

## Parallel Sessions

Date: **Saturday, October 21<sup>st</sup>, 2023**  
 Location: **Room A (Yong He #2 Hall, 3rd floor)**

Time: 13:30-16:00 <b>Session: Hydro Turbines-1</b> Chairman: Prof. ZHU Baoshan (Tsinghua University, Prof. Young-Do CHOI (Mokpo National University))			
Paper ID	Time	Paper Title	Paper Authors
12	13:30-13:45	Spatial distribution of rigid vorticity in pump turbine under turbine mode with different heads	Yan Xiaotong, Yan Xiaotong, Kan Kan, Yuan Zheng, Hui-Xiang Chen
17	13:45-14:00	Pressure pulsation test of Wanjiashai francis turbine at different loads	Jinjun Li, Qiang Liu, Weigang Wang, Xijie Song, Zhengwei Wang, Di Zhu, Ran Tao
47	14:00-14:15	Transient investigation of anti-swirl fins in a hydraulic machine for the suppression of pressure surge	Mohammad Abu Shahzer, Min-Su Roh and Jin-Hyuk Kim
94	14:15-14:30	Study on the optimum design of cross flow water turbines using RSM with weighted least squares method	Yetong Geng, Takaya Kitahora, Young-Do Choi, Morihito Inagaki
115	14:30-14:45	Study of the effects of modified draft tube with inclined conical diffuser on draft tube and upstream region	Xing Zhou, Quanshui Huang, Xinyi Hu, Xiangyu Dai
146	14:45-15:00	Numerical investigation the shape of groove on tip leakage vortex suppression of a NACA0009 hydrofoil	Like Wang, Li Chenhao, Luo Xingqi, Zhu Guojun, Feng Jianjun, Liang Yao, Jianzhong Mi
178	15:00-15:15	Research on the influence mechanism of asymmetric distribution characteristics of erosion in the injector of Pelton turbines	Fang Li, Chenxi Li, Shuaihui Sun
213	15:15-15:30	A bionic anti-cavitation leading edge for pump-turbine	Mingkun Fang, Ran Tao, Weichao Liu, Ruofu Xiao
227	15:30-15:45	Numerical investigation of hydrodynamic damping of a pitching hydrofoil at different flow regimes	Mohammad Amin Bahrami, Mehrdad Raisee, Michel Cervantes and Ahmad Nourbakhsh
281	15:45-16:00	Effect of different blade number and thickness on performance of micro-turbine	Jianchong Chen, Qiwei Zhou, Chenbing Zhu, Xuelong Yang
<b>16:00-16:15 Coffee Break</b>			

Date: **Saturday, October 21<sup>st</sup>, 2023**  
Location: **Room B (Yong He #3 Hall, 3rd floor)**

Time: 13:30-16:00 <b>Session: Compressors-1</b> Chairman: Prof. WANG Tong (Shanghai Jiao Tong University), Prof. Cong-Truong DINH (Hanoi University of Science and Technology)			
Paper ID	Time	Paper Title	Paper Authors
1	13:30-13:45	Numerical study on the effect of radial inlet chamber on the performance of oblique flow compressor	Jixiang Chen, Zhitao Zuo, Xin Zhou, Wenbin Guo, Jianting Sun, Haisheng Chen
8	13:45-14:00	Pressurization process and performance analysis of gear-claw hydrogen circulating pump used in PEMFC system	Pan Shiyang, Wang Jun, Zhao Xin, Ren Chunji, Wang Zengli, Dong Cui
10	14:00-14:15	Structural optimization of S-CO <sub>2</sub> Brayton cycle compressor impeller based on evolutionary algorithm	Liangtao Xie
71	14:15-14:30	Study on blade vibration of centrifugal compressor- forced responses caused by casing treatment	Atsushi Yonemura, Naoto Shimohara, Katsunori Tokieda, Ryusuke Numakura, Hiroaki Hattori
148	14:30-14:45	Experimental investigation of flow instability evolution in a low-speed two-stage axial compressor	Rong He, Xiangyuan Dou, Yongwen Liu, Tong Wang
168	14:45-15:00	The nozzle performance evaluation considering the non-equilibrium condensation under complex weather conditions for improving the compressor operation	Guojie Zhang, Yifan Yang, Zunlong Jin and Sławomir Dykas
270	15:00-15:15	Numerical investigation on the flow resistance characteristics of balance block in the rotary compressor	Wang Zeng, Xi Pan, Junlong Xie
306	15:15-15:30	Performance prediction and loss evaluation of the carbon dioxide supersonic nozzle considering the non-equilibrium condensation	Zhang Guojie, Li Yunpeng, Jin Zunlong and Sławomir Dykas
310	15:30-15:45	Investigation on unsteady characteristics of flow separation in a supercritical carbon dioxide centrifugal compressor	Yang Zimu, Jiang Hongsheng, Zhuge Weilin, Qian Yuping and Zhang Yangjun
354	15:45-16:00	Influence mechanism of tip clearance on flutter stability with different aerodynamic coupling effects for transonic compressor	Jiali Xin, Zongze He, Xiaojing Lv, Yiwu Weng
16:00-16:15 <b>Coffee Break</b>			

Date: **Saturday, October 21<sup>st</sup>, 2023**  
Location: **Room C (Yuan He #1 Hall, 2nd floor)**

