

The 11:th Scandinavian
International Conference on
Fluid Power, Linköping, Sweden
June 2-4 2009

SICFP'09

Programme



Linköping University
INSTITUTE OF TECHNOLOGY

Registration

09.30

Welcome Address

Prof. J-O Palmberg, Linköping University, Sweden

Keynote Speeches

Chairman: Prof. J-O Palmberg

Applications and Technologies for Underground Equipments

U Nilsson, Atlas Copco Rock Drills

Digital Displacement Hydraulic Power Transmissions for Renewable Application

W Rampen, Artemis Intelligent Power Limited

A2

11.00

Short Break, Refreshments

11.15

Keynote Speech

Chairman: Prof. J-O Palmberg

A Four-Quadrant Hydraulic Transformer for Hybrid Vehicles

P Achten, T van den Brink, J Potma, M Schellekens, G Vael, Innas BV

A2

12.00

Lunch

Kårallen

13.15

1:1 Hydraulic Seals A1

Importance of the Rk-Group for the Characterisation of Counter Surfaces for Hydraulic Seals
F Steep, G J Wüstenhagen

Prevention of Pressure Build-Up in Modern Sealing Systems of Hydraulic Cylinders
B Baas, G J Wüstenhagen

Experimental Study on Performance of Twin Radial Seals with Controlled Hydraulic Lubrication
H Hänninen, O Caloniuss and M Pietola

1:2 Mobile Systems I A2

A New Approach to an Energy Saving Hydraulic System for Mobile Machines
B Grönsbrink, H-H Harms

The Potential Energy Recuperation in Valve Controlled Mobile Hydraulic Systems
K Heybroek, J Larsson, J-O Palmberg

Energy Efficient Load Holding Valve
B R Andersson

1:3 Pneumatics ACAS

Detailed Diagnostics in a Pneumatic Actuator with a Flow and a Pressure Sensor
R Gutierrez Gonzalez, J Bredau, H Murrenhoff

A Comparison between Traditional and Energy-Saving Pneumatic Drives
C Ferrarresi, W Franco, G Quaglia, M Scopesi

Reducing Pneumatic Muscle Force Response Time for Active Vibration Damping Purposes
P Keski-Honkola, J Kajaste, M Pietola

14.30

Coffee Break

15.00

2:1 Mobile systems II A1

Improving Energy Efficiency of Work Machine with Digital Hydraulics and Pressure Accumulator
J Juhala, H Kauranne, J Kajaste, M Pietola

New Energy Efficient Valve Concept
M Erkkilä, E Lehto, T Virvalo

An LQ-Control Approach for Independent Metering Systems
B Eriksson, M Rösth, J-O Palmberg

2:2 Motor/Pump – Noise A2

Optimisation of SBN and FBN from Fluid Power Pumps and Motors
L Ericson, A Johansson, J Ölvander, J-O Palmberg

Theoretical Considerations towards an Actively Controlled Valve Plate Configuration
T Nafz, H Murrenhoff and R Rudik

2:3 Pneumatics and Water Hydraulics ACAS

Theoretical Basis for a Simulation Model of a Valve Controlled Pneumatic Cylinder Model including Heat Transfer
M Sethson

Analysis and Control of High Precision Water Hydraulic Manipulator
L Zhai, T Virvalo, J Mattila, H Saarinen

16.00

3:1 Digital Machines A1

Digital Pump-Motor with Independent Outlets
M Linjama, K Huhtala

Digital Hydraulic Transformer - Approaching Theoretical Perfection in Hydraulic Drive Efficiency
E D Bishop

3:2 Hybrid Systems A2

Investigation of a Closed Electro-Hydraulic Hybrid Drive
P Ladner, K Ladner, R Scheidl, H Strasse

Energy Efficient Hydraulic Hybrid Drives
K-E Rydberg

3:3 Reservoirs ACAS

Consequences of Degassing of the Hydraulic Fluid to Size and Position of Reservoirs
A Norberg, H Ingvast

Evaluation of Oil Reservoir Dearthation Performance using CFD
P M Lövsland, E Gimming Stensland, M Kjeldsen

16.45

Close Day 1

18.30

Conference Dinner

Linköpings Konsert & Kongress

Refreshments

08.30

Keynote Speech

A2

Chairman: Prof. J-O Palmberg
Interdisciplinary R&D Alliances as Tool for Technological Innovation Processes
Lothar Knippschild
Challenges in Today's and Future Applications for Offshore Hydraulics
Øyvind Reiten, National Oilwell Varco

09.30

Coffee Break

10.00

4:1 Control A1

Estimation of the Potential in Predictive Control in a Hybrid Wheel Loader
B Frank, J Pohl, J-O Palmberg

Towards Automatic Testing of Control Systems for Intelligent Mobile Machines
M Hyvönen P, Multanen, P Mantere, A Kolu, A Vallas, J Alanen, S Rantala

Optimization of the Drive Control in Hydraulic Deep Drawing Presses by using a Holistic Simulation
H Lohse, S Helduser; B-A Behrens, O Marthiens, T Matthias

4:2 Motor/Pump - Efficiency A2

Improvement in the Analytical Model of the Hydraulic Pump/Motor Efficiency: Influence of the Outlet Pressure and Virtually Variable Displacement Introduction
Y Brunel, M Bonis, G Lemaire

Advanced Surface Design for Reducing Power Losses in Axial Piston Machines
J Baker, M Ivantysynova

