

SCHEDULE OF PARALLEL TECHNICAL SESSIONS

Monday November 22 2021		
Parallel Sessions 11:10 – 12:30 NPT		
Time	Paper no.	Hydraulic Turbines and Small Hydropower (Physical mode)
Session Chair: Prof. Ole Gunnar Dahlhaug, Prof. Bhola Thapa		
11:10 - 11:25	HT012	Use of 3D Printing technology for developing novel procedure to manufacture runner of Francis Turbine <i>Abishek Kafle, Pratisthit Lal Shrestha, Raman Silwal, Amul Ghimire, Sailesh Chitrakar, Bhola Thapa</i> <i>Kathmandu University, Nepal</i>
11:25 – 11:40	HT007	Experimental Investigations of a Simplified Francis turbine <i>Amul Ghimire, Prajwal Sapkota, Atmaram Kayastha, Biraj Singh Thapa, Young Do Choi, Young Ho Lee</i> <i>Kathmandu University, Nepal</i>
11:40 – 11:55	SM002	Tunnel support practice in small hydropower tunnels in Hindu Kush Himalaya region through observational approach <i>Sujan Karki, Bimal Chhushyabaga, Shyam Sundar Khadka</i> <i>Kathmandu University, Nepal</i>
11:55– 12:10	SM006	Performance Analysis of Micro Francis Turbine Manufactured Locally in Nepal <i>Dadi Ram Dahal, Aatmaram Kayastha, Sailesh Chitrakar, Biraj Singh Thapa, Hari Prasad Neopane and Bhola Thapa</i> <i>Kathmandu University, Nepal</i>
12:10- 12:25	SE014	Experimental study of Crossflow turbine under different operating conditions <i>Oblique Shrestha, Aman Kapali, Bhola Thapa, Hari Prasad Neopane, Young Ho Lee,</i> <i>Kathmandu University, Nepal</i>
Time	Paper no.	Sustainable energy and other features of HPP (Physical mode)
Session Chair: Prof. Peter Stoa, Prof. Bivek Baral		
11:10 - 11:25	GH002	Green Ammonia as a flexible hydro-electricity carrier for Nepal <i>Bishwash Neupane, Sushobhan Bhattarai, Aman Kumar Singh, Biraj Singh Thapa</i> <i>Kathmandu University, Nepal</i>
11:25 – 11:40	GH003	Parametric modeling of re-electrification by green hydrogen as an alternative to backup power <i>Abhishek Subedi and Biraj Singh Thapa</i> <i>Kathmandu University, Nepal</i>
11:40 – 11:55	GH004	Hydrogen as a fuel for Electrifying Transportation Sector in Nepal: Opportunities and Challenges <i>Nashla Shakya, Rizan Shrestha, Rajesh Saiju, and Biraj Singh Thapa</i> <i>Kathmandu University, Nepal</i>
11:55– 12:10	SM004	Design of Structural components of a Power House Located in the Nepal Himalaya <i>Bimal Chhushyabaga</i> <i>Kathmandu University, Nepal</i>