Time: 13:30-16:00 <b>Session: Pumps-1</b> Chairman: Prof. GUO Xiaomei (Zhejiang University of Water Resources and Electric Power), Prof. Jin-Hyuk KIM (Korea Institute of Industrial Technology)			
Paper ID	Time	Paper Title	Paper Authors
5	13:30-13:45	Transient characteristic analysis of variable frequency speed-regulation of axial flow pump	Zilei Zuo, Linwei Tan
9	13:45-14:00	Numerical simulation of cavitation evolution in axial-flow pumps under variable frequency and speed control	Jincheng Ye, Linwei Tan
24	14:00-14:15	A numerical study of clogging analysis in submersible drainage pump	Md Rakibuzzaman, Sang-Ho Suh, Kwang Chul Song, Kyung Hee Song and Ling Zhou
26	14:15-14:30	Effect of the number of guide vanes on cavitation characteristics and pressure pulsation of centrifugal pumps	Wei Dong, Fan He, Gaigai Ai, Wuke Liang, Peixuan Li and Xugang Fan
27	14:30-14:45	Study on cavitation performance improvement of high-power centrifugal pump impeller	Yang Zheng, Long Meng, Xin Wang, Peng Xue, Chiye Zhang, Yajuan Tian
32	14:45-15:00	The effect of the impeller eccentricity on the hydrodynamic characteristics of a centrifugal pump	Wanli Fancheng, Hengtai Ni and Jing Liu
36	15:00-15:15	Design and numerical simulation of elliptical claw-type hydrogen circulation pump rotor	Bing Feng, Hui Quan
39	15:15-15:30	Experimental and CFD study of pitot pump for water purifiers	Zou Chenhai, Hu Site, Shi Mei, Wen Zhihua
40	15:30-15:45	Study on the experiment and numerical simulation of cavitation flow mechanisms at different flow rates in water-jet propulsion pumps	Zheng Kaixuan, Long Yun, Zhu Rongsheng, Xu Changjian, Chen Jianping, Wang Dezhong
52	15:45-16:00	Study on unsteady characteristics of the reactor coolant pump under non-uniform inflow	Mingyu Zhang, Xi'an Guo, Yun Long, Rongsheng Zhu, Shouqi Yuan
<b>16:00-16:15 Coffee Break</b>			
Time: 16:15-17:30 <b>Session: Pumps-2</b> Chairman: Prof. ZHAO Ruijie (Jiangsu University)			
68	16:15-16:30	Comparative study on stator corner separation vortex characteristics in axial-flow pump and tubular pump: To understand the effects of guide-vane cone diffusion on horn-like vortices	Benhong Wang, Fujun Wang, Chaoyue Wang, Hao Wang, Zhifeng Yao, Ruofu Xiao
77	16:30-16:45	Numerical simulation of gas-liquid two-phase flow in a disc pump under different inlet bubble diameters	Yifan Xia, Qifeng Jiang, Weibin Zhang, Yaguang Heng, Ping Xiong
78	16:45-17:00	Tip clearance gap effect on the performance and pressure fluctuation of a mixed	Ujjwal Shrestha, Young-Do Choi

		flow pump with semi-open casing	
81	17:00-17:15	Optimization design of low specific speed shield pump based on orthogonal experiment	Gai Qiu, Wenjie Wang
282	17:15-17:30	Spanwise difference in impeller wake decay process in an axial flow pump	Jun Young Lim, Tong Beum Kim, Seung Jin Song
18:00 - 21:00 <b>Banquet</b>			

Date: **Saturday, October 21<sup>st</sup>, 2023**  
Location: **Room D (Yuan He #2 Hall, 2nd floor)**

Time: 13:30-16:00 **Session: Pumps-3** Chairman: Prof. SI Qiaorui (Jiangsu University), Prof. Francesco ROMANO (Arts et Métiers, Lille Fluid Mechanics Laboratory)

Paper ID	Time	Paper Title	Paper Authors
99	13:30-13:45	CFD study on the effect of particle properties on the performance of annular jet pump	Wenhui Liu, Xinjie Lai, Qiwei Zhou, Chenbin Zhu, Xuelong Yang
101	13:45-14:00	Optimization method investigation for centrifugal pump performance based on 3D inviscid inverse design	Zhen-Hua Shen, Daoxing Ye, Chao Wang, Zhang Libin, Peng Wang
111	14:00-14:15	New type of cavitation instability with peculiar frequency characteristic in liquid rocket inducer	Koki Tamura, Satoshi Kawasaki and Yuka Iga
125	14:15-14:30	Numerical investigation of the effect of blade tip loading distribution on tip leakage vortex characteristics in a waterjet pump	Bo Gong, Chen Xiaohang, Junlian Yin, Ning Li, Hualun Zhu
129	14:30-14:45	Effect of reduced diameter pipeline and impeller position on the performance of reactor coolant pump	Haonan Su, Huazheng Chen, Rongsheng Zhu and Qiang Fu
135	14:45-15:00	A numerical study on the unsteady flow in the guide vane of a water-jet propulsion mixed-flow pump	Sun Chong, Wang Luyi, Dai Yuanxing
145	15:00-15:15	Numerical investigation on cavitation performance for centrifugal pumps with different impeller inlet geometry	Zhiyu Zhang, Xianwu Luo
147	15:15-15:30	Numerical simulation of the tip leakage vortex control by the novel shape tip clearance based on the Gaussian function of a NACA0009 hydrofoil	Like Wang, Liang Yao, Luo Xingqi, Jianzhong Mi, Jinling Lu, Wang wei
158	15:30-15:45	Experiment of cavitating flow characteristics of inducer with inflow entrained air	Lin Ronghao, Chen Hui, Le Xia, Qu Nianchong
164	15:45-16:00	Cavitation performance analysis and optimal design of the portable electric-driven axial flow pump	Ding Tian, Rong Lu, Han Zhu, Jinfeng Liu, Yong Zhang, Guanguan Wei, Gangyuan Li and Qiaorui Si

