

Paper Submission & Important Dates

Authors should submit an abstract written in English not exceeding 500 words through the official web site (www.AICFM-9.org) according to the schedule.

Relevant information must be submitted together with the paper abstract (author name, affiliation, address, contact phone/fax, postal code and email).

Important Dates

Submission of abstracts	December 31, 2006
Notification of abstract acceptance	January 31, 2007
Submission of draft paper	March 31, 2007
Notification of draft paper acceptance	May 31, 2007
Submission of camera-ready paper	June 30, 2007

Contact Information

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About the Venue (Jeju Island)

Jeju Island, which is located in the southwest sea of the Korean peninsula, is a popular holiday spot. The island's mixture of volcanic rock, frequent rains, and temperate climate, renders it very similar to the Hawaiian Islands in the U.S. The island offers visitors a wide range of activities: hiking on Mt. Halla (South Korea's highest peak), catching sunrises and sunsets over the ocean, viewing waterfalls, riding horses, playing golf, or just lying on the beaches.

First Announcement and Call for Papers

AICFM-9 Jeju

THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY

www.AICFM-9.org

October 16-19, 2007
Jeju, Korea

Organized by:

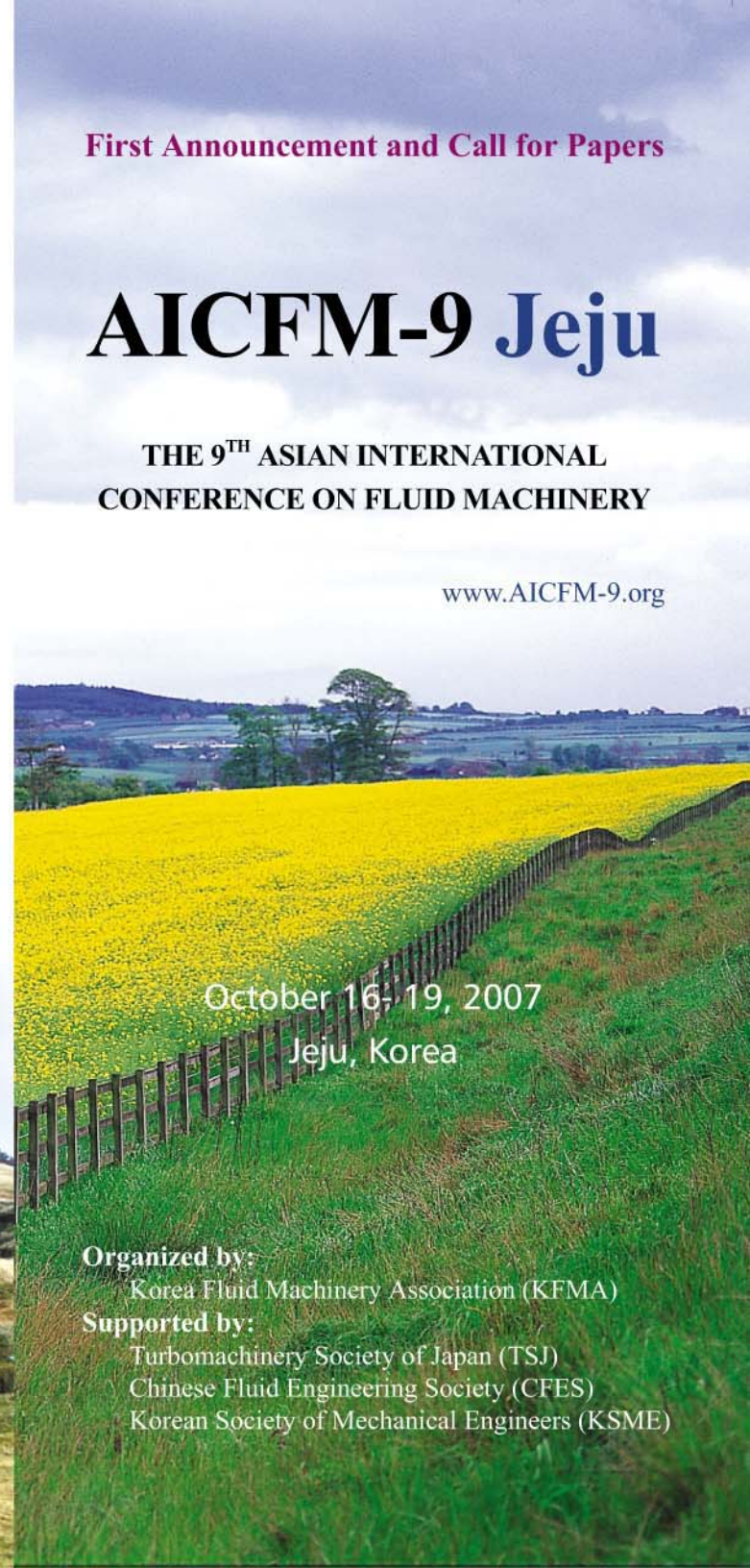
Korea Fluid Machinery Association (KFMA)

Supported by:

Turbomachinery Society of Japan (TSJ)

Chinese Fluid Engineering Society (CFES)

Korean Society of Mechanical Engineers (KSME)



About the Conference

This conference is a continuation of the preceding eight conferences that have been held in the name of Asian International Conference on Fluid Machinery. It has developed from the fourth conference (1993) as an Asian International Conference though the start was held in two countries of Japan and China. The fifth to eighth conferences were held in Seoul (1997), Johor Bahru (2000), Fukuoka (2003) and Yichang (2005).