IAHR-Asia 2021

Kathmandu, Nepal

12:10-12:25	HT004	Determination of Casting Parameters for Affirmative Directional Solidification in 750 KW Francis Runner <i>Abishek Kafle, Nishant Sapkota, Raman Silwal, Pratisthit Lal Shrestha, Nischal Sharma, Bhola Thapa</i> <i>Kathmandu University, Nepal</i>
Time	Paper no.	Hydraulic turbines (Online mode)
Session Chair: Prof. Satoshi Watanabe		
11:10 - 11:30	FP001	Featured presentation by LIU Jie, China Three Gorges Corporation
11:30 – 11:50	HT005	Experimental and CFD simulation validation performance analysis of Francis turbine <i>Baig Mirza Umar, Jingwei Cao and Zhengwei Wang</i> <i>Tsinghua University, China</i>
11:50 – 12:10	HT006	Experimental and numerical modal analysis of a reduced scale Kaplan turbine model <i>R Roig, O De La Torre, E Jou, B Mulu, X Escaler</i> <i>Universitat Politècnica de Catalunya, Spain</i>
12:10 – 12:30	HT008	High flexibility in Francis turbine operation and design philosophy: A review <i>Johannes Opedal Kverno, Igor Iliev and Ole Gunnar Dahlhaug</i> <i>Norwegian University of Science and Technology, Nepal</i>
Time	Paper no.	Pump and Pump-Turbines (Online mode)
Session Chair: Prof. SHI Qinghua		
11:10 - 11:30	FP002	Featured presentation by SHI Qinghua, Dongfang Electric Machinery Co., Ltd.
11:30 – 11:50	PT002	Pressure pulsation analysis of runner and draft tube of pump turbine under different working conditions <i>Dong Wang, Zhenggui Li, Qing Zhao, Deyou Li, Wanquan Deng, Lei Ji, Peng Shengyang</i> <i>Xihua University, China</i>
11:50 – 12:10	PT003	Research on Selection of Different Speed Units for Super High Water Head and Large Capacity Pumped Storage Power Station <i>Zhang Xin, Li Haijun, Shen Jianchu, Zhou Jie</i> <i>Huadong Engineering Cooperation, China</i>
12:10 – 12:30	PP003	Comparative analysis of flow characteristics of different blade inclination outlet schemes of long shaft pumps <i>J F Zhang, W J Zhang, S B Jin, Z J Yang, C M Jin, L H Fu, X H Yu and G D Li</i> <i>Jiangsu University, China</i>

IAHR-Asia 2021

Kathmandu, Nepal

Monday November 22 2021		
Parallel Sessions 14:40 – 16:00 NPT		
Time	Paper no.	Sediment erosion and cavitation in hydraulic machineries (Physical mode)
Session Chair: Prof. Ole Gunnar Dahlhaug, Prof. Biraj Singh Thapa		
14:40 – 15:00	PP009	Wear in centrifugal pumps: causes, effects and remedies: A Review <i>Nischal Pokharel, Amul Ghimire, Biraj Singh Thapa, Bhola Thapa Kathmandu University, Nepal</i>
15:00 – 15:20	SE007	Investigation of sediment erosion in low head Francis turbines and its effect on the structural integrity <i>Aasma Bhattarai, Prashant Kunwar, Gyatabya Singh, Pawan Lal Bijukche, Sailesh Chitrakar, Saroj Gautam</i>
15:20 – 15:40	SE005	Assessment of Hydro cyclone Separator in Sediment Laden Hydropower Plants <i>Atmaram Kayastha, Nashla Shakya, Biraj Singh Thapa, Bhola Thapa and Young Ho LEE Kathmandu University, Nepal</i>
15:40 – 16:00	CT002	Measurements in Condition Monitoring of Hydropower plants: A Review <i>Prajwal Sapkota, Sailesh Chitrakar, Hari Prasad Neopane Bhola Thapa Kathmandu University, Nepal</i>
Time	Paper no.	Computational and Experimental Techniques I (Physical mode)
Session Chair: Prof. Hari Prasad Neopane, Prof. Krishna Prasad Shrestha		
14:40 – 15:00	CE001	Analysis of 3d printed model turbine with CNN algorithm as proof of concept for using Machine learning techniques as means of condition monitoring of runner in hydropower plant <i>Raman Silwal, Bhola Thapa Kathmandu University, Nepal</i>
15:00 – 15:20	CE015	Pressure fluctuation measurement in pressure vessel <i>Aman Kapali, Hari Prasad Neopane, Sailesh Chitrakar, Prajwal Sapkota Kathmandu University, Nepal</i>
15:20 – 15:40	DO010	Recent developments in the optimization Francis turbine components for minimizing sediment erosion <i>Ram Lama, Saroj Gautam, Sailesh Chitrakar, Hari Prasad Neopane, Biraj Singh Thapa and Ole Gunnar Dahlhaug Kathmandu University, Nepal</i>
15:40 – 16:00	SE013	Sediment erosion in the labyrinths of Francis turbine <i>Saroj Gautam, Nirmal Acharya, Sailesh Chitrakar, Hari Prasad Neopane, Igor Iliev and Ole Gunnar Dahlhaug Kathmandu University, Nepal</i>
Time	Paper no.	Computational and Experimental Techniques II (Online mode)
Session Chair: Prof. Seung Jin Song		
14:40 – 15:00	CE003	Determination of Generator Efficiency on Performance Test of Prototype Turbine <i>Dengfeng Cao, Peng Zhang, Ye Zhou and Xiaocheng Zhang China Institute of Water Resources and Hydropower Research, China</i>