<b>16:00-16:15 Coffee Break</b>			
<b>Time: 16:15-17:30 Session: Pumps-4 Chairman: Prof. ZHOU Ling (Jiangsu University)</b>			
166	16:15-16:30	Numerical investigation on vortex dynamics characteristics of a large vertical centrifugal pump operating in the hump region under cavitation conditions	Gang Yang, Xi Shen, Desheng Zhang, Wenhua Luo, Jia Meng
232	16:30-16:45	The effects of balancing holes on the axial force of a centrifugal pump in the reverse mode	Mohammad Fathi, Hamed Alemi, Mehrdad Raisee, and Ahmad Nourbakhsh
201	16:45-17:00	Integrated design and hydraulic model optimization of model horizontal main pump based on CFD fluid dynamics analysis	Jinqi Lu, Dezhong Wang
214	17:00-17:15	Effect of the difference in slit locations on the suppression of cavitation instabilities in an inducer	Naruki Ishikawa, Yuto Nakura, Satoshi Kawasaki, Mitsuru Shimagaki and Yuka Iga
228	17:15-17:30	Numerical investigation of axial force of a centrifugal pump in the reverse mode	Mohammad Fathi, Hamed Alemi, Mehrdad Raisee, and Ahmad Nourbakhsh
<b>18:00 - 21:00 Banquet</b>			

Date: **Saturday, October 21<sup>st</sup>, 2023**  
Location: **Room E (Yuan He #3 Hall, 2nd floor)**

Time: 13:30-16:00 Session: <b>Design, Optimization &amp; Manufacturing</b> Chairman: Prof. MENG Long (China Institute of Water Resources and Hydropower Research), Prof. HENG Yaguang (Xihua University)			
Paper ID	Time	Paper Title	Paper Authors
3	13:30-13:45	Efficiency and pressure prediction of a reversible pump turbine based on deep learning during optimization design	Shuangqian Han, Zhenyu Jiang and Baoshan Zhu
50	13:45-14:00	Structure optimization of DTH hammer piston based on RBF neural network and WSO algorithm	Jiangang Wang, Ding Feng, Jinli Liang, Yu Zhao
53	14:00-14:15	Experimental study on the optimum number of layers of fiber mats for gas-liquid coalescer	Wang Chaolei, Zhiqian Sun, Liyun Zhu, Yijie Li, Jianhua Zou, Yu Li, Zhilong Dong
56	14:15-14:30	Structure design and numerical simulation on a new type of coupled impactor	Sun Qiaolei, Xia Le, Liu Yuwei, Deng Long
198	14:30-14:45	Impeller optimization using a machine learning-based algorithm with dynamic sampling method and flow analysis for an axial flow pump	Xueyi Song, Ying Li, Renfang Huang, Xianwu Luo
253	14:45-15:00	The design and testing of a high reaction turbine blade profile	Changzhu Yang, Liyun Fan, Wei Yan and Hanwen Zhang
289	15:00-15:15	Design of a high-speed cavitation hydrodynamics test system	Jiayun Zhang, Zhifeng Yao, Qiang Zhong, Haitao Ren, Ruofu Xiao, Fujun Wang
336	15:15-15:30	Turbine performance improvement by the multi-objective optimization for variable nozzle vanes of turbocharger	Wantong Wang, Junnosuke Morita, Yusei Sakurai, Takahiro Ueno, Isao Morita, Patxi Garcia Novo and Daisaku Sakaguchi
(Abstract ID) 239	15:30-15:45	Numerical study on heat transfer characteristics of impingement/effusion cooling system with pin fins of different shapes and heights	Si-Mok Park, Seong-Jin Ahn, Won-Woo Choi, Sung-Min Kim
231	15:45-16:00	The experiment of rotating detonating engine using an asymmetric vortex shape on an annulus chamber	Ahmad Dairobi Ghazali, Mazlan Abdul Wahid
<b>16:00-16:15 Coffee Break</b>			

<b>Time: 16:15-17:30 Session: Other &amp; Fluid Systems &amp; Propellers</b> Chairman: Prof. SHI Lei (Jiangsu University)			
90	16:15-16:30	Experimental study on a loop thermosyphon with microencapsulated phase change material suspension	Zhenyu Tan, Xunfeng Li, Jingzhi Zhou and Xiulan Huai
322	16:30-16:45	Numerical simulation study of particle self rotation velocity in cyclone separator	Tielin Liu, Yaguang Heng, Qifeng Jiang, Zhengsu Chen and Xipeng Luo
327	16:45-17:00	Analysis of wind power level distribution in drainage corridor under runner return-exhaust condition	Lingfeng Shu, Zhe Long, Jiawei Wu and Chengjun Li
339	17:00-17:15	A study on the aeroacoustics performance of a looped-propeller for UAVs	Han Sol Yoo and Youn-Jea Kim
364	17:15-17:30	The power consumption characteristics of the sewage agitator during the wastewater treatment process	Zhi Zheng, Jianglong Duan, Naihu He, Peng Wang, Daolin Du
18:00 - 21:00 <b>Banquet</b>			

Date: **Saturday, October 21<sup>st</sup>, 2023**  
Location: **Room F (Boardroom 1, 2nd floor)**

Time: 13:30-16:00 <b>Session: Wind Turbines &amp; Seals and Bearings &amp; Fluid Systems &amp; Fans and Blowers</b> Chairman: Prof. Mazlan Abdul WAHID (Universiti Teknologi Malaysia), Prof. LONG Yun(Jiangsu University)			
Paper ID	Time	Paper Title	Paper Authors
123	13:30-13:45	Investigation on suitable design parameters for hydrodynamic bearing of LVAD	Haoyuan Li, Mingkui Zhang, Qingyu Wu, Xianwu Luo
170	13:45-14:00	Effect of surface roughness on lubrication performance of water-lubricated bearing for energy recovery turbocharger	Yanqiang Ning, Desheng Zhang, Yan Li, Xiaoyan Ye, Jingfei Ding
252	14:00-14:15	Investigation on static and dynamic characteristics of liquid annular seal based on a circular whirl model	Fengqin Li, Xiaomei Guo, Mingyu Yang
130	14:15-14:30	Performance improvements of vertical axis wind turbines with modified gurney flaps	Pei Yang, Liu Chen, Bingxia Zhang, Chenchen He
136	14:30-14:45	Experimental investigation on coupling characteristics of principal and shear stress of wind turbine under dynamic change of wind direction	Yan Sijia, Wang Jianwen, Zhang Jianwei, Gao Zhiying, Bai Yefei
152	14:45-15:00	Research on aerodynamic influence of contra-rotating propfan slipstream on propfan engine nacelle inlet	Haiyu Zhao, Dengwen Jian, Li Zhou, Zhanxue Wang
258	15:00-15:15	Research on pressure-regulating device based on different combination layouts, slopes and sprinkler interval distances	Yuxia Zhao, Junping Liu, Xingbin Wen, Yanyan Zhao
262	15:15-15:30	Impact of uncertainty in the physics-informed neural network on pressure prediction for water hammer in pressurized pipelines	Hai Huang, Pengcheng Guo, Jianguo Yan, Bo Zhang, Zhenkai Mao
263	15:30-15:45	Leakage detection based on variational mode decomposition and long short-term memory neural network	Shumin Zheng, Jianguo Yan, Yan Xu, Jiang Li
175	15:45-16:00	Analysis of energy consumption of the axial flow fan according to operational scenarios	Hyeonmo Yang, Yong-In Kim, Kyoung-Yong Lee, Seungkyung Park, Young-Seok Choi
16:00-16:15 <b>Coffee Break</b>			