At the conference, keynote lectures delivered by worldwide renowned fluid machinery specialists will be made to introduce the outstanding achievements in various fluid machinery areas; for examples, fans and blowers, compressor, pumps, gas and steam turbines, and so on.

This time, the conference will be held in the wonderful resort island of Korea, Jeju, during October 16-19, 2007. This conference is organized by the Korean Fluid Machinery Association and will be supported by major societies inside the Asian region. Participation of those who are relevant to every facet of fluid machinery R&D will be much encouraged.

Scope

Papers dealing with all aspects of various fluid machines are welcome, especially in the areas of

- Cavitation
- Compressors
- Fans and blowers
- Flow meters and valves
- Fluid sealing
- Gas and steam turbines
- General fluid dynamics of fluid machinery
- Hydro turbines
- Jet technology
- Monitoring & Diagnosis
- Propulsion
- Pumps
- Renewable energy
- Rotor dynamics
- Wind turbines



Organizing Committee

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Lee, Yong-Bok	KIST, Korea
Lee, Young-Ho	Korea Maritime Univ., Korea
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Suh, Sang-Ho (Soongsil Univ., Korea)
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Tsukamoto, Hiroshi (Kyushu I. T., Japan)
Winoto, S. H. (National Univ. of Singapore, Singapore)
Xue, Shengxiong (Hefei General Machinery R.I., China)
Yin, Jian'an (Shan Xi Blower Inc., China)
Yoo, Jung Yul (SNU, Korea)



2007 JEJU

AICFM-9 Jeju

THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY

October 16- 19, 2007

Ramada Plaza Jeju Hotel, Jeju, Korea

Final Program

■ **Organized by:**

Korean Fluid Machinery Association (KFMA)

■ **Supported by:**

Turbomachinery Society of Japan (TSJ)

Chinese Fluid Engineering Society (CFES)

Korean Society of Mechanical Engineers (KSME)

Japan Society of Mechanical Engineers (JSME)

■ **Sponsored by:**

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Software Cradle Co.



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

Welcome to AICFM-9

Dear Colleagues,

On behalf of the organizing committee, I have great pleasure in holding the Ninth Asian International Conference on Fluid Machinery (AICFM-9) in Jeju, Korea, Oct. 16-19, 2007, which is organized by Korean Fluid Machinery Association (KFMA).

About 300 papers are expected to be presented at AICFM-9. This is very successful result reflecting the recent development of Asian fluid machinery society, comparing with the recent AICFM conferences. At this conference, we will have also special workshop on energy conversion technology in industrial fluid machinery, in which fluid machinery industries may have interest. I hope AICFM-9 to provide not only the forum to exchange technologies about fluid machinery, but also the opportunity to promote friendly relations among Asian countries. The success of the conference is dependent on the active participation of the experts in the area of fluid machinery regardless of paper presentation.

You are welcome to AICFM-9, which will be held in the beautiful island of Jeju. I believe that AICFM-9 will be the cornerstone to open a new era in history of Asian fluid machinery society.

I am looking forward to meeting you at AICFM-9 in October.

Sincerely Yours



Kwang-Yong KIM
Chairman of AICFM-9 Organizing Committee
Professor, Inha University, Korea





THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

About Asian International Conference on Fluid Machinery

This conference is a continuation of the preceding eight conferences that have been held in the name of Asian International Conference on Fluid Machinery. The first conference was held in Beijing in 1984. And, it has developed from the fourth conference (1993), which was held in Suzhou, China, as an Asian international conference though the start was held in two countries of Japan and China. The fifth to eighth conferences were held in Seoul, Korea (1997), Johor Bahru, Malaysia (2000), Fukuoka, Japan (2003) and Yichang, China (2005).

The scope of this conference includes the all areas of various fluid machines as follows:

- ❖ Cavitation
- ❖ Compressors
- ❖ Fans and blowers
- ❖ Flow meters and valves
- ❖ Fluid sealing
- ❖ Gas and steam turbines
- ❖ Hydro turbines
- ❖ Jet technology
- ❖ MEMS
- ❖ Micro & Nano Systems
- ❖ Propulsion
- ❖ Pumps
- ❖ Renewable energy
- ❖ Rotor dynamics
- ❖ Wind turbines
- ❖ General fluid dynamics of fluid machinery



Organization

Organizing Committee

Chairman	Kim, Kwang-Yong Inha Univ., Korea	kykim@inha.ac.kr
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Chung, Myoung-Kyun	KAIST, Korea
Fan, Gaoding	Hefei General Machinery R.I., China



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

Fu, Song	Tsinghua Univ., China
Furukawa, Akinori	Kyushu Univ., Japan
Furukawa Masato	Kyushu Univ., Japan
Gu, Chuangang	Shanghai Jiaotong Univ., China
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Hasegawa, Yutaka	Nagoya Univ., Japan
Jia, Xiaofeng	Hefei General Machinery R.I., China
Kang, Shin-Hyoung	Seoul National Univ., Korea
Kim, Kwang-Ho	KIST, Korea
Kubota, Kazumasa	Tokyo E. P. Co., Japan
Lee, Bong-Joo	Handol Pump Co., Korea
Lee, Jinkook	Eaton. Co., USA
Lin, Chao-An	Tsing Hua Univ., Taiwan
Maeda, Takao	Mie U., Japan
Maeng, Joo-Sung	Hangyang Univ., Korea
Miyagawa, Kazuyoshi	Mitsubishi H.I., Ltd., Japan
Mohamad Afifi Abdul Mukti	Malaysia
