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ORGANIZING COMMITTEE, EXECUTIVE COMMITTEE, ASME STAFF

ORGANIZING COMMITTEE

General Co-Chairs
Monika Ivantysynova, Purdue University, USA
Kim Stelson, University of Minnesota, USA

Local Arrangement, Registration and Finance Chair
Steve Weber, Sun Hydraulics Corporation, USA

Program and Publicity
Roger Fales, University of Missouri, USA
Saeid Habibi, McMaster University, Canada
Nigel Johnston, University of Bath, UK

Editorial and Publication
Eric Barth, Vanderbilt University, USA
Andrea Vacca, Purdue University, USA

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Eric Bideaux, Institut National des Sciences Appliquees de Lyon, France
Will Durfee, University of Minnesota, USA
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Massimo Milani, University of Modena and Reggio Emilia, Italy
Roberto Paoluzzi, IMAMOTER - C.N.R., National Research Council of Italy, Italy
Robert Rahmfeld, Sauer-Danfoss Germany
Kazushi Sanada, Yokohama National University, Japan
Andrew Plummer, University of Bath, UK
Noah Manning, University of Missouri, USA
James Van De Ven, University of Minnesota
Kim Stelson, University of Minnesota, USA
Roger Fales, University of Missouri, USA
Saeid Habibi, McMaster University, Canada
Nigel Johnston, University of Bath, UK
Eric Barth, Vanderbilt University, USA
Andrea Vacca, Purdue University, USA
Heikki Handroos, Lappeenranta University of Technology, Finland

Each member of the Editorial Board served the Symposium with the role of Associate Editor and Session Organizer. The Editorial Board members managed the paper review, identifying qualified reviewers for each submitted paper and giving a final recommendation to the Editorial and Publication Board members.

2012-2014 ASME FLUID POWER SYSTEMS & TECHNOLOGY DIVISION
EXECUTIVE COMMITTEE

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Member Qinghui Yuan, PhD
Member James D. Van De Ven, PhD
Member Monika M. Ivantysynova, PhD
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Past Chair 2010-1012 Eric J. Barth, PhD

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CMP, Program Manager, Technical Units Mary D. Jakubowski
Administrator, Knowledge & Community Jovita Frederick
Electronic Production Coordinator, Publications Stacey Cooper
SESSION ORGANIZERS

Session 1  Actuation and Control 1
Session Organizer: Eric J. Barth, Vanderbilt University, USA
Session Co-Organizer: Kim Stelson, University of Minnesota, USA

Session 2  Tribology and Lubrication
Session Organizer: Heikki Handroos, Lappeenranta University of Technology, Finland
Session Co-Organizer: Monika Ivantysynova, Purdue University, USA

Session 3  Valves
Session Organizer: Andrea Vacca, Purdue University, USA
Session Co-Organizer: Steve Weber, Sun Hydraulics Corp., USA

Session 4  Energy Applications and Energy Storage
Session Organizer: Saeid Habibi, McMaster University, Canada
Session Co-Organizer: Nigel Johnston, University of Bath, UK

Session 5  Actuation and Control 2
Session Organizer: Roger Fales, University of Missouri, USA
Session Co-Organizer: Eric Bideaux, INSA de Lyon, France

Session 6  System Health Monitoring and Fault Detection
Session Organizer: Roberto Paoluzzi, National Council of Research, Italy
Session Co-Organizer: William Durfee, University of Minnesota, USA

Session 7  Digital Hydraulics and Digital Displacement
Session Organizer: Bernhard Manhartsgruber, Johannes Kepler University, Austria
Session Co-Organizer: Kim Stelson, University of Minnesota, USA

Session 8  Efficiency
Session Organizer: Massimo Milani, University of Modena and Reggio Emilia, Italy
Session Co-Organizer: Kazuki Sanada, Yokohama National University, Japan

Session 9  Pumps and Motors
Session Organizer: Robert Rahmfeld, Sauer Danfoss, Germany
Session Co-Organizer: Monika Ivantysynova, Purdue University, USA

