



Institute for Energy Systems and Thermodynamics
 Research group: Fluid-Flow Machinery
 TU Wien



Institute for Testing and Research
 (LTD)
 TU Wien



19th INTERNATIONAL SEMINAR ON HYDROPOWER PLANTS

Flexible Operation of Hydropower Plants
 in the Energy System

9th – 11th November 2016

TU Wien, Austria

Conference program

Tagungsprogramm

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FLEXIBLE OPERATION OF HYDROPOWER PLANTS IN THE ENERGY SYSTEM

19th International Seminar on Hydropower Plants
09 - 11 November 2016 - Vienna - Austria

SESSION OVERVIEW

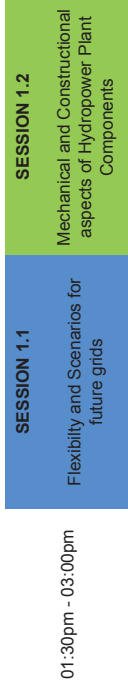
Wednesday - 09/11/2016



08:00am - 09:30am Registration at the conference-office

09:30am - 12:00am Opening Session

12:00pm - 01:30pm Lunch Break



01:30pm - 03:00pm

03:00pm - 03:30pm Coffee Break



03:30pm - 05:00pm

06:30pm - 11:00pm Evening program

Thursday - 10/11/2016



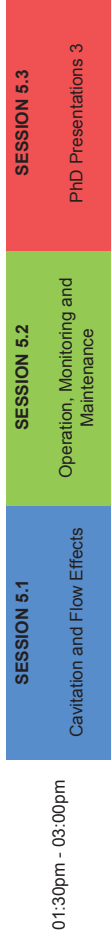
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03:30pm - 05:00pm

07:00pm - 12:00pm Evening program

Friday - 11/11/2016



09:00am - 10:30am



10:30am - 11:00am Coffee Break

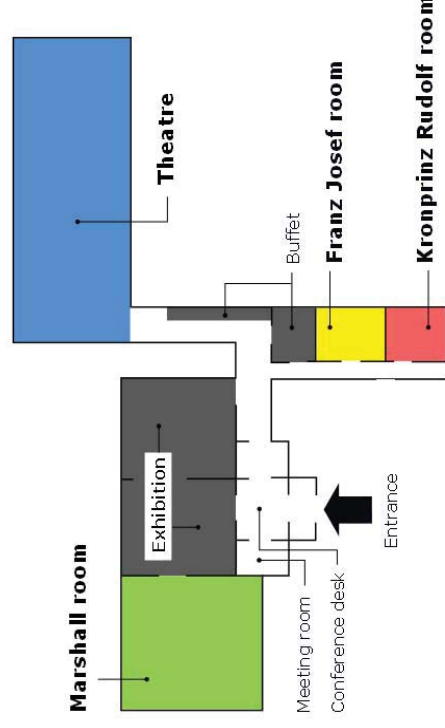


11:00am - 12:30pm



12:30pm - 01:30pm

FLOORPLAN



FLEXIBLE OPERATION OF HYDROPOWER PLANTS IN THE ENERGY SYSTEM

19th International Seminar on Hydropower Plants
09 - 11 November 2016 - Vienna - Austria

CONFERENCE PROGRAM

Wednesday - 09/11/2016

08:00am Registration at the conference-office

09:30am Conference opening session

Location: Theatre, Chair: Prof. Christian Bauer, TU Wien, AUSTRIA
Dr. Stefan Burtscher, TU Wien TVFA, AUSTRIA

Conference Opening

C. Bauer - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA

Opening Address

S. Burtscher - TU Wien, Institute for Testing and Research (LTD) Vienna, AUSTRIA

Flexible Operations of Hydropower Plants in The Energy Systems – Global View of a System Supplier

A. Schwab - ANDRITZ Hydro GmbH, Vienna, AUSTRIA

Hydropower and Energiewende

G. Rabensteiner - VERBUND AG, Vienna, AUSTRIA

12:00pm Exhibition opening and lunch break

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Exhibitors

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AMIANITIT

01:30pm SESSION 1.1 - Flexibility and scenarios for future grids

Location: Theatre, Chair: Dr.-Ing. Stephan Heimerl, Fichtner Water & Transportation GmbH, GERMANY

Long Term Scenarios of Pumped Storage Power Plants

G.F. Brauner - TU Wien, Institute for Energy Systems and Electrical Drives, Vienna, AUSTRIA

Renewable Generation Forecast Error in Europe – Is additional Pumped Storage a Solution?

