyushu Institute of Technology, 2. Tokyo Institute of Technology, 3. Aisin aw co., LTD)
- 11:25 [2D14] HYDROSTATIC TRANSMISSION CONTROL FOR OFFSHORE WIND TURBINES
Mao-Hsiung Chiang¹, Yih-Nan Chen¹, *Ching-Sung Wang¹ (1. Department of Engineering Science and Ocean Engineering, National Taiwan University)

- 10:45 [2D15] FLOW VISUALIZATION OF CAVITATION JET USING HIGH-SPEED CAMERA
*Ryosuke Funachi¹, Sayako Sakama², Yutaka Tanaka¹ (1. Hosei University, 2. Aoyama Gakuin University)
- 11:25 [2D16] JET CAVITATION EROSION OF HOLLOW CYLINDERS (An Experimental Investigation into the Effects of Chamfers and Tapers)
*Toshiharu Kazama¹, Kento Kumagai², Ikuya Sakami¹, Yukihiro Narita¹ (1. Muroran Institute of Technology, 2. Hitachi Construction Machinery)
- 10:45 [2D17] COMPARISON OF TWO TYPES OF GRAVITATIONAL POTENTIAL ENERGY REGENERATION SYSTEMS FOR EXCAVATOR
*Shuce ZHANG¹, Kazushi SANADA¹ (1. Yokohama National University)
- 11:25 [2D18] HYBRID HYDRAULICS WITH ACCUMULATOR AS THE FRAME OF THE VEHICLE
*Allan Rosman¹ (1. Independent)
- 10:45 [2D19] REALIZATION OF FAST 10-TON SERVO PRESS USING HYDRAULIC HYBRID SERVO BOOSTER
Sang-Ho Hyon¹, *Wensi Li¹, Yoshihiro Mori² (1. Ritsumeikan University, 2. Mori Kogyo, Ltd.)
- 11:25 [2D20] ATTRACTION FORCE CHARACTERISTICS OF PROPORTIONAL SOLENOID ACTUATOR FOR AN INDEPENDENT METERING VALVE
*So-Nam Yun¹, Young-Bog Ham¹, Jung-Ho Park¹, Tae-Soo Park², Seong-Cheol Jang², Yoshito TANAKA¹ (1. Korea Institute of Machinery and Materials, 2. Korea Polytechnic)
- 10:45 [2D21] A NOVEL HYBRID SWING SYSTEM AND ENERGY REGENERATION TIME CONTROL
*Ying Xiao Yu¹, Hyung Gyu Park¹, Yang Hun Im¹, Bo Moon Seo¹, Kyoung Kwan Ahn¹ (1. University of Ulsan)
- 11:25 [2D22] ACTIVE VIBRATION COMPENSATION FOR CATWALK BY HYDRAULIC PARALLEL MECHANISM
Sho Niwa¹, *Yutaka Tanaka¹, Hiroyuki Goto², Nozomu Nomiya³ (1. Hosei University, 2. Koenn Co., Ltd., 3. Koenn Co.,Ltd.)
- 10:45 [2D23] STRUCTURE DESIGN OF A NEW INTELLIGENT PIPELINE PLUGGING DEVICE
*Tingting Wu¹, Hong Zhao¹ (1. College of Mechanical and Transportation Engineering, China University of Petroleum)
- 11:25 [2D24] PRESSURE RESPONSE OF HYDRAULIC VESSEL WITH REMOVING ENTRAINED AIR
*Iori Masuhara¹, Sayako Sakama², Yutaka Tanaka¹ (1. Hosei University, 2. Aoyama Gakuin University)
- 10:45 [2D25] SUPER TWISTING CONTROL WITH BACKSTEPPING DESIGN FOR ELECTRO-HYDRAULIC SYSTEM WITH UNKNOWN PERTURBATION
*Duc-Thien Tran¹, Minh-Tri Nguyen¹, Minh-Nhat Nguyen¹, So Young Lee¹, Eun Jin Jeong¹, Kyoung Kwan Ahn¹ (1. University of Ulsan)