Session 10  Properties of Hydraulic Fluids
Session Organizer: James Van de Ven, University of Minnesota, USA
Session Co-Organizer: Andrea Vacca, Purdue University, USA

Session 11  Modeling and Design
Session Organizer: Noah D. Manring, University of Missouri, USA
Session Co-Organizer: Eric J. Barth, Vanderbilt University, USA

Session 12  Actuation and Control 3
Session Organizer: Andrew Plummer, University of Bath, UK
Session Co-Organizer: Wayne Book, Georgia Institute of Technology, USA

Information is current as of time of printing and subject to change.
CONFERENCE AGENDA

SUNDAY, OCTOBER 6, 2013

6:00pm–9:00pm Opening Reception
Sunset Terrace
Sponsored by Evonik

MONDAY, OCTOBER 7, 2013

8:15am–9:55am Session 1
Royal Palm Ballroom
Actuation and Control 1
Chair: Eric J. Barth, Vanderbilt University, USA

FPMC2013-4464
Passive Pneumatic Tele-operation System
Aly Elmasy, Matthias Liermann, American University of Beirut, Lebanon

FPMC2013-4500
Dynamic Force Control of Displacement Controlled Drives by Means of an Iterative Learning Algorithm
Tobias Rademacher, Jürgen Weber, IFD Technical University Dresden, Germany, Dominik Dorner, Georg Simon Ohm University of Applied Sciences, Germany

FPMC2013-4486
Hydraulically Actuated Patient Transfer Device with Passivity Based Control
Heather Humphreys, Wayne Book, James Huggins, Georgia Institute of Technology, USA

FPMC2013-4481
Design and Precision Control of an MR-Compatible Flexible Fluidic Actuator
David B. Comber, Eric J. Barth, Robert J. Webster III, Vanderbilt University, USA, Jonathon E. Slightam, Vito R. Gervasi, Milwaukee School of Engineering, USA

FPMC2013-4454
Wireless Control of a Teleoperated Hydraulic Manipulator with Application towards Live-Line Maintenance
Yaser Maddahi, Nariman Sepehri, Stephen Liao, Wai-Keung Fung, Ekram Hossain, University of Manitoba, Canada

9:55am–10:15am Coffee Break

10:15am–11:55am Session 2
Royal Palm Ballroom
Tribology and Lubrication
Chair: Heikki HandroosLappeenranta University of Technology, Finland

FPMC2013-4407
Model Tests for Evaluating the Impact of low Viscosity Tailor-made Biofuels on Tribological Contacts in Injection Pumps
Stefan Heitzig, Alexander Weinebeck, Hubertus Murrenhoff, IFAS RWTH Aachen, Germany

FPMC2013-4462
Multibody Dynamics of a Fluid Power Radial Piston Motor including Transient Hydrodynamic Pressure Models of Lubricating Gaps
Per Johansen, Daniel Beck Roemer, Torben Ole Andersen, Henrik Pedersen, Aalborg University, Denmark

FPMC2013-4467
An Oil Stiction Model for Flat Armature Solenoid Switching Valves
Rudolf Scheidl, Christoph Gradl, Johannes Kepler University, Austria

FPMC2013-4482
Sujan Dhar, Andrea Vacca, Purdue University, USA, Antonio Lettini, Casappa, Italy

FPMC2013-4456
Accurate Prediction of Axial Piston Machine's Performance Through a Thermo-Elasto-Hydrodynamic Simulation Model
Andrew Schenk, Marco Zecchi, Monika Ivantysynova, Purdue University, USA

INFORMATION IS CURRENT AS OF TIME OF PRINTING AND SUBJECT TO CHANGE.
# CONFERENCE AGENDA

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<td>Lunch</td>
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<td>Session 3</td>
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**Chair:** Andrea Vacca, Purdue University, USA