<b>Time: 16:15-17:30 Session: Gas and Steam Turbines</b> Chairman: Prof. CHAN Shining (Beihang University)			
20	16:15-16:30	Numerical simulation of the complex flow field in a new recycling cyclone separator	Qinxin Liu, Zhenlin Li, Xuejing He
112	16:30-16:45	Investigation of the film cooling performance of ceramic matrix composites plate with different braided structures	Zhu Ailing, Zecan Tu, Tu Zecan, Mao Junkui, Zhao Chenwei
273	16:45-17:00	Heavy-duty gas turbine 3D blade modelling and flow field analysis	Zongze He, Jiali Xin, Jin Guan, Yiwu Weng, Xiaojing Lv
285	17:00-17:15	Numerical study of the heterogeneous condensation effect on the steam turbine performance	Zhang Guojie, Wang Xiaogang, Jin Zunlong and Sławomir Dykas
344	17:15-17:30	Study of the effect of rotating channel rib structure on fuel flow and heat transfer characteristics	Mengqiang Dong, Hongyan Huang
18:00 - 21:00 <b>Banquet</b>			

Date: **Saturday, October 21<sup>st</sup>, 2023**  
Location: **Room G (Boardroom 2, 2nd floor)**

**Time: 13:30-16:00 Session: Computational Fluid Dynamics-1** Chairman: Prof. Mehrdad Raisee DEHKORDI (University of Tehran), Prof. ZHANG Wenwu (China Agricultural University)

Paper ID	Time	Paper Title	Paper Authors
172	13:30-13:45	Compressed air energy storage system: Effect of variable relative stator installation angle on nozzle governing turbine performance	Yin Guan, Wen Li, Yangli Zhu, Xing Wang, Yifeng Zhang, Haisheng Chen
222	13:45-14:00	Optimal flow control of vortex breakdown in a laminar swirling flow	Zeinab Seifi, Mehrdad Raisee and Michel Cervantes
307	14:00-14:15	Analysis of the influence of venturi structural parameters on the performance of hydraulic impactors	Lingxia Hou, Ding Feng, Jiangang Wang, Yiduo Zhang and Xuewen Hou
315	14:15-14:30	Research on the effect of different groove types and positions on the hydrofoil clearance leakage flow control	Li Chenhao, Wu Xitong, Luo Xingqi, Ma Jinshui, Zhu Guojun and Wang Like
331	14:30-14:45	Numerical investigation of aerosol deposition in a ventilation duct using roughness ribs for a sustainable environment	Muhammad Farhan, Muhammad Farooq, Hafiz Muhammad Rizwan
337	14:45-15:00	Numerical study on aerodynamic performance and noise of protrusions structures near the trailing edge	Rui Wang, Junlong Xie
340	15:00-15:15	Numerical simulation of waste heat recovery of blast furnace slag particle flow in moving bed	Hesong Cheng, Rui Ma, Yue Ning and Jiamin Guo
356	15:15-15:30	Investigation on pressure correction algorithm for gas-liquid Euler two-fluid model based on high-resolution TVD scheme	Zongku Liu, Xuelin Tang and Xiaoqin Li
333	15:30-15:45	CFD verification of total pressure loss coefficient for gas-liquid two-phase flow	Takuma Kawahara, Caining Feng, Yusuke Katayama, Kazuyoshi Miyagawa
84	15:45-16:00	Numerical analysis of flow instability with vortex cavitation in venturi tube	Takahiro Nakashima, Yasuyuki Enomoto, Takanori Nakamura

**16:00-16:15 Coffee Break**

**Time: 16:15-17:30 Session: Computational Fluid Dynamics-2** Chairman: Prof. WANG Longyan (Jiangsu University)

15	16:15-16:30	Numerical study of jet-plate interaction and its effects on aeroacoustics	Xindi Wang and Huanxin Lai
21	16:30-16:45	Mechanism of spiral deformation of a jet flowing through a hole	Enya Cao, Runze Guo, Shumin Zhao and Aiping Fang
4	16:45-17:00	Flow analysis through center body of ducted fan to electric motor cooling	Van-Son Dinh, Hoang-Quan Chu, Trung-Kien

			Nguyen, Dinh-Anh Le, Ngoc-Bon Le, Anh-Tuan Nguyen, Kwang-Yong Kim and Cong-Truong Dinh
31	17:00-17:15	Thermal elastohydrodynamic lubrication analysis of the oil film temperature in tapered roller bearings	Tao Yu, Wenhao Shen, Chunhui Xu, and Quanzhong Liu
37	17:15-17:30	Optimized design of smart toilet spray bar flow channel based on CFD	Qiwei Zhou, Chenbing Zhu, Jianchong Chen, Xuelong Yang
18:00 - 21:00 <b>Banquet</b>			

Date: **Sunday, October 22<sup>nd</sup>, 2023**  
 Location: **Room A (Yong He #2 Hall, 3rd floor)**