Poster Presentation | Pneumatics

[2D26-42] Poster-Pneumatics

Room D

- 11:25 [2D26] PROPOSAL OF SOFT SLIP-IN MANIPULATOR CAPABLE OF SLIDING UNDER THE HUMAN BODY
*Tomoyuki Nakamura¹, Hideyuki Tsukagoshi¹ (1. Tokyo Institute of Technology)
- 10:45 [2D27] EVALUATION OF WEIGHT BEARING REDUCTION SYSTEM DRIVEN BY RUBBERLESS ARTIFICIAL MUSCLE
*Naoki SAITO¹, Toshiyuki SATOH¹ (1. Akita Prefectural University)
- 11:25 [2D28] STUDY ON WALKING TRAINING SYSTEM FOR USING HIGHPERFORMANCE SHOES WITH HUMAN COMPATIBILITY
*Yasuhiro Hayakawa¹, Tomoaki NAGATO (1. National Institute of Technology, Nara College)

- 10:45 [2D29] IMPROVEMENT OF PNEUMATIC DRIVE FLEXIBLE LINEAR STEPPING ACTUATOR WITH BACKDRIBABILITY
 *Yuya Eguchi¹, Tetsuya Akagi¹, Shujiro Dohta¹, Wataru Kobayashi¹, Nobuhiro Fukukawa¹ (1. Okayama University of Science)
- 11:25 [2D30] IMPROVEMENT OF THE MAINTAINABILITY OF LOW-COST GAS/LIQUID SERVO VALVE
 *Shota Harada¹, Tetsuya Akagi¹, Shujiro Dohta¹, Wataru Kobayashi¹ (1. Okayama University of Science)
- 10:45 [2D31] DESIGN OF WEARABLE PNEUMATIC HAND REHABILITATION DEVICE
 *zhongsheng sun¹, Wei tang¹, xiaoning li¹, zhonghua guo¹, yan teng¹ (1. Nanjing University of Science and Technology)
- 11:25 [2D32] DEVELOPMENT OF POWER ASSISTING SUIT FOR ASSISTING RESCUE CREW
 *Toshihiro Yoshimitsu¹, Teruaki Shouji¹ (1. Kanagawa Institute of Technology)
- 10:45 [2D33] MASTER-SLAVE INTEGRATED SURGICAL ROBOT FOR LAPAROSCOPIC SURGERY WITH SEMI-AUTOMATION CONTROL USING HAND ROTATION
 *Ryoken Miyazaki¹, Takahiro Kanno¹, Kenji Kawashima¹ (1. Tokyo Medical and Dental University)
- 11:25 [2D34] DEVELOPMENT OF A MASTER SLAVE INTEGRATED ROBOTIC FORCEPS WITH PNEUMATIC ACTUATORS
 *Takuya Iwai¹, Richi Fujita¹, Takahiro Kanno¹, Kenji Kawashima¹ (1. Tokyo Medical and Dental University)
- 10:45 [2D35] PNEUMATICALLY-DRIVEN 4-DOF SURGICAL MANIPULATOR WITH A SEPARATION MECHANISM USING CRANKS
 *Takahiro Kanno¹, Kenji Kawashima¹ (1. Tokyo Medical and Dental University)
- 11:25 [2D36] EXAMINATION OF THE GUIDE FIN SHAPE FOR THE CYCLONE TYPE DRAIN SEPARATOR
 *Yuta Marui¹, Yukio Kawakami¹, Makoto Doki² (1. Shibaura Institute of Technology, 2. KOGANEI Corporation)
- 10:45 [2D37] ELECTRIC AND PNEUMATIC HYBRID LINEAR ACTUATOR FOR POSITION AND THRUST CONTROL
 *Yuta Yanagida¹, Yasukazu Sato¹ (1. Yokohama National University)
- 11:25 [2D38] EXPERIMENTAL STUDY OF FRICTION CHARACTERISTICS OF PNEUMATIC CYLINDER
 *Yasunori Wakasawa¹, Yuta Kohashi², Naoto Ayada², Hideki Yanada² (1. National Institute of Technology, Toyota College, 2. Toyohashi University of Technology)
- 10:45 [2D39] STUDY ON SMALL-DIAMETER BALL END MILL MILLING OF AIR TURBINE SPINDLE BY ROTATIONAL SPEED CONTROL
 *Yusuke Okamoto¹, Takanori Yazawa¹, Tomonori Kato², Kazuya Nishida², Shinya Moriyama³, Yukio Maeda⁴, Tatsuki Otsubo¹ (1. Nagasaki University, 2. Fukuoka Institute of Technology, 3. Mitsui High-tec.Inc., 4. Toyama Prefectural University)
- 11:25 [2D40] A NON-CONTACT HOLDER USING AIRFLOW
 *Takuya Morisawa¹, Yojiro Yano¹, Tetsuhiro Tsukiji¹, Ryoichi Suzuki² (1. Sophia University, 2. SMC Corporation)
- 10:45 [2D41] RESEARCH ON PNEUMATIC STEADY FLOW IN A TUBE BY USING CFD(Effect of Flow Characteristics by The Cross-Sectional Shape of A Tube)
 *Kohei Matsumoto¹, Eiji Murayama¹, Yukio Kawakami¹, Kazuo Nakano² (1. Shibaura Institute of Technology, 2. Tokyo Institute of Technology)
- 11:25 [2D42] EVALUATION OF ENERGY CONSUMPTION OF HYBRID ELECTRIC-PNEUMATIC ULTRA-PRECISION VERTICAL POSITIONING DEVICE
 *Yoshinobu TSUKIYAMA¹, Tomonori KATO¹, keita MATSUO¹ (1. Fukuoka Institute of Technology)