IAHR-Asia 2021

Kathmandu, Nepal

15:00 – 15:20	CE004	Dynamic Experimental Review of Hydraulic Turbine Stay Vane Strengthen for Baihetan Hydropower Station Left Bank <i>Fang Xiaohong, Li Haijun, Cao Chunjian, Fang Jie, Deng Jinjie</i> Power China Huadong Engineering Corporation, China
15:20 – 15:40	CE005	Experimental Studies of Jet Expansion on Different Nozzle Geometry <i>Vimal K Patel, Hemal N Lakdawala and Gaurang C Chaudhari</i> Sardar Vallabhbhai National Institute of Technology, India
15:40 – 16:00	CE006	Experimental and Numerical Analysis of the Impeller Backside Cavity in a Centrifugal Compressor for CAES <i>Zihua Lin, Zhitao Zuo, Wei Li, Jianting Sun, Xin Zhou, Haisheng Chen, Xuezhi Zhou</i> Institute of Engineering Thermophysics, Chinese Academy of Sciences, China
Time	Paper no.	Computational and Experimental Techniques III (Online mode)
Session Chair: Prof. Chisachi Kato		
14:40 – 15:00	CE011	Numerical Investigation on Suitable Flow Guide for Performance Enhancement of Darrieus-type Hydraulic Turbine by 2-D Simulation <i>Y Mayuzumi, Y Katayama, S Watanabe and S Tsuda</i> Kyushu University, Japan
15:00 – 15:20	CE012	Numerical simulation of the runner blade channel vortex in Francis turbine <i>Huan Cheng, Lingjiu Zhou, Zhongjing Wu, Quanwei Liang, Demin Liu and Zhaoning Wang</i> Dongfang Electrical Machinery Co. Ltd., China
15:20 – 15:40	CE017	Research and Analysis on Model measurement and Prototype Operation of large-scale Kaplan turbine <i>ZHOU Jingming, LUO Hongyun and WU Yibin</i> Guangxi Datengxia Gorge Water Conservancy Development Co. Ltd., China
15:40 – 16:00	HT011	Study on the characteristics of vortex motion and pressure pulsation in vaneless zone of Kaplan turbine <i>J Y Xue, C Z Meng, X F Fan, L J Zhou and Z W Wang</i> China Agricultural University, China