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<tr>
<td>FPMC2013-4424 Sliding Mode Control of Servo-Solenoid Valves with Novel Sliding Mode Surface under Acceleration and Jerk Constraints</td>
<td>Jin-Hui Fang, Xiao-wu Kong, Jian-hua Wei, Zhejiang University, China, Zheng Chen, Dalhousie University, China</td>
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<td>FPMC2013-4426 Geometric Optimization of a Hydraulic Motor Rotary Valve</td>
<td>Hao Tian, James Van de Ven, University of Minnesota, USA</td>
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<td>FPMC2013-4479 Study on Dynamic Behavior of a Gas Pressure Relief Valve for a Big Flow Rate</td>
<td>Victor Sverbilov, Dmitry Stadnick, Georgy Makaryants, Samara State Aerospace University, Russia</td>
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<tr>
<td>FPMC2013-4458 Research on the Stability of a Hydraulic Propulsion System Controlled by Proportional Pressure Reducing Valves</td>
<td>Feng Zhou, Linyi Gu, Gaosheng Luo, Lin Li, Zhejiang University, China, Mengjun Zheng, Hangzhou Universal Control Mechanical &amp; Electronical Engineering Ltd., China</td>
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<td>FPMC2013-4496 Effect of Proportional Valves and Cylinders on the Behavior of Hydraulic Positioning Systems</td>
<td>Irving Muraro, Paulo L. Teixeira, Victor J. De Negri, Federal University of Santa Catarina, Brazil</td>
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<tr>
<td>2:40pm–3:00pm</td>
<td>Coffee Break</td>
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<tr>
<td>3:00pm–4:40pm</td>
<td>Session 4</td>
<td>Royal Palm Ballroom</td>
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**Chair:** Saeid Habibi, McMaster University, Canada