K. Krüger - Voith Hydro Holding GmbH & Co. KG, Heidenheim, GERMANY; A. Maaz - RWTH Aachen University, Institute of Power Systems and Power Economics, Aachen, GERMANY; N. Rotering - Rotering Energy, Düsseldorf, GERMANY; A. Moser - RWTH Aachen University, Institute of Power Systems and Power Economics, GERMANY

High Flexible Hydro Power Generation Concepts for Future Grids

J. Hell - ANDRITZ Hydro GmbH, Vienna, AUSTRIA; W. Michler - ANDRITZ AG, Kriens, SWITZERLAND

Value of Flexible Pumped-Hydro Energy Storage in Isolated Power Systems with Wind Generation

D. Fernández, J.I. Pérez-Díaz - Technical University of Madrid (UPM), Department of Hydraulic, Energy and Environmental Engineering, Madrid, SPAIN

01:30am SESSION 1.2 - Mechanical and constructional aspects of hydropower plant components

Location: Marshall room, Chair: Dr. Josef Prost, HTL Eisenstadt, AUSTRIA

An Inexpensive, Compliant Reaction-Washer in Hydropower Plants Means Safety, Quality, Schedule

P. Junkers, HYTORC - Barbarino & Kilp GmbH, Krailing, GERMANY

Optimization of a Conical Pelton Turbine Coupling for Future-Safe Operation

M. Titzschkau, A. Thoeni - Grimsel Hydro, Kraftwerke Oberhasli AG, Innertkirchen, SWITZERLAND; U. Baenninger - CADFEM (Suisse) AG, Aadorf, SWITZERLAND

Suppression of Self-Excited Vibrations Through Bearing Profiling: A Case Study

C. Weißbacher - Gleitlagertechnik Weißbacher GmbH, Alpen, GERMANY; B. Wittwer - Vorarlberger Illwerke AG, Vandans, AUSTRIA; D. Vetter - Clausthal University of Technology, Institute of Tribology and Energy Conversion Machinery, Clausthal-Zellerfeld, GERMANY; E. Burtscher - Vorarlberger Illwerke AG, Vandans, AUSTRIA; H. Schwarze - Clausthal University of Technology, Institute of Tribology and Energy Conversion Machinery, Clausthal-Zellerfeld, GERMANY

A Study of The Impact of Surface Hydrophobia on Hydraulic Losses and Velocity Profiles

S. Fialová, F. Pochylý - Brno University of Technology, Brno, CZECH REPUBLIC; M. Kotek, D. Jašíková - Technical University of Liberec, Liberec, CZECH REPUBLIC

03:00pm Coffee Break

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03:30pm SESSION 2.1 - Equipment demands due to power control requirements

Location: Theatre, Chair: Oliver Haupt, KfW , GERMANY

Obervermuntwerk II - Extremely Flexible Power Generation for Grid Control

W. Artner, E. Oberbichler - ANDRITZ Hydro GmbH, Linz, AUSTRIA; P. Meusburger - Vorarlberger Illwerke AG, Vandans, AUSTRIA; S. Weissenberger, F. Zurheide - ANDRITZ Hydro GmbH, Linz, AUSTRIA

Extending The Operating Range of Single Regulated Turbines

C. Gentner - GE Renewable Energy, Birr, SWITZERLAND; P.-Y. Lowys, F. Duparchy, R. Guillaume - GE Renewable Energy, Grenoble, FRANCE

Evaluation of Kaplan Machinery Operating in Frequency Sensitive Mode and Derived Design Specification

S. Benda, VERBUND Hydro Power GmbH, Vienna, AUSTRIA

Ancillary Services – New Challenges in The Optimization of Hydro Equipment and Plant Operation

G. Judtmann, B. Schlegel - Pöyry Switzerland Ltd, Zürich, SWITZERLAND; R. Schilter - Centralschweizerische Kraftwerke AG, Emmen, SWITZERLAND; A. Schürmann, M. Steinl - Pöyry Switzerland Ltd, Zürich, SWITZERLAND