- 10:45 [2D43] THE DYNAMIC CHARACTERISTICS OF A DIRECT-ACTING WATER HYDRAULIC RELIEF VALVE WITH DOUBLE DAMPING: NUMERICAL AND EXPERIMENTAL INVESTIGATION
*Yipan Deng¹, Yinshui Liu¹, Defa Wu¹, Hui Li¹ (1. State Key Laboratory of Digital Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology)
- 11:25 [2D44] DEVELOPMENT AND APPLICATION OF ACTIVE CHARGE ACCUMULATOR FOR WATER HYDRAULICS
*Futoshi YOSHIDA¹, Kazuhisa MAEDA², Satoru TAKAHASHI³, Shouichiro IIO³, Ato KITAGAWA⁴ (1. KYB Corporation, 2. TOYOTA AUTO BODY CO., LTD., 3. Shinshu University, 4. Tokyo Institute of Technology)
- 10:45 [2D45] ENERGY EFFICIENCY IMPROVEMENT OF WATER HYDRAULIC MOTOR SYSTEM WITH REDUCING PUMP SUPPLY PRESSURE
*Ryo Yagisawa¹, Kazuhisa Ito¹, Pha Ngoc Pham², Shigeru Ikeo³, Wataru Kobayashi⁴ (1. Shibaura Institute of Technology, 2. Hanoi University of Science and Technology, 3. Sophia University, 4. Okayama University of Science)
- 11:25 [2D46] HYDRODYNAMIC SHAPE OPTIMIZATION OF A HYBRID UNDERWATER GLIDER
*Lei Lei¹, Lei GAO¹, Xiaoyun FU¹, Baoren LI¹, Gang YANG¹ (1. Huazhong University of Science and Technology Festo Pneumatic Center)
- 10:45 [2D47] PASSIVE COMPENSATION ANALYSIS OF UNDERWATER GLIDER UNDER SEAWATER PRESSURE
*Tengfei Tang¹, Baoren Li¹, Yi Xi¹, Lihui Liao¹, Xiaoyun Fu¹ (1. Huazhong University of Science and Technology)
- 11:25 [2D48] INITIATION OF LIQUID DROPLET IMPINGEMENT EROSION ON ROUGH SURFACE
*Nobuyuki Fujisawa¹, Shoutaro Takano², Takayuki Yamagata¹, Kei Fujisawa¹ (1. Flow Visualization Research Center, Niigata University, 2. Graduate School of Science and Technology, Niigata University)