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<tr>
<td>FPMC2013-4413 Design of Bidirectional Check Valve for the PTO System of Ocean Wave Energy Converters</td>
<td>Anders Hedegaard Hansen, Henrik Pedersen, Torben Ole Andersen, Aalborg University, Denmark</td>
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<td>FPMC2013-4425 Constrained Multi-Objective Optimization of a Hydraulic Flywheel Accumulator</td>
<td>Kyle Strohmaier, James Van de Ven, University of Minnesota, USA</td>
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<td>FPMC2013-4449 Hydrostatic Transmission for Wind Turbines – an Old Concept, New Dynamics</td>
<td>Johannes Schmitz, Milos Vukovic, Hubertus Murrenhoff, RWTH Aachen University, IFAS, Germany</td>
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<tr>
<td>FPMC2013-4488 Pneumatic Strain Energy Accumulators for Exhaust Gas Recycling</td>
<td>Daniel Cramer, Eric J. Barth, Vanderbilt University, USA</td>
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<tr>
<td>FPMC2013-4470 Analysis on the Adaptability of Two Different Hydraulic Energy Recovery Circuits on Various Machine Types and Work Cycles</td>
<td>Henri Hänninen, Matti Pietola, Aalto University, Finland</td>
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<td>Tour of Sun Hydraulics Facility</td>
<td>Bus departure from Lido Beach Resorts</td>
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<td>Royal Palm Ballroom</td>
<td>Stability of a Proportional Valve Control System with Backslash and Saturation</td>
<td>Nader Moustafa, Roger Fales, <strong>University of Missouri, USA</strong></td>
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<td></td>
<td>Research on the Constant Speed Control System of Hydraulic Motor under Variable Flow-rate Input Based on Dual-PID Method</td>
<td>Huang Ruijia, Shi Guanglin, <strong>Shanghai Jiao Tong University, China</strong></td>
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<td>MEMS Sensor Network Based Anti-Sway Control System for Articulated Hydraulic Crane</td>
<td>Janne Honkakorpi, Juho Vihonen, Jouni Mattila, <strong>Tampere University of Technology, Finland</strong></td>
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<td>An Approach for Second Order Control with Finite Time Convergence for Electro-Hydraulic Drives</td>
<td>Lasse Schmidt, <strong>Bosch Rexroth A/S, Denmark</strong>, Torben Ole Andersen, Henrik Pedersen, <strong>Aalborg University, Finland</strong></td>
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<td>Stability Analysis of QFT Controller Designed for Hydraulic Actuator Using Takagi-Sugeno Fuzzy Modeling</td>
<td>Masoumeh Esfandiari, Nariman Sepehri, <strong>University of Manitoba, Canada</strong></td>
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<tr>
<td>9:55am–10:15am</td>
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<tr>
<td>10:15am–11:55am</td>
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<td>Royal Palm Ballroom</td>
<td>Model-Based Development of Health Monitoring Functions for Aircraft Hydraulic Systems</td>
<td>Kevin Poole, Frank Thielecke, <strong>Hamburg University of Technology, Germany</strong>, Cornelia Mädiger, <strong>Airbus Operations GmbH, Germany</strong></td>
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<td>Internal Leakage Fault Detection for Variable Displacement Axial Piston Pump</td>
<td>Tuomo Kivelä, Jouni Mattila, <strong>Tampere University of Technology, Finland</strong></td>
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<td>Fault Detection of an Electrohydrostatic Actuator with the SVSF Time-Varying Boundary Layer Concept</td>
<td>Stephen Andrew Gadsden, Saeid Habibi, <strong>McMaster University, Canada</strong></td>
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<td></td>
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<td>Detection and Isolation of Faults in Mobile Hydraulic Valves based on a Reduced-order Model and Adaptive Thresholds</td>
<td>Jarmo Nurm, Jouni Mattila, <strong>Tampere University of Technology, Finland</strong></td>
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<td>Design and Evaluation of an Embedded Sensor in a Polymer Sealing Structure “Smart Seal”</td>
<td>Gary Krutz, <strong>Purdue University, USA</strong>, Timu W. Gallien, <strong>Scripps Health, USA</strong>, Frank Stewart, <strong>Parker Hannifin, USA</strong>, Brittany Newell, <strong>Marian Corporation, USA</strong></td>
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<tr>
<td>11:55am</td>
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<tr>
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<td>Koski Lecture</td>
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<td>Royal Palm</td>
<td>Koski Lecture</td>
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<tr>
<td>2:00pm</td>
<td>Session 7 Digital Hydraulics and Digital Displacement</td>
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<td>Royal Palm</td>
<td>Digital Hydraulics and Digital Displacement Chair: Bernhard Manhartsgruber, Johannes Kepler University, Austria</td>
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<tr>
<td>3:40pm</td>
<td>Coffee Break</td>
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<tr>
<td>4:00pm</td>
<td>Session 8 Efficiency</td>
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<td>Royal Palm</td>
<td>Session 8 Efficiency</td>
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<tr>
<td>6:30pm</td>
<td>Koski Banquet</td>
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<td>Royal Palm</td>
<td>Koski Banquet Sponsored by Koski family and DANFOSS</td>
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### Conference Agenda

**FPMC2013-4416**

*On the Dynamic Behavior of Check Valves for High Frequency Oscillation Pumps*

Eugenio Leati, Rudolf Scheidl, Johannes Kepler University, Austria, Andreas Plöckinger, Linz Center for Mechatronics, Austria

**FPMC2013-4438**

*A Basic Study on the Response Dynamics of Pulse-Frequency Controlled Digital Hydraulic Drives*

Christoph Gradl, Rudolf Scheidl, Johannes Kepler University, Austria

**FPMC2013-4469**

*Simulation of Dynamic Behavior of a Digital Displacement Motor using Transient 3D Computational Fluid Dynamics Analysis*

Daniel Beck Roemer, Per Johansen, Henrik Pedersen, Torben Ole Andersen, Aalborg University, Denmark

**FPMC2013-4475**

*Simulation Based Design and Optimization of Digital Pump/Motors*

Kyle Merrill, Farid Breidi, John Lumkes, Purdue University, USA

**FPMC2013-4489**

*Co-Simulation Based Design and Experimental Validation of Control Strategies for Digital Fluid Power Systems*

Maciej Z. Pindera, Yuzhi Sun, Jean-Jacques Malosse, Dynsan LLC, USA, Jose M. Garcia, Purdue University, USA

**FPMC2013-4410**

*System Synthesis and Controller Design of a Novel Pump Controlled Steer-by-Wire System Employing Modern Control Techniques*