03:30pm SESSION 2.2 - Maintenance, repair and modernization of machine units

Location: Marshall room, Chair: Dr. Stefan Burtscher, TU Wien TVFA, AUSTRIA

Repair of Fatigue Cracks in Kaplan Blades Without Dismantling

J. Mayrhuber - VERBUND Hydro Power GmbH, Vienna, AUSTRIA; I. Zivkovic - ANDRITZ AG, Graz, AUSTRIA

Rutile and Metal-Cored Wires for High Impact Properties in Welded Hydropower Turbine Components

M. Staber, S. Baumgartner, N. Friedrich, M. Weiss - voestalpine Böhler Welding Austria GmbH, Kapfenberg, AUSTRIA

Upgrade of The 13 MW Horizontal Pelton Unit-3 at HPP Schneideraue

U. Henggeler - GE Renewable Energy, Birr, SWITZERLAND; Y. Bomchil - GE Renewable Energy, Grenoble, FRANCE; H. Jogiya - GE Renewable Energy, Vadodara, INDIA; C. Gentner - GE Renewable Energy, Birr, SWITZERLAND; H. Usel - ÖBB Infrastruktur AG, Innsbruck, AUSTRIA

HPP-Freibach: Necessary Renewal of The Generatorpols After Only 23 Years of Operation

S. Leitner, C. Rupp, M. Kandutsch - KELAG Kärntner Elektrizitäts-Aktiengesellschaft, Klagenfurt, AUSTRIA; R. Huber - TU Wien, Institute for Testing and Research (LTD), Vienna, AUSTRIA

05:00pm End of Session

05:15pm Shuttle Bus to Vienna

06:30pm Evening Program

Museum of Military History, Arsenal, Objekt 1, Ghegastraße, 1030 Wien

Cocktail reception
Guided tours
| 06:30pm - 11:00pm |

wine tasting sponsored by



09:00am SESSION 3.1 - Design requirements and optimization

Location: Theatre, Chair: Dr. Sebastian Muntean, Romanian Academy - Timisoara Branch, ROMANIA

Shell Structures in Hydraulic Units - Assessment of Design and Production With Standardized and Individual Specifications

R. Maltet, A. Hammer, TIWAG - Tiroler Wasserkraft AG, Innsbruck, AUSTRIA

Significantly Enhanced Requirements for Inspection and Testing Laboratories

A. Rass, V.A.M. , Innsbruck, AUSTRIA

Low Cost Fishmigration?

B. Pelikan, University of Natural Resources and Life Sciences, Institute for Water Management, Hydrology and Hydraulic Engineering, Vienna, AUSTRIA

Optimal Operation of a Tidal Turbine

C. Schmitz, Industrial Science GmbH, Darmstadt, GERMANY, P. Pelz, TU Darmstadt, Fluid Systems, Darmstadt, GERMANY

09:00am SESSION 3.2 - International Projects

Location: Marshall room, Chair: Dr. Peter Angerer, ANDRITZ Hydro GmbH, AUSTRIA

Sinni Aqueduct: Transient Analysis For Hydropower Energy Exploitation in Water Supply System – Case Study

D. Cazzago, L. L. Papetti, Studio Frosio S.r.l., Brescia, ITALY

Andong Hydropower Plant Rehabilitation in The Republic of Korea – New Turbine – Generator Sets With a Unique Design

B. Muehlbacher, E. Oberbichler, E. Akgun - ANDRITZ Hydro GmbH, Linz, AUSTRIA; J. Hong, P. Ha, S. Park - Energy Department of K-water, Deajeon, Republic of KOREA

Bratsk Hydroelectric Power Station Refurbishment

B. List, G. Edinger - VOITH Hydro, St. Pölten, AUSTRIA; B. Krzyzewski - VOITH Hydro Inc. – Hydraulic Engineering, York, USA; F. Ibetsberger - VOITH Hydro, St. Pölten, AUSTRIA; V. Pisarev - Branch of Irkutskenergo – Bratsk HPP, RUSSIA

Utilization of augmented flow - A case study of “Budi Gandaki Hydroelectric Storage Project”