Time: 13:30-15:30 <b>Session: Hydro Turbines-2</b> Chairman: Prof. WANG Wenquan (Sichuan University), Prof. GE Xinfeng (Hohai University)			
Paper ID	Time	Paper Title	Paper Authors
298	13:30-13:45	Numerical assessment of erosion wear in Pelton turbine injectors	Wenrui Fan, Pengcheng Guo, Longgang Sun, Zheng Xiaobo
308	13:45-14:00	Application of DMD method to eccentric self-excited vibration of tubular turbine runner	Yanzhao Wu, Zilong Hu, Di Zhu, Ran Tao, Ruofu Xiao
332	14:00-14:15	On improved active disturbance rejection controller design for a pumped storage hydro unit	Lihui Ding, Ji Pei
343	14:15-14:30	A study of the unsteady flow characteristics of a small-scale multi-stage hydraulic turbine based on a weakly compressible fluid assumption	Jun Yang, Tao Peng, Gang Xu, Wenli Hu, Huazhou Zhong, Xiaohua Liu
349	14:30-14:45	Research on the influence of needle roughness of Pelton turbine on flow characteristic	Meng Han, Zhang Jing, Ge Xinfeng, Huang Jinwei
350	14:45-15:00	Effect of different draft tube designs on the phase resonance in a pump-turbine based on compressible CFD simulation	Yujian Fang, Yajing Xiao, Demin Liu
351	15:00-15:15	Study on the energy conversion characteristics in the impeller of ultra-low specific speed pump as turbine	Jiawei He, Qiaorui Si, Peng Wang, Bochen Wan, Chenguang Wang
18	15:15-15:30	Analysis of energy dissipation in allowable, restricted and prohibited operating areas of Wanjiashai francis turbine	Gensheng He, Jiale Pan, Lifeng Su, Xijie Song, Zhengwei Wang, Di Zhu, Ran Tao
<b>15:30-15:45 Coffee Break</b>			
Time: 15:45-17:15 <b>Session: Cavitation &amp; Multi-Phase Flows-2</b> Chairman: Prof. SUN Xun (Shandong University)			
202	15:45-16:00	Numerical investigation of partial cavitation in a venturi tube by Eulerian-Lagrangian multiscale modelling	Zhizhong Zhou, Linmin Li, Xiaoxu Xuan, Songying Chen, Joon Yong Yoon, Xun Sun
212	16:00-16:15	Frictional pressure drop of two-phase flow in a horizontal tube under low void fraction	Caining Feng, Kazuyoshi Miyagawa, Takuma Kawahara, Yusuke Katayama
216	16:15-16:30	Comparative study of different cavitation erosion assessment methods in cavitating flow around a Delft Twist hydrofoil	Jiale Huang, Linfeng Deng, Bin Ji, Huaiyu Cheng
236	16:30-16:45	Investigations on cavitation suppression of bionic water-jet impeller	Wang Jianqiang, Churui Wan, Min Zhou, Yang

			Mengzi
266	16:45-17:00	Multi-objective optimization of intake parameters based on response surface methodology	Tao Fang, Xianbei Huang, Kai Yu, Qiang Guo
320	17:00-17:15	Application of three cavitation models in centrifugal pump cavitation flow simulation	Hang Xie, Xingqi Luo, Jianjun Feng, Guojun Zhu, Chenhao Li
18:00 - 20:00 <b>Dinner</b>			

**Date: Sunday, October 22<sup>nd</sup>, 2023**  
**Location: Room B (Yong He #3 Hall, 3rd floor)**

<b>Time: 13:30-15:30 Session: Propulsion-1 &amp; Hydro Turbines-3</b> Chairman: Prof. LONG Xiping (Wuhan University), Prof. WANG Wenjie (Jiangsu University)			
Paper ID	Time	Paper Title	Paper Authors
25	13:30-13:45	Control of separated flow at low Reynolds number around NACA0012 airfoil by boundary layer suction	A Wang and H Lai
23	13:45-14:00	Flow field prediction of S-shaped shock vectoring nozzle with rear deck based on deep learning	Mingcong Miao, Jingwei Shi, Shuang Liang, Zhanxue Wang, Li Zhou
49	14:00-14:15	Numerical analysis of accelerating and decelerating ducts modified by camber on the unsteady flow field of pump-jet	Yunkai Zhou, Jianping Yuan, Yanxia Fu, Quanlin Gao
108	14:15-14:30	Investigation on influence mechanism of length-to-diameter ratio on fluid-structure interaction characteristic of serpentine nozzle	Qiulin Li, Li Zhou, Jingwei Shi, Yi Zhang, Zhanxue Wang
121	14:30-14:45	Multi-scale mechanical-thermal coupling analysis of multi-layer thermal protection structure of ceramic matrix composites	Liang Xuan, Wang Yuanhong, Zecan Tu, Yang Jia and Mao Junkui
TS-4	14:45-15:00	Global sensitivity analysis of lateral vibration characteristics in hydro turbine-generator shaft system	Shige Yu
TS-5	15:00-15:15	Energy loss evaluation in a six-nozzle Pelton turbine with entropy production theory	Xiaodong Wang
TS-6	15:15-15:30	Study on erosion characteristics and protective coating of turbine	Xinyu Wei
<b>15:30-15:45 Coffee Break</b>			
<b>Time: 15:45-17:15 Session: Propulsion-2</b> Chairman: Prof. ZHANG Guojie (Zhengzhou University)			
122	15:45-16:00	Numerical simulation and thrust performance optimization of water jet thruster	Yuan Lou, Guangjie Peng, Hao Chang
283	16:00-16:15	Analysis of the flow field of kerosene-fueled rotating detonation engine with film cooling	Jingzhe Li, Jingtian Yu, Jianghong Li, Ying Lei, Songbai Yao, Wenwu Zhang
245	16:15-16:30	Experimental study on the internal temperature rise of a high-speed canned motor pump for liquid rocket engines	Jiangning Wang, Guobiao Cai, Nanjia Yu, Chuang Zhou, Xiaoming Gu and Li Cao
342	16:30-16:45	Numerical investigation of the powered take-off configuration of civil transport using an improved thrust-drag bookkeeping method	Zheng Cui, Wensheng Zhang, Kai Wang, Yihua Cao
301	16:45-17:00	A numerical investigation of using vortex generators to improve a flush waterjet performance	Xin Du, Yingying Zhou, Liu Chen, Ren Dai