Naseem Daher, Monika Ivantysynova, Purdue University

**FPMC2013-4408**

*STEAM - A Mobile Hydraulic System with Engine Integration*

Milos Vukovic, Sebastian Sgro, Hubertus Murrenhoff, IFAS RWTH Aachen, Germany

**FPMC2013-4402**

*Analysis and Optimization of an ElectroHydraulic Power Pack for use in a Fully-Active Vehicle Suspension Through the use of Computational Fluid Dynamics*

Colin O'Shea, Levant Power, USA, Samuel Lowry, Yanjun Xia, Simerics Inc., USA

**FPMC2013-4420**

*Optimized Single-Stage Power-Split Hydraulic Hybrid City Bus*

Muhammad I. Ramdan, Kim Stelson, University of Minnesota, USA

**FPMC2013-4440**

*Stable and High Performance Energy-Efficient Motion Control of Electric Load Sensing Controlled Hydraulic Manipulator*

Janne Koivumäki, Jouni Mattila, Tampere University of Technology, Finland

**Information is current as of time of printing and subject to change.**
## CONFERENCE AGENDA

### WEDNESDAY, OCTOBER 9

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<th>Chair: Monika Ivantysynova, Purdue University, USA</th>
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<tr>
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<td>Sunset Terrace</td>
<td>Pumps and Motors</td>
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</table>

**FPMC2013-4433**

**Visualization and Analysis of the Multiphase Flow in an Electromagnetically Driven Piston Pump**
  - Martin Petzold, Jürgen Weber, TU Dresden, Germany, Etienne Dautry, Olaf Ohligschiäger, Axel Müller, Thomas Magnete GmbH, Germany

**FPMC2013-4452**

**The Influence of Passive Valve Characteristics on the Performance of a Piezo Pump**
  - Jean-Paul Henderson, Andrew Plummer, Nigel Johnston, Chris R Bowen, University of Bath, UK

**FPMC2013-4459**

**Comparative Study on Dynamic Characteristics of Hydraulic, Pneumatic and Electric Motors**
  - Yutaka Tanaka, Sayako Sakama, Hosei University, Japan, Kazuo Nakano, Tokyo Institute of Technology, Japan, Hiroshi Kosodo, Takako Industries, Japan

**FPMC2013-4473**

**Design Potentials of External Gear Machines with Asymmetric Tooth Profile**
  - Ram Sudarsan Devendran, Andrea Vacca, Purdue University, USA

**FPMC2013-4428**

**Efficiency Modeling and Experimental Validation of a Variable Displacement Linkage Pump**
  - Shawn Wilhelm, James Van de Ven, University of Minnesota, USA

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<tr>
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<th>Time</th>
<th>Session 10</th>
<th>Location</th>
<th>Chair: Kim Stelson, University of Minnesota, USA</th>
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<tbody>
<tr>
<td>10:15am–11:55am</td>
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<td>Sunset Terrace</td>
<td>Properties of Hydraulic Fluids</td>
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</table>

**FPMC2013-4412**

**An Extended Second Order Polynomial Model for Hydraulic Fluid Density**
  - Juho-Pekka Karjalainen, Reijo Karjalainen, Kalevi Huhtala, Tampere University of Technology, Finland

**FPMC2013-4427**

**Determining Water Content at Saturation for Three Common Wind Turbine Gearbox Oils: Mobilgear SHC XMP 320, AMSOIL EP Gear Lube ISO-320 and Castrol Optigear A320**
  - Matthew Whitten, Donaldson Company Inc., USA, Kim Stelson, University of Minnesota, USA

**FPMC2013-4450**

**Measurements of Air Absorption and Air Release Characteristics in Hydraulic Oils at Low Pressure**
  - Katharina Schrank, Hubertus Murrenhoff, RWTH Aachen University, IFAS, Germany, Christian Stammen, Fluitronics GmbH, Germany

**FPMC2013-4493**

**Modelling and Experimental Validation of the Effective Bulk Modulus of a Mixture of Hydraulic Oil and Air**
  - Hossein Gholizadeh, Doug Bitner, Richard Burton, Greg Schoenau, University of Saskatchewan, Canada