T.R. Bajaracharya, S. Lamichhane - Tribhuvan University, Institute of Engineering, Kathmandu, NEPAL

09:00am SESSION 3.3 - PhD Presentations 1

Location: Kronprinz Rudolf room, Chair: Prof. Tri Ratna Bajracharya, Tribhuvan University, NEPAL

Fatigue Analysis of Francis Turbines With Different Specific Speeds Using Site Measurements

J. Unterluggauer, M. Eichhorn, E. Doujak - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA

Fatigue Analysis of A Medium Head Francis Runner at Low-Load Operation Using Numerical Investigations

M. Eichhorn, L. Waldner, C. Bauer - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA

Improvement in The Stability of S-Shaped Characteristics By Using Misaligned Guide Vanes

M. Lenarcic, C. Bauer - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA; M. Giese, A. Jung - Voith Hydro Holding GmbH & Co. KG, Heidenheim, GERMANY

10:30am Coffee Break

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11:00am SESSION 4.1 - Draft tube investigation

Location: Theatre, Chair: Prof. Giorgio Pavesi, University of Padova, ITALY

Splitter Band Influence on The Draft Tube Flow Within a Range of Turbine Discharge

R. Susan-Resiga - Politehnica University Timisoara, Research Centre for Complex Fluids, Timisoara, ROMANIA; S. Muntean - Romanian-Academy – Timisoara Branch, Hydrodynamics and Cavitation Laboratory, Timisoara, ROMANIA; C. Ighisan, C. Popescu - Politehnica University Timisoara, Research Centre for Complex Fluids, Timisoara, ROMANIA

Improving The Operating Point Prediction Using a Support-Vector-Machine for The Draft Tube

A. Tismer, M. Schlipf, S. Riedelbauch - University of Stuttgart, Institute of Fluid Mechanics and Hydraulic Machinery, Stuttgart, GERMANY

Hydraulic and Structural Optimization of Very Low Head Siphon Propeller Turbine (Swirl Turbine)

P. Rudolf, J. Mach, P. Cupr, F. Pochyly - Brno University of Technology, Brno, CZECH REPUBLIK

The Plunging Component with Low Frequency in Swirling Flows in a Straight Diffuser With and Without a 90° Heel Elbow

S. Muntean - Romanian-Academy – Timisoara Branch, Hydrodynamics and Cavitation Laboratory, Timisoara, ROMANIA; D.C. Mos, C. Tanasa - Politehnica University Timisoara, Research Centre for Renewable Energy, Timisoara, ROMANIA; A.I. Bosioc, R. Susan-Resiga - Politehnica University Timisoara, Research Centre for Complex Fluids, Timisoara, ROMANIA

11:00am SESSION 4.2 - Capability, safety and risk assessment

Location: Marshall room, Chair: Dr.-Ing. Klaus Schneider, Hydropower Consultant, GERMANY

Validation of Hydropower to Ensure The Operation Capability

K. Hirtenlehner - ZT Hirtenlehner, Steyr-Gleink, AUSTRIA; M. Ludescher - gbd Hydro, Steyr-Gleink, AUSTRIA

From Corrosion Failures to Risk Assessment of Microbial Corrosion in Hydroelectric Power Plants

P. Linhardt - TU Wien, Institute for Chemical Technology and Analytics(CTA), Vienna, AUSTRIA

Safety Assessment for The Shaft Steel Lining at The Kautertal Hydropower Plant Affected by Creep Movement

C. Schenk - TIWAG - Tiroler Wasserkraft AG, Innsbruck, AUSTRIA

Discussion of Damage Potentials in The Design and Construction Phase of Arch Dams

H. Linsbauer - TU Wien, Institute of Hydraulic Engineering and Water Resources Management, Vienna, AUSTRIA

11:00am SESSION 4.3 - PhD 2

Location: Kronprinz Rudolf room, Chair: Prof. Rudolf Schilling, TU München, GERMANY

Experimental Investigation of Transient Pressure Effects in The Side Chambers of A Reversible Pump Turbine Model

A. Maly, M. Eichhorn, C. Bauer - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA

Ventilation Air Flow Field Characteristics in A Hydro Generator Model

H. Jamshidi, H. Nilsson, V. Chernoray - Chalmers University of Technology, Applied Mechanics Department, Gothenburg, SWEDEN