TS-8	17:00-17:15	Numerical study on the hydrodynamic characteristics of multi-cylinder systems based on high order compact difference method	Wen Lu Wu, Tao Guo
18:00 - 20:00 <b>Dinner</b>			

Date: **Sunday, October 22<sup>nd</sup>, 2023**  
Location: **Room C (Yuan He #1 Hall, 2nd floor)**

Time: 13:30-15:30 <b>Session: Pumps-5</b> Chairman: Prof. SUN Shuaihui (Xi'an University of Technology), Prof. YE Daoxing (Xihua University)			
Paper ID	Time	Paper Title	Paper Authors
200	13:30-13:45	Investigation of radial force in a high-speed miniature pump	Xueyi Song, Kexin Zheng, Xianwu Luo
248	13:45-14:00	Numerical investigation of vortex structure and unsteady evolution in multi-stage double-suction centrifugal pump	Jiantao Zhao, Ji Pei, Jianping Yuan, Wenjie Wang
251	14:00-14:15	Investigation on the operation and gas-liquid two phase flow characteristics of vane type deep-sea pump	Xingqi Luo, Sina Yan, Jianjun Feng, Chenhao Li, Shuaihui Sun, Guojun Zhu, Lefu Zhang, Hang Xie
267	14:15-14:30	Effect of different valve openings start-up on internal flow characteristics of multi-stage pump	Yinling Xia, Guidong Li, Guojun Wang, Lindan Tong, Yalin Li, Jinfeng Zhang and Peng Wang
274	14:30-14:45	Research on prediction method of sensorless measurement of centrifugal pump operational state based on hybrid model	Xiaobo Gong, Xingcheng Gan
278	14:45-15:00	High-temperature molten salt circulating cold salt pump shaft system prestress response analysis research	Xiongfa Gao, Yang Zhao, Zhiyu Zhu, Chuanlong Qiao and Desheng Zhang
95	15:00-15:15	Research on the internal pressure pulsation characteristics of reactor coolant pump under non-uniform inflow	Yun Long, Xi'an Guo, Mingyu Zhang, Zhuang Qiang, Rongsheng Zhu, Shouqi Yuan
288	15:15-15:30	Experimental study on transient flow field and pressure pulsation characteristics in liquid ring pump ejector	Jiang Lijie, Zhang Renhui, Chen Xuebing, Guo Guangqiang
<b>15:30-15:45 Coffee Break</b>			
Time: 15:45-17:15 <b>Session: Pumps-6</b> Chairman: Prof. LI Wei (Jiangsu University)			
291	15:45-16:00	A computational fluid dynamic method for dense-phase carbon dioxide centrifugal pump	Kejia Han, Zhen Li, Yaping Ju, Zhenming Du, Zhipeng Liu, Zhenwei Wang and Chuhua Zhang
297	16:00-16:15	Effect of sand diameter on the performance of annular jet pumps	Wenhui Liu, Xinjie Lai, Chenbing Zhu, Qiwei Zhou, and Xuelong Yang
300	16:15-16:30	Comparative analysis of internal flow characteristics and particle trajectories of centrifugal pumps with different impeller structures under solid-liquid two-phase flow conditions	Zhengsu Chen, Yaguang Heng, Qifeng Jiang, Tielin Liu and Xipeng Luo
304	16:30-16:45	Structural dynamic characteristics analysis of the mixed-flow pump based on	Fei Fei Zhao, Zheng Xuan Xu, Fan Zhang, Rui

		fluid-structure coupling	Hong Xu and Hui Zhang
TS-2	16:45-17:00	Research on a Tesla bladed disc pump under gas-liquid two-phase flow condition	Heng Yaguang
18:00 - 20:00 <b>Dinner</b>			

Date: **Sunday, October 22<sup>nd</sup>, 2023**  
 Location: **Room D (Yuan He #2 Hall, 2nd floor)**

Time: 13:30-15:30 <b>Session: Pumps-7</b> Chairman: Prof. WANG Peng (Jiangsu University), Prof. GENG Linlin (Jiangsu University)			
Paper ID	Time	Paper Title	Paper Authors
305	13:30-13:45	Study on hydraulic performance and flow field of a multi-stage pump with floating impellers	Junjie Bian, Yandong Gu
311	13:45-14:00	Investigation of the influence of the gap between impeller and diffuser in the pressure pulsation characteristics of a centrifugal pump	Ju Sun, Wenzhu Yan, Wenjie Wang
314	14:00-14:15	Numerical research on performance failure caused by gas blocking in multiphase mixed-transport pump under non-uniform inflow conditions	Zhisheng Wang, Hui Quan, Jianying Lan, Houde Su
317	14:15-14:30	Research on the effect of various tongue types on large volute pumps	Zhenhua Han, Shanshan Yang, Jia Chen and Wenjie Wang
323	14:30-14:45	Research and application of wide and efficient hydraulic design in centrifugal pump	Wang Zhewen, Li Jiejun, Hou Duohua, Qiao Yulan, Wu Maojing
324	14:45-15:00	Visual experimental study on cavitation performance of double-suction centrifugal pump	Duohua Hou, Tongxian Li, Hongzhong Lu, Zhifeng Yao, Ruofu Xiao, Shikang Li
325	15:00-15:15	Influence of bionic structure on hydraulic performance and resistance reduction characteristics of the centrifugal pump	Jia Liu, Fan Zhang, Mengbin Song, Lufeng Zhu, Shouqi Yuan
328	15:15-15:30	Particle distribution and two-phase flow characteristics of twin-screw pump during solid-liquid transfer	Zhenhao Wang, Shuaihui Sun, Pengbo Wu
15:30-15:45 <b>Coffee Break</b>			
Time: 15:45-17:15 <b>Session: Pumps-8</b> Chairman: Prof. YANG Jun (University of Shanghai for Science and Technology)			
345	15:45-16:00	Hydrodynamic performance optimization of the integrated propulsor duct considering crashback modes	Jing Chen, Laixiang Shi, Hanqiao Han and Lingke Ran
352	16:00-16:15	Comparative study of the cavitation situation and the non-cavitation situation under unsteady flow phenomena of a centrifugal pump	Lun Nie, Zhuqing Liu, Wei Yang and YaoJun Li
353	16:15-16:30	Hydraulic structure optimization of centrifugal pump based on orthogonal test	Wei Li, Wei Pu, Leilei Ji, Xing Zhang, and Xinrui He
361	16:30-16:45	Field experiment and numerical simulation study on the start-up process of large axial flow pump system	Xiaowen Zhang, Fangping Tang
363	16:45-17:00	Effects of guide vane angle on internal flows and vortex characteristic of reactor	Daoxing Ye, Tian Wen, Junlin Chen, Jiaming Han,