**FPMC2013-4499**

**Towards Direct Numerical Simulation of Compressible Orifice Flow**
  - Bernhard Manhartsgruber, Johannes Kepler University, Austria
## CONFERENCE AGENDA

### 11:55am–1:00pm
**Lunch**
Royal Palm Ballroom

*Sponsored by National Fluid Power Association*

### 1:00pm–2:40pm
**Session 11**
Sunset Terrace

*Modeling and Design*

*Chair: Nigel Johnston, University of Bath, UK*

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<th>Active Control of Pressure Pulsation in a Piping System using Measured Dynamic Flow Rate</th>
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<td>Min Pan, Nigel Johnston, Andrew Plummer, Sylwester Kudzma, Andrew Hillis, University of Bath, UK</td>
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<th>Dynamic Simulation and Experimental Validation of a Single Stage Thermocompressor for a Pneumatic Ankle-Foot Orthosis</th>
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<td>Mark Hofacker, Nithin Kumar, Eric J. Barth, Vanderbilt University, USA</td>
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<th>Analysis of Wave Propagation Effects in Transmission Lines based on a mixed Time Frequency Domain Iteration</th>
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<td>Helmut Kogler, Rudolf Scheidl, Michael Ehrentraut, Johannes Kepler University, Austria</td>
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<tr>
<th>FPMC2013-4415</th>
<th>New Designs in Fuel Dispensing System to Reduce Water Hammer</th>
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<td>Yajun Liu, Zhiyong Wang, Ziyang Huang, South China University of Technology, China, John Lumkes, Purdue University, USA</td>
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<th>FPMC2013-4436</th>
<th>Simulation of Fluid Power Systems In Consideration of Uncertainties</th>
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<tr>
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<td>Andreas Rüdenauer, Phillip Thiebes, Karlsruhe Institute of Technology, Germany</td>
</tr>
</tbody>
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### 2:40pm–3:00pm
**Coffee Break**

### 3:00pm–4:40pm
**Session 12**
Sunset Terrace

*Actuation and Control 3*

*Chair: Andrew Plummer, University of Bath, UK*

<table>
<thead>
<tr>
<th>FPMC2013-4447</th>
<th>Position Tracking of a Pneumatic Actuator Using Backstepping-Sliding Mode Control with Adaptive Friction Observer</th>
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<td>Ramhuzaini Abd. Rahman, Nariman Sepehri, University of Manitoba, Canada</td>
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<tr>
<th>FPMC2013-4457</th>
<th>Fuzzy PID and Tracking Control with a Pneumatic Gantry Robot</th>
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<td>James Waldie, Brian Surgenor, Behrad Dehghan, Queens University, Canada</td>
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<tr>
<th>FPMC2013-4460</th>
<th>Command Feedback for Position Control of Hydraulic Machines</th>
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<td>Mark D. Elton, HUSCO International, USA, Ryder Winck, Stanford University, USA, Wayne Book, Georgia Institute of Technology, USA</td>
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<tr>
<th>FPMC2013-4480</th>
<th>Investigation and Comparison of Separate Meter-In Separate Meter-Out Control Strategies</th>
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<td>Henrik Pedersen, Torben Ole Andersen, Tobias Skouboe, Morten S. Jacobsen, Aalborg University, Denmark</td>
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<tr>
<th>FPMC2013-4442</th>
<th>Second Order Sliding Control with State Dependent Gain &amp; its Application to a Hydraulic Drive</th>
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<td>Lasse Schmidt, Bosch Rexroth A/S, Denmark, Torben Ole Andersen, Henrik Pedersen, Aalborg University, Denmark</td>
</tr>
</tbody>
</table>

### 4:40pm
Sunset Terrace

**Closing Remarks**

### 6:00pm–9:00pm
**Joint Reception FPMC2013 / Center for Compact and Efficient Fluid Power (CCEFP)**
Royal Palm Ballroom

*Poster Session*

*Sponsored by PARKER HANNIFIN, EATON and CCEFP*
Robert E. Koski Medal
Established in 2007, the Robert E. Koski Medal recognizes individuals who have advanced the art and practice of fluid power motion and control through education and/or innovation.