Surge Tank Design for Storage Tunnels

W. Richter, H. Knoblauch, G. Zenz - TU Graz, Institute of Hydraulic Engineering and Water Resources Management, Graz, AUSTRIA

12:30pm Lunch Break

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01:30pm SESSION 5.1 - Cavitation and flow effects

Location: Theatre, Chair: Dr.-Ing. Christof Gentner, GE Renewable Energy, SWITZERLAND

Simulation of Damages Due To Cavitation in Non-Rotating Components in a Kaplan Turbine

H. Benigni, B. Montenari, H. Jaberg, J. Schiffer - TU Graz, Institute for Hydraulic Fluidmachinery, Graz, AUSTRIA; A. Gehrler, F. Grundner - ANDRITZ AG, Graz, AUSTRIA; R. Döltelmayer - VERBUND Hydro Power GmbH, Vienna, AUSTRIA

Experimental Evidences of Cavitation Influences on The Positive Slope on The Pump Performance Curve of a Low Specific Speed Model Pump-Turbine

G. Lu, Z. Zuo, Y. Sun, S. Liu - Tsinghua University, Department of Thermal Engineering, State Key Laboratory of Hydro Science and Engineering, Beijing, CHINA

Numerical Assessment of Decelerated Swirling Flow from Conical Diffuser Using Pulsating Water Jet

C. Tanasa - Politehnica University Timisoara, Research Centre for Renewable Energy, Timisoara, ROMANIA; T. Ciocan - Politehnica University Timisoara, Research Centre for Complex Fluids, Timisoara, ROMANIA; S. Muntean - Romanian-Academy – Timisoara Branch, Hydrodynamics and Cavitation Laboratory, Timisoara, ROMANIA; R. Susan-Resiga - Politehnica University Timisoara, Research Centre for Complex Fluids, Timisoara, ROMANIA

01:30pm SESSION 5.2 - Operation, monitoring and maintenance

Location: Marshall room, Chair: Prof. Thomas Staubli, Hochschule Luzern, SWITZERLAND

Oil Contamination Control for Maintaining Hydropower Plants Reliable

J. Novák - KLEENTEK, spol. s r.o., Praha, CZECH REPUBLIC

An Effective Condition Monitoring Solution is Phased In on Eight Cascade Hydropower Stations

B. Gregorc, A. Kohn - Dravske Elektrarne Maribor, Maribor, SLOVENIA; M. Hastings - Brüel & Kjær Vibro A/S, Nærum, DENMARK

Effect of A Minimum Load Reduction on Inspection Intervals of A Pelton Runner

G. A. Höfer - TIWAG - Tiroler Wasserkraft AG, Innsbruck, AUSTRIA

Strain Monitoring With Optical Sensors in The Kaunertal Penstock

A. Hammer, P. Bonapace - TIWAG - Tiroler Wasserkraft AG, Innsbruck, AUSTRIA; A. Klarer - HBM - Hottinger Baldwin Messtechnik GmbH, Vienna, AUSTRIA

01:30pm SESSION 5.3 - PhD Presentations 3

Location: Kronprinz Rudolf room, Chair: Stephan Kolb, AF-Consult Switzerland AG, SWITZERLAND

Service of Different Pumped-Storage Schemes for An Electrical Grid With Increased Renewable Energy Generation

L. Ruppert - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA; C. Maier - TU Wien, Institute for Energy Systems and Electrical Drives, Vienna, AUSTRIA; C. Bauer - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA

Combined Electrical and Hydraulic Model for Dynamic Long-Term Operation of Pumped-Storage in Simsen

C. Maier, W. Gawlik - TU Wien, Institute for Energy Systems and Electrical Drives, Vienna, AUSTRIA; L. Ruppert - TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA

Analysis Of Doubly-Fed Asynchronous Machine Based On Variable Speed Pumped Storage Plants Subjected To Converter And Sensor Faults

A. Joseph, T.R. Chelliah - Indian Institute of Technology Roorkee, Department of Water Resources Development & Management, Roorkee, INDIA