Efficiency of a Variable Displacement Open Circuit Floating Cup Pump
G Vael, P Achten, T van den Brink

4:3 CFD Modelling and Fluid Properties ACAS

A CFD Analysis of the Flow Field in the Lateral Clearance of External Gear Pumps
P Casoli, A Vacca, G L Berta, M Zecchi

An Experimental Investigation of the Properties of a Magneto Rheological Fluid in Squeeze Mode - the Segregation Problem
M Resch, R Scheidl

11.30

Lunch

Kärallen

12.30

5:1 Modelling and Simulation A1

Improving the Robustness of Simulation Models for Hydraulic Components and Circuits by a Statistical Method
J Liu, H Handroos, H Haario, T Nishiumi

COCO-Sim Modelling and Simulation Environment for Fluid Power Systems
G Grossschmidt, M Harf

The LMS Imagine.Lab AMESim® tool for the analysis and the optimization of hydraulic vane pumps,
F Furno, L. Vasile, D. Andersson

5:2 Valves I A2

Controller Design of Digital Hydraulic Flow Control Valve
M Huova, M Plaska, L Siivonen, M Linjama, M Walden, M Vilenius, K Sere

Digital Hydraulic Pressure Control
M Ijas, E Mäkinen, M Linjama

Design and Implementation of Digital Hydraulic Synchronization and Force Control System
M Linjama, V Hopponen, A Ikonen, P Rintamäki, M Vilenius, M Pietola

5:3 Accumulators ACAS

Silent Packing, Stored Energy Reduces Packing Noise on Refuse Trucks
D Berver, P Rickard

Accumulator Efficiency Improvement: Heat Insulation or Heat Regeneration?
A Stroganov, L Sheshin

Honeycomb Receiver as an Accumulator Shell: Significant Reduction of Danger and Thermal Losses
A Stroganov, L Sheshin

13.40

6:1 Efficient Systems A1

DC-Servomotor Based Swash-Plate Control
J Petric, M Cipek

Secondary Control in Construction Machinery - Design and Evaluation of an Excavator Swing Drive
K Pettersson, S Tikkanen

Energy Efficient Load Adapting System without Load Sensing - Design and Evaluation
M Axin, B Eriksson, J-O Palmberg

6:2 Valves II A2

Energy Efficient Digital Hydraulic Force Control
V Hopponen, M Linjama, A Ikonen, P Rintamäki, M Pietola, M Vilenius

A Novel Symmetric and Bistable Seat Valve
M Karvonen, J-P Uusitalo, V Ahola, M Linjama, M Vilenius

Development and Prototyping of a Compact Fast 3/2 Way Switching Valve with Integrated Onboard Electronics
A Plöckinger, B Winkler, R Scheidl

6:3 Actuators ACAS

Comparative Analysis of Energy Losses in Servo-Hydraulic, Electro-Hydrostatic and Electro-Mechanical Actuators
J-C Mare

Modelling and Simulation of the Aircraft Rudder Hydraulic Servo Actuator with Dynamic Interconnections to Flight Dynamics and Flight Control System Models
J-P Hietala, J Aaltonen, K T Koskinen, M Vilenius

Nonlinear Adaptive Robust Control of Electro-Hydraulic Servo-Actuator with some Unknown Parameters
L Sidhom, X Brun, E Bideaux, D Thomasset

15.00

Coffee Break

Wednesday 3 June, 2009

15.30

7:1 Sensors and Control A1 Force-Based and Position-Based Impedance Control of Hydraulic Manipulators <i>A Muhammad, J Mattila, T Virvalo, M Vilenius</i> Secondary Controlled Multi-Chamber Hydraulic Cylinder <i>M Linjama, H-P Vihtanen, A Sipola, M Vilenius</i> Modeling, Simulation and Experimental Verification of a Solenoid Pressure Control Valve <i>A Dell'Amico, M Sethson, J-O Palmberg</i>	7:2 Transmissions A2 Concept of a Partially Continuously Variable Hydraulic-Mechanical Power-Split Transmission <i>T Fleczoreck, K Steindorff, T Lang, H-H Harms</i> New Steering Mechanism and Hydrostatic Transmission System for Articulated-Frame-Steering Mobile Machine <i>R Ghabcheloo, M Hyvönen, A Vuohijoki, K Huhtala, M Vilenius</i> Load Sensing Secondary Control <i>P Krus</i>	7:3 Multi-Disciplinary Areas ACAS Advanced Horseback Riding Simulator with Hydraulic Motion Base <i>R J Eskola, H Handroos, J Sallinen</i> Development of the Intelligent Robotic Excavator for the Autonomous Excavating System <i>D S Jang, H S Ahn, Y L Cho, K Y Kim, J H Jang</i>
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16.30

Close Day 2

17.30

Lab Tour with Informal Discussions
and something to eat and drink

Thursday 4 June, 2009

Simulation Workshop Modelling and simulation using the free HOPSAN software. This will include lectures and hands-on exercises. You are encouraged to bring your own laptop (preferably Windows XP). 08.00 - 08.30 Start with coffee and installation of software 08.30 - 09.30 Lecture: Simulation methods 09.30 - 11.00 Hands-on exercises 11.00 - 12.00 Lecture: Simulation technologies 12.00 - 13.00 Lunch 13.00 - 15.00 Hands-on exercises	Elmia Woods Will be updated soon...
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Fluid & Mekanisk Systemteknik
FluMeS
Fluid & Mechanical Engineering Systems