The Medal was established by the Fluid Power Systems and Technology Division to honor Robert E. Koski’s contributions to the field of Design Engineering and Dynamic Systems and Control.

Robert E. Koski Medal Recipients
2007  Wolfgang Backe
2008  Clifford R. Burrows
2009  Jan Ove Palmberg
2010  Yongxiang Lu
2011  Richard T. Burton
2012  Siegfried Helduser
2013  Wayne Book

Wayne Book, Professor Emeritus of the George W. Woodruff School of Mechanical Engineering, has been selected to receive the 2013 Robert E. Koski Medal “for a lifetime of contributions and leadership in fluid power education and research related to motion control and the impact of operator interfaces on the control of hydraulic manipulation systems.”

Dr. Book will be formally recognized at the ASME/Bath 2013 Symposium on Fluids Power Motion Control during the Koski Banquet on Tuesday, October 8, 2013 (6:30pm–10:00pm).

Dr. Book will give the Koski Lecture at 1:00pm on Tuesday, October 8, 2013.
GENERAL INFORMATION

ACKNOWLEDGEMENT

The 2013 ASME/Bath Symposium on Fluid Power and Motion Control is sponsored by the Fluid Power & Systems Technology Divisions of the American Society of Mechanical Engineers with cooperating support from the NSF Center for Compact and Efficient Fluid Power (CCEFP) and the University of Bath.

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REGISTRATION

Registration will be located in the 8th Floor Foyer. The hours are as follows:

Sunday, October 6   4:00pm–6:00pm
Monday, October 7   7:00am–4:30pm
Tuesday, October 8  7:00am–6:00pm
Wednesday, October 9 7:00am–4:00pm

NAME BADGES

Please wear your name badge at all times. Admission to all conference functions will be by the badges only (unless noted otherwise). Your badge also provides a helpful introduction to other attendees.

TICKETED FUNCTIONS/ITEMS

Entrance to all social functions is allowable by wearing your conference badge.

CONFERENCE CD

The Conference CD of the 2013 2013 ASME/Bath Symposium on Fluid Power and Motion Control is included in your registration fees. Please be sure to pick up a copy when you check in at the registration table.

TAX DEDUCTIBILITY

The expense of attending a professional meeting, such as registration fees and costs of technical publications, are tax deductible as ordinary and necessary business expenses for US citizens. However recent changes in the tax code have affected the level of deductibility.

HANDICAPPED REGISTRANTS

Whenever possible, we are pleased to make arrangements for handicapped registrants. Advance notice may be required for certain requests. For on-site assistance, please visit the registration area and ask to speak with a conference representative.

HAVE QUESTIONS ABOUT THE MEETING?

If you have any questions or need assistance, an ASME representative will be located at the registration area.
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Anyone can organize a Challenge event—it’s fun and rewarding.

To find out how you can hold a Challenge at your company or school—visit www.nfpafoundation.org, or contact Carrie Tatman Schwartz at ctschwartz@nfpa.com or (414) 778-3347.
Linde Hydraulics Corporation

Linde Hydraulics, which is the technology leader in the design and manufacture of axial piston pumps, motors, hydrostatic drive systems and a unique open loop, multifunction valve system, is pleased to announce the addition of a remanufacturing segment to our business offerings at the Canfield, OH location. Customer support after the sale is critical in today’s business environment. One way to provide this service is to offer a quality remanufactured component that is typically lower in cost to a comparable new unit, while offering a new unit warranty on all reman units. Linde Hydraulics has researched the population of the different types of Linde products working in the marketplace today and established a finished remanufactured inventory available for immediate shipment.

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Further information is available at www.linde-hydraulics.us or contact us at 330-533-6801. Our friendly staff of customer service professionals will be available to answer your questions concerning the who, what and where’s of our Remanufacturing Program and our “Retain Value” initiative.
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