- 10:45 [2D49] ECF-PUMP UTILIZING TUBE WITH DIFFERENT DIAMETER AND MESH ELECTRODES
*Pan Zhixiao¹, Yasuo Sakurai¹, Takuya Okamoto², Takeshi Nakada³, Kazuya Edamura⁴ (1. Ashikaga Institute of Technology, 2. Toho Car Corporation, 3. Tokyo Denki University, 4. New Technology Management Co., Ltd.)

- 10:45 [2D50] PROPOSAL OF MEASUREMENT METHOD OF FRICTION COEFFICIENT FOR PIPE FLOW IN AQUA DRIVE SYSTEM
*Yasuo Sakurai¹, Takahisa Nagasawa² (1. Ashikaga Institute of Technology, 2. KOYO Seiki Co., LTD.)

10:45 [2D51] CAVITATION PHENOMENON IN A SPOOL VALVE MODEL FOR AQUA DRIVE SYSTEM

*Hitomi Okabe¹, Yukiko Tanaka¹, Futoshi Yoshida², Shouichiro Iio¹ (1. Shinshu university faculty of engineering, 2. KYB corporation)

10:45 [2D52] DEVELOPMENT OF A DIRECT TYPE WATER HYDRAULIC RELIEF VALVE FOR SMALL FLOW RATE

*Kenji Suzuki¹, Yohichi Nakao¹, Tsutomu Iguchi², Futoshi Yoshida³ (1. Kanagawa University, 2. Hirose Valve Industry Co., Ltd., 3. KYB Corporation)

10:45 [2D53] CHARACTERISTICS OF WATER HYDRAULIC CYLINDER

*Hideki Yanada¹, Yuhi Ito¹, Yutaka Fujimoto¹ (1. Toyohashi University of Technology)

10:45 [2D54] A PREDICTION METHOD OF WATER HAMMER

*Yuhi YOSHIDA¹, Tatsuya UCHIDA¹, Kazushi SANADA² (1. Department of Systems Integration, Graduate School of Engineering Yokohama National University, 2. Faculty of Engineering, Yokohama National University)

10:45 [2D55] TEST METHODS OF WATER HYDRAULIC PUMPS

*Tatsuya UCHIDA¹, Yuhi YOSHIDA¹, Kazushi SANADA² (1. Department of Systems Integration, Graduate School of Engineering, Yokohama National University, 2. Faculty of Engineering, Yokohama National University)

Oct. 27 (Fri.), 2017

Technical Tour

[3T01-04] Technical Tour

Technical Tour

08:30 [3T01] Dazaifu Tenmangu, Technical Tour

Special Lecture

[3F-Special-01] The 10th Anniversary Ceremony, Special Lecture 2

Chair: Yukio Kawakami (Shibaura Institute of Technology)

Room F

14:30 [3F01] THE 10TH ANNIVERSARY SYMPOSIUM FOR THE FUTURE OF FLUID POWER

*Kazushi SANADA¹ (1. Yokohama National University, Chairperson of the 10th JFPS International Symposium on Fluid Power FUKUOKA 2017)

15:00 [3F02] HYDRAULIC WIND TURBINE

*Xiangdong KONG¹ (1. Yanshan University)

15:30 [3F03] ENERGY SAVING TECHNOLOGY FOR COMMERCIAL OFF-HIGHWAY VEHICLES

*Kim STELSON¹ (1. University of Minnesota)

Award & Closing Ceremony

[3F04-05] Award & Closing Ceremony

Chair: Yasukazu Sato (Yokohama National University), Yutaka Tanaka (Hosei University),

Kazushi Sanada (Yokohama National University), Toshihiro Yoshimitsu (Kanagawa Institute of Technology)

Room F

16:00 [3F04] Awards Ceremony

16:30 [3F05] Closing Ceremony