		coolant pump passage under flow coastdown	Rui Deng
TS-7	17:00-17:15	Analysis of hydrodynamic characteristics and loss mechanism of hydrofoil under high Reynolds number	Hai-Yang Wang, Tao Guo
18:00 - 20:00 <b>Dinner</b>			

Date: **Sunday, October 22<sup>nd</sup>, 2023**  
 Location: **Room E (Yuan He #3 Hall, 2nd floor)**

Time: 13:30-15:30 <b>Session: Cavitation &amp; Multi-Phase Flows-1</b> Chairman: Prof. JI Bin (Wuhan University), Prof. ZHANG Guangjian (Jiangsu University)			
Paper ID	Time	Paper Title	Paper Authors
69	13:30-13:45	Contribution of interphase force curl to rigid vorticity transport in water-sand two-phase flow with fine particles	Wenhao Chen, Fujun Wang, Chaoyue Wang, Chunxun He, Xin Chen, Xuelin Tang
80	13:45-14:00	Analysis of the obstacle height's influence on partial cavitation flow based on the Lagrangian coherent structure	Lu Wang, Pengzhong Wang, Huang Bin, Wu Dazhuan
89	14:00-14:15	An Eulerian-Eulerian CFD modeling analysis of gas-liquid flow under elevated pressure	Yibo Gao, Linlin Geng, Desheng Zhang
100	14:15-14:30	Research on cavitation characteristics of water-jet pumps with different blade tip clearances based on entropy production theory	Zongyue Fei, Qiang Guo, Xianbei Huang, Xin Ming
107	14:30-14:45	PIV measurement of cavitating flow around a pitching hydrofoil	Zhang Mengjie, Chen Jie, Xu Zhongyi, Ruan Xinjian, Huang Biao
117	14:45-15:00	Numerical implementation and verification of the Zwart-Gerber-Belamri cavitation model with the consideration of thermodynamic effect	David Ezekoye, Zhi-Ying Zheng, Jian Wu
132	15:00-15:15	Numerical erosion prediction of aluminum induced by cavitating jet using an Eulerian-Lagrangian method	Zhengdong Wang, Linmin Li, Xiaojun Li and Zuchao Zhu
<b>15:30-15:45 Coffee Break</b>			
Time: 15:45-17:15 <b>Session: Cavitation &amp; Multi-Phase Flows-3</b> Chairman: Prof. LUO Zhumei (Kunming University of Science and Technology)			
329	15:45-16:00	Reduced-order modeling of unsteady cavitating flow around a Clark-Y hydrofoil	Fen Zhang, Yunqing Liu, Qin Wu, Biao Huang, Guoyu Wang
43	16:00-16:15	Study on microchannel cavitation phenomena based on experiment and simulation	Weijun Meng, Chen Lei, Su Wentao, Biao Li
334	16:15-16:30	Effect of multiple factors on sediment erosion characteristics of hydro turbine materials	Yang Junfeng, Wu Pengbo, Song Guohua, Sun Shuaihui, Wang Kai
338	16:30-16:45	Research on hydraulic performance of hydraulic articulation tank based on MOC-CFD coupling	Yong Xia, Shiqi Xiong, Guilian Zhao, Xianghui He, Jiandong Yang and Zhigao Zhao

358	16:45-17:00	Numerical simulation of the unsteady flow mechanism and dynamic characteristics around cascade	Zhu Jin, Bao Wenchun, Liu Sihua, Zheng Hanwen, Mindi Zhang
360	17:00-17:15	Numerical simulation and experiment of a blade management device in microgravity	Lei Chen
18:00 - 20:00 <b>Dinner</b>			

Date: **Sunday, October 22<sup>nd</sup>, 2023**  
Location: **Room F (Boardroom I, 2nd floor)**