03:00pm Coffee Break

sponsored by



03:30pm SESSION 6.1 - Numerical Assessment

Location: Theatre, Chair: Prof. Kazuyoshi Miyagawa, Waseda University, JAPAN

Multi-Objective Optimization of Hydraulic Machinery Using Support-Vector-Machine

M. Schlipf, A. Tismer, S. Riedelbauch - University of Stuttgart, Institute of Fluid Mechanics and Hydraulic Machinery, Stuttgart, GERMANY

Numerical Assessment of The Flow Field Induced by An Axial Rotor With Variable Speed in A Pump Impeller

A.I. Bosioc, S. Constantin - Politehnica University Timisoara, Department of Hydraulic Machinery, Timisoara, ROMANIA; S. Muntean - Romanian-Academy – Timisoara Branch, Hydrodynamics and Cavitation Laboratory, Timisoara, ROMANIA; L.E. Anton - Politehnica University Timisoara, Department of Hydraulic Machinery, Timisoara, ROMANIA

A Critical Review on The Development of Pump-Turbines for Decentralized Small Pumped Storage Power Plants

R. Schilling - TU München, Former Lehrstuhl für Fluidmechanik, Munich & Hydro Consulting GmbH, Pöcking, GERMANY; S. Thum - Hydro Consulting GmbH, Pöcking, GERMANY

Numerical Strength Analysis of A Pelton Runner Simulated with OpenSource Tools

M. Saurwein - Geppert Hydropower, Hall i.T., AUSTRIA

03:30pm SESSION 6.2 - Power Control

Location: Marshall room, Chair: Prof. Eberhard Göde, University of Stuttgart, GERMANY

Power Regulation Mode in Obervermuntwerk I

P. Meusburger, L. Werle - Vorarlberger Illwerke AG, Vandans, AUSTRIA

Hydraulic Design - Alto Maipo Hydropower Project

S. Weissenbach - ILF Consulting Engineers Austria GmbH, Rum at Innsbruck, AUSTRIA

Grid Compliance of Low Inertia Hydro Turbines

R. Schürhuber, A. Lechner - Andritz Hydro GmbH, Vienna, Austria

Enhanced Polynomial Approximation of Water Discharge at Hydro North

K. Vrdoljak, B. Horvat, R. Sirovina, J. Žubrinić - Koncar - Power Plant and Electric Traction Engineering Inc., Zagreb, CROATIA; I. Strnad - HEP Proizvodnja Ltd., Varaždin, CROATIA

05:00pm End of Session

05:15pm Shuttle Bus to Vienna

07:00pm Evening Program

"Heuriger" Fuhrgassl - Huber, Neustift am Walde 68, 1190 Vienna

Evening reception at the "Heurigen" in Neustift am Walde
| 07:00pm - 12:00pm |

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Friday - 11/11/2016

09:00am SESSION 7.1 - Dynamics and transients

Location: Theatre, Chair: Prof. Wolfgang Gawlik, TU Wien, AUSTRIA

Water Hammer Control Strategies of Kaplan Turbine Hydropower Plants in Slovenia

J. Mazij, A. Bergant - Litostroj Power d.o.o., Ljubljana, SLOVENIA

Commissioning Experience on Recent Pump-Storage Power Plants by Voith Hydro

J. Koutnik, M. Giese, M. Bruns, N. Hellstern, J. Kahler, J. Löfflad - Voith Hydro Holding GmbH & Co. KG, Heidenheim, GERMANY

Investigation on The Dynamic Response of Pump-Turbine Runners with Simplified Disk-Blades-Disk Structures

X. Huang - WinGD, Winterthur, SWITZERLAND; E. Egusquiza, C. Valero - Universitat Politècnica de Catalunya, Center for Industrial Diagnostics and Fluid Dynamics (CDIF), Barcelona, SPAIN

Basic Investigation on Vibration Behavior of Horizontal and Vertical Rotors Using Non-Linear Simulation Technique