IAHR-Asia 2021

Kathmandu, Nepal

Tuesday November 23 2021 Parallel Sessions 10:40 – 12:20 NPT		
Time	Paper no.	Design Optimization of Hydraulic Machinery and Systems (Online mode)
Session Chair: Prof. TAO Ran		
10:40 – 11:00	FP003	Featured presentation by TAO Ran, China Agricultural University
11:00 - 11:20	DO004	Modeling of the Blade Leading-Edge Pressure Drop of Centrifugal Impeller Based on Machine-Learning <i>Yanzhao W, Na Li, Ran Tao, Puxi Li and Ruofu Xiao</i> <i>China Agricultural University, China</i>
11:20 – 11:40	DO002	Effects of Slotted Impeller Configurations on the Hydraulic Performance of Double-Suction Pump <i>Jong-Woong Yoon, Hyun Su Kang and Youn-Jea Kim</i> <i>Sungkyunkwan University, Korea</i>
11:40 – 12:00	DO003	J-groove shape optimization to suppress the swirl flow in the Francis hydro turbine draft tube <i>Ujjwal Shrestha and Young-Do Choi</i> <i>Mokpo National University, Korea</i>
12:00 - 12:20	DO006	Optimization of Unit Dispatching Operation Strategy Based on Improved Biogeography-Based Optimization-Dynamic Programming <i>Pan Hong, Luo ZhengLiang, Feng Fang, Zheng Yuan</i> <i>Hohai University, China</i>
Time	Paper no.	Design Optimization of Hydraulic Machinery and Systems and Small Hydropower (Online mode)
Session Chair: Prof. Zhengwei Wang		
10:40 – 11:00	DO009	Rapid Analysis of Cylindrical Bypass Flow Field Based on Deep Learning Model <i>Jian Liu, Zhenwei Huang, Jinsong Zhang, and Zanao Hu</i> <i>Tsinghua University, China</i>
11:00 - 11:20	DO012	Research on the Fine-grained Axis Locus of Hydropower Unit based on Convolution Neural Network <i>Pan hong, Luo zhengliang, Xu jingjun, Feng fang</i> <i>Hohai University, China</i>
11:20 – 11:40	SM001	Analysis and research on sluice gate flow of a hydropower station under different working conditions <i>Yang Xu, Zhenggui Li</i> <i>Xihua University, China</i>
11:40 – 12:00	SM003	Analysis of deformation characteristics of flood gates of runoff hydropower stations under different operating conditions in case of frequent floods <i>Shuang Shao, Zhenggui Li, Xuyong Kong, Jie Kang</i> <i>Xihua University, China</i>
12:00 - 12:20	SM009	To Enhance the Efficiency of a Micro Hydropower Plant by Optimizing Bucket Angle and Speed Ratio <i>Anupkumar Chaudhari, Gaurang C Chaudhari</i> <i>Parul University, India</i>
Time	Paper no.	Computational and Experimental Technique IV (Online mode)
Session Chair: Prof. Zhongdong Qian		

IAHR-Asia 2021

Kathmandu, Nepal

10:40 – 11:00	CE018	Study on Measurement of Penstock Head Loss for Hydropower Station with Multiple Units Per Penstock <i>Zhou Ye, Tuo Yu, Cao Dengfeng, Li Chenglong and Wu Dongjun</i> <i>China Institute of Water Resources and Hydropower Research, China</i>
11:00 - 11:20	CE019	Study of the phase resonance phenomenon in Francis turbine <i>Yue Lv, Zhengwei Wang and Lingjiu Zhou</i> <i>China Agricultural University, China</i>
11:20 – 11:40	CE021	Unsteady Simulation of the Internal Flow in a Tubular Pump Considering Tip-Leakage Flow <i>Puxi Li, Faye Jin, Ran Tao, Fangfang Zhang and Ruofu Xiao</i> <i>China Agricultural University, China</i>
11:40 – 12:00	CE007	Investigation on the Flow Characteristics of Complex Flow Channel System of Mixed-flow Pump with Impulse Operation <i>Mingkang Sun, Jin Xu2, Chuibing Huang, Xiaoping Zhang, and Zhenwei Huang</i> <i>Tsinghua University, China</i>
12:00 - 12:20	CE009	Numerical investigation of a Pelton turbine at several operating conditions <i>Saroj Gautam, Sailesh Chitrakar, Hari Prasad Neopane, Bjørn W Solemslie and Ole Gunnar Dahlhaug</i> <i>Kathmandu University, Nepal</i>
Time	Paper no.	Sediment Erosion I and Vibrations (Online mode)
Session Chair: Prof. Zhewei Guo		
10:40 – 11:00	FP005	Erosion wear in a double-suction centrifugal pump using an improved erosion mode <i>Zhongdong Qian, Jiahui Su, Zhiwei Guo, Jing Dong</i> <i>Wuhan University</i>
11:00 - 11:20	SE001	A Review on Erosion and their Induced Vibrations in Francis Turbine <i>Rakish Shrestha, Samman Singh Pradhan, Prithivi Gurung, Amul Ghimire and Sailesh Chitrakar</i> <i>Kathmandu University</i>
11:20 – 11:40	SE002	Coating technology in hydro-turbines for sediment affected power plants: A Review <i>Shekhar Aryal, Sailesh Chitrakar, Rajendra Shrestha, Ajay kumar Jha</i> <i>Tribhuvan University, Nepal</i>
11:40 – 12:00	SE009	Numerical investigation of sediment erosion and cavitation in Francis Turbine <i>Ranjeet Twayna, Ram Manandhar, Bikash Singh, Dadiram Dahal, Atmaram Kayastha and Biraj Singh Thapa</i> <i>Kathmandu University, Nepal</i>
12:00 - 12:20	VB002	Head-Cover vibration investigation of a Prototype Reversible Pump-Turbine Unit during Start-up in Pump mode. Part I: Fluid dynamic analysis <i>Haixia Yang, Qilian He, Huili Bi, Xingxing Huang, Mengqi Yang, Mingde Zou and Zhengwei Wang</i> <i>Tsinghua University, China</i>