Time: 13:30-15:30 <b>Session: Propellers &amp;Vibration and Noise &amp; Other</b> Chairman: Prof. LI Hongyang (North China Electric Power University), Prof. HE Denghui (Xi'an University of Technology)			
Paper ID	Time	Paper Title	Paper Authors
19	13:30-13:45	Aerodynamic modeling of ducted fans under environmental disturbances	Yiwei Luo, Yuhang He, Yuping Qian, Yangjun Zhang
341	13:45-14:00	Thermal-hydraulic performance analysis of the supercritical fuel printed circuit heat exchanger with zigzag flow channels	Y C Wei, X Li, J Q Zhu, Z Y Cheng and J Q Wei
61	14:00-14:15	Vibration isolation characteristics of a rubber isolator in the deep water condition	Danyi Yang, Lei Xue, Yvchen An and Jing Liu
220	14:15-14:30	Numerical analysis of vortex-induced vibration around the NACA0009 hydrofoil	Jiakun Zhang, Qin Wu, Miaomiao Ji, Biao Huang, Guoyu Wang
347	14:30-14:45	Research on the effect of fretting wear on the vibration characteristics of the tenon joint bladed disk	Zhen Qu, Can Yao, Honglai Zhu, Xingrong Lin, Lei Chen, Zhanhai Zhang and Jie Fang
355	14:45-15:00	Numerical investigations of water hammer and related induced fluid-structure interaction in pressurized pipes	Jianghui Zhu, Xiangyu Duan, Xiaoqin Li, Xuelin Tang
TS-1	15:00-15:15	A cost-effective CNN-BEM coupling framework for design optimization of horizontal axis tidal turbine blades	Longyan Wang, Jian Xu, Jianping Yuan, Jiali Shi, Zilu Wang, Bowen Zhang, Zhaohui Luo, Andy C.C. Tan
TS-3	15:15-15:30	Dynamic characteristics and experimental research of dual-piston axial oscillation drag reduction tool	Lei Tang
<b>15:30-15:45 Coffee Break</b>			
Time: 15:45-17:15 <b>Session: Renewable Energy &amp; Control, Operation, Monitoring &amp; Diagnosis</b> Chairman: Prof. WANG Xikun (Jiangsu University)			
224	15:45-16:00	Effect of working fluid on the ORC cycle performance of the ocean thermal energy conversion system	Zhang Kai, Lv Xiaojing, Weng Yiwu
279	16:00-16:15	Optimal scheduling for wind-solar-hydro hybrid generation system with cascade hydropower considering regulation energy storage requirements	Liu Yuanyuan, Guo Pengcheng, Zhang Hao
293	16:15-16:30	A review of research on turbines for supercritical carbon dioxide power systems	Zhuo Hu, Hongsheng Jiang, Weilin Zhuge, Yuping Qian, Yangjun Zhang

16	16:30-16:45	Evaluation of the prototype performance of wanjiashai francis turbine with flow pattern analysis	Xinjun Liu, Jiahao Lu, Shaoshuai Luan, Xijie Song, Zhengwei Wang, Di Zhu, Ran Tao
240	16:45-17:00	Monitoring and early warning for hydroelectric generating sets based on Hotelling's $T^2$ and LSTM model	Yuxin Sun, Zhuofei Xu, Longgang Sun, Tong Wang
241	17:00-17:15	Fault diagnosis of hydroelectric generating sets based on acoustic analysis and CWT-CNN model	Yizhong Tang, Zhuofei Xu, Yongfei Wang, Xiaofei Li
18:00 - 20:00 <b>Dinner</b>			

Date: **Sunday, October 22<sup>nd</sup>, 2023**  
Location: **Room G (Boardroom 2, 2nd floor)**

Time: 13:30-15:30 <b>Session: Jet Technology-1</b> Chairman: Prof. TU Zecan (Nanjing University of Aeronautics and Astronautics), Prof. TAN Linwei (Nantong University)			
Paper ID	Time	Paper Title	Paper Authors
7	13:30-13:45	Development and experimental study of a kind of fluidic sprinkler	Xingye Zhu, Jing Kong, Farheen Solangi, Pengpeng Yu
119	13:45-14:00	Multi-Objective optimization design of aerodynamic and infrared characteristics of multi-stream serpentine nozzle	Jianyu Xu, Li Zhou, Jie SHI, Yubo Meng, Jingwei Shi, Zhanxue Wang
280	14:00-14:15	Influences of nozzle pressure ratio on flow characteristics of serpentine multi-stream supersonic nozzle	Meng Yubo, SHI Jingwei, Zhou Li, Zhang Yi, Wang Zhanxue
292	14:15-14:30	Experimental study on restraining outflow distortion of a waterjet inlet using vortex generator jets	Jiamin Zhou, Zhongjie Wang, Liu Chen, Xiangqian Ma, Ren Dai
294	14:30-14:45	Study on the sensitivity of steam ejector simulation to wall treatment methods	Zhengqing Cao, Kaiyue Fang, Xincheng Zhang, Xuelong Yang
295	14:45-15:00	Optimized design of steam ejector primary nozzle based on orthogonal test method	Kaiyue Fang, Zhengqing Cao, Xincheng Zhang, Xuelong Yang
309	15:00-15:15	Analysis of internal flow characteristics of water jet propulsion under turning conditions	Jiahao Chen, Zhong yong Pan and Xu Wu
362	15:15-15:30	Simulation and experimental analysis of water jet root cutting machine for degraded grasslands	Huijun Wei, Haitang Cen, Qihao Wan, Jianguo Qin, Zihan Shuang
<b>15:30-15:45 Coffee Break</b>			
Time: 15:45-17:15 <b>Session: Flow Meters and Valves &amp; Measurement Technology</b> Chairman: Prof. GU Yandong (Yangzhou University)			
159	15:45-16:00	Experimental study on multiple characteristics of multisource AE signals during cavitation process of waterjet propulsion pump	Feng Chao, Zhu hualun, Tao Jin, Yang Mengzi
169	16:00-16:15	Experimental study on multi-condition of axial flow pump in the whole flow field based on PIV test	Zhu Hualun, Feng Chao, Wang Zonglong
204	16:15-16:30	Research on flow field quality measurement of super high speed circulating water channel based on LDV	Haohan Geng, WANG Zonglong
296	16:30-16:45	Study on the influence of different structural parameters on the performance of Tesla valve	Xincheng Zhang, Zhengqing Cao, Kaiyue Fang and Xuelong Yang

318	16:45-17:00	The research of multi-dimensional flow mapping for proportional flow control valve based on long short-term memory network	Yue Xu, Gang Yang and Baoren Li
359	17:00-17:15	Simulation of water hammer in long distance water transmission pipeline based on Flowmaster	Hailong Guo, Jia Chen
18:00 - 20:00 <b>Dinner</b>			