P. Hennes, W. Weber, J. Koutnik - Voith Hydro Holding GmbH & Co. KG, Heidenheim, GERMANY

09:00am SESSION 7.2 - Small Hydro

Location: Marshall room, Chair: Prof. Devadutta Das, IIT Roorkee, INDIA

Lock Hydro-Electrical Power Generation Feasibility Study

V. Leontidis - Ecole Nationale Supérieure d'Arts et Métiers, Laboratoire de Mécanique de Lille (LML), Lille, FRANCE; J. Zhang - Ecole Nationale Supérieure d'Arts et Métiers, Laboratoire d'Electrotechnique et d'Electronique de Puissance de Lille (L2EP), Lille, FRANCE; G. Caignaert - Ecole Nationale Supérieure d'Arts et Métiers, Laboratoire de Mécanique de Lille (LML), Lille, FRANCE; P. Delarue, A. Tounzi, F. Piriou - Ecole Nationale Supérieure d'Arts et Métiers, Laboratoire d'Electrotechnique et d'Electronique de Puissance de Lille (L2EP), Lille, FRANCE; A. Libaux - EDF Hydro-Engineering Centre, Le Bourget-du-Lac, FRANCE; A. Dazin - Ecole Nationale Supérieure d'Arts et Métiers, Laboratoire de Mécanique de Lille (LML), Lille, FRANCE

An Alternative Concept for Low and Medium Head Power Plants

G. Holzmann, C. Gentner - GE Renewable Energy, Birr, SWITZERLAND; R. Rigolin - GE Renewable Energy, Taubaté, BRAZIL

Field Tests to Determine The Hydraulic Performance of The First Installation of The Double Rotating Hydropower Screw with Integrated Fish Lift

P. Lichtneger, C. Sindelar, H. Habersack - University of Natural Resources and Life Sciences, Institute for Water Management, Hydrology and Hydraulic Engineering, Vienna, AUSTRIA; G. Mayer, N. Struska, W. Albrecht - Hydroconnect GmbH, Ybbsitz, AUSTRIA; C. Lechner - VERBUND Hydro Power GmbH, Vienna, AUSTRIA

Floating Hydroelectric Machines - Experience Report and System Concepts

H. Krause - University Magdeburg, Institute for Machine Construction, Magdeburg, GERMANY

10:30am Coffee Break

sponsored by



11:00am SESSION 8.1 - Machinery developments and testing facilities

Location: Theatre, Chair: Prof. Christian Bauer, TU Wien, AUSTRIA

The Large Circulation Tank UT2 – A Long Established Test Rig For New Turbine Technologies

A. Gerlach - Technische Universitaet Berlin, Department of Fluid System Dynamics, Berlin, GERMANY; T. Schallschmidt - Otto von Guericke University Magdeburg, Institute of Electric Power Systems, Magdeburg, GERMANY; D. Surek - University of Applied Science Merseburg, An-Institute Fluid and Pump Technology, Merseburg, GERMANY; K. Rieck, A. Cura Hochbaum - Technische Universitaet Berlin, Department of Dynamics of Maritime Systems, GERMANY; P.U. Thamsen - Technische Universitaet Berlin, Department of Fluid System Dynamics, Berlin, GERMANY

Swirl Turbine as A Variant of Low Head Propeller Turbine

F. Pochylý, M. Haluza, P. Rudolf, V. Habán, M. Hudec - Brno University of Technology, Brno, CZECH REPUBLIC

Numerical and Experimental Investigation of The Flow Behaviour in An Axial Expansion Turbine

A. Neipp, S. Riedelbauch - University of Stuttgart, Institute of Fluid Mechanics and Hydraulic Machinery, Stuttgart, GERMANY

Development of A Six-Stage Storage Pump for Unit Oschenik 1 at Hydropowerstation Innerfragant

A. Gehrler, J. Erhard - Andritz AG, Graz, AUSTRIA; P. Haselbacher - EagleBurgmann Germany GmbH & Co. KG, Wolftratshausen, GERMANY; I. Zivkovic - Andritz AG, Graz, AUSTRIA; S. Leitner - KELAG Kärntner Elektrizitäts-Aktiengesellschaft, Klagenfurt, AUSTRIA

12:30pm Conference closing session

Location: Theatre, Chair: Prof. Christian Bauer , TU Wien, AUSTRIA

Closing Session

C. Bauer, TU Wien, Institute for Energy Systems and Thermodynamics, Vienna, AUSTRIA

01:30pm Conference close

01:45pm Shuttle Bus to Vienna