IAHR-Asia 2021

Kathmandu, Nepal

Tuesday November 23 2021 Parallel Sessions 12:30 – 14:10 NPT		
Time	Paper no.	Sediment Erosion and Sustainable and Integrated Systems (Online mode)
Session Chair: Prof. Baoshan Zhu		
12:30 – 12:50	SE003	Credibility of Rotating Disc Apparatus for investigating sediment erosion in guide vanes of Francis turbines <i>Shekhar Aryal, Sailesh Chitrakar, Rajendra Shrestha, Ajay kumar Jha Tribhuvan University, Nepal</i>
12:50 – 13:10	SE004	Development of simplified numerical model for prediction of sediment induced erosion in runner sidewall gaps <i>Nirmal Acharya, Saroj Gautam, Sailesh Chitrakar, and Ole Gunnar Dahlhaug Norwegian University of Science and Technology, Norway</i>
13:10 – 13:30	SI001	Effect of fish swimming on the stability of flow fields inside the pipeline <i>Dehong Fang, Zhenwei Huang, Jinsong Zhang and Zanao Hu Tsinghua University, China</i>
13:30 – 13:50	SI004	Turbine blade strike tests for evaluation and optimization of fish-friendly turbine <i>L Meng, R Chen, C Y Zhang, W P Wang, C L Liao and X Wang China Institute of Water Resources and Hydropower Research, China</i>
13:50 - 14:10	DO005	Numerical Optimization of Gravitational Water Vortex Turbine using Computational Flow Analysis <i>Dylan S. Edirisinghe, Ho-Seong Yang, Byung-Ha Kim, Chang-Goo Kim, S D G S P Gunawardane and Young-Ho Lee Korea Maritime and Ocean University, Korea</i>
Time	Paper no.	Cavitation I (Online mode)
Session Chair: Prof. Chirag Trivedi		
12:30 – 12:50	CT003	Effects of Inlet S-duct on Inducer Performance and Cavitation Instability <i>Youngkuk Yoon, Seung Jin Song Seoul National University, South Korea</i>
12:50 – 13:10	CT005	Influence of Rotor Geometry on Cavitation Characteristics of Rotational Hydrodynamic Cavitation Generator <i>X Wang, C Xie, W Zhang and G Q Q G Meng Inner Mongolia Vocational College of Chemical Engineering, China</i>
13:10 – 13:30	CT013	Influence of Rotor Dimple Geometry on Cavitation Characteristics of Rotational Cavitation Generator <i>Y F Jia, C Xie, W Zhang and G Q Q G Meng Tsinghua University, China</i>
13:30 – 13:50	CT004	Evolution and influence of high-head pump-turbine cavitation during runaway transients <i>W D Wu, K Liu, L Li, X X Hou, P C Zhang, C Du, X Y Liu and Y G Cheng State Grid Xinyuan Company Ltd. China</i>
13:50 - 14:10	CT009	Study on Setting Elevation of Double-Suction Centrifugal Pump Based on Cavitation Characteristics <i>Dunzhe Qi, Rao Yao, Haichen Zhang, Yubin Shen, Xijie Song and Zhengwei Wang Ningxia Water Conservancy Engineering Construction Center, China</i>

IAHR-Asia 2021

Kathmandu, Nepal

Time	Paper no.	Cavitation II (Online mode)
Session Chair: Prof. Young Ho Lee		
12:30 – 12:50	CT006	Numerical Analysis of the Effect of Slit Shape on the Performance and Cavitation Instability of Liquid Rocket Inducer <i>Asuka Kowata, Satoshi Kawasaki, and Yuka Iga Tohoku University, Japan</i>
12:50 – 13:10	CT007	Critical speed analysis of the shafting rotor of the vertical long shaft fire pump under the different positions of the impellers <i>L H Fu, Z J Yang, S B Jin, J F Zhang, H Q Song, X H Yu, W J Zhang and G D Li National Research Center of Pumps Jiangsu University, China</i>
13:10 – 13:30	CT010	Clearance flow field characteristics of Kaplan turbine under different flange clearance <i>Y L Zhang, Y B Wu, J W Wei, L J Zhou and Z W Wang China Agricultural University, China</i>
13:30 – 13:50	CT012	Mass transfer rate effects on the cavitating vortex shedding flow around a circular cylinder at low Reynolds number <i>Jian Chen, Xavier Escaler Universitat Politècnica de Catalunya, Spain</i>
13:50 - 14:10	PT001	Influence factors of clearance leakage flowrate and clearance hydraulic axial force of pump-turbine <i>X X Hou, Y G Cheng, D L Hu, S Xue, B Wang, X X Zhang, X Wang and J H Ding Wuhan University, China</i>
Time	Paper no.	Hydraulic Turbines and Pumps (Online mode)
Session Chair: Prof. QIN Daqing		
12:30 – 12:50	FP004	Featured Presentation by QIN Daqing, Harbin Electric Machinery Co., Ltd.
12:50 – 13:10	HT002	Comparative CFD analysis of Kali-gandaki “A” Francis runner with runner generated from Bovet method <i>Samundra Karki, Srijan Satyal, Krishna P Rijal, Neeraj Adhikari and Prasanna Koirala Tribhuvan University, Nepal</i>
13:10 – 13:30	PP005	Numerical Investigation on Hydraulic Performance at Low Flow Rates of a Mixed-flow Pump with Impeller Inlet Diameters Effects <i>Yong-In Kim, Hyeon-Mo Yang, Kyoung-Yong Lee, and Young-Seok Choi Korea University of Science and Technology, Korea</i>
13:30 – 13:50	PP010	Numerical investigation of the non-condensable gas effect on predicting the cavitation performance of a centrifugal pump <i>Lei Cao, Liu Mingming, Wang Zhengwei and Zhang Yiyang CCCC National Engineering Research Center of Dredging Technology and Equipment Co. LTD., China</i>
13:50 - 14:10	PP008	Static Characteristics Analysis of Shaft Rotor of Vertical Long-Shaft Fire Pump Under the Connection of Different Shaft Lengths <i>J F Zhang, X H Yu, S B Jin, Z J Yang, H Q Song, L H Fu and W J Zhang Jiangsu University, China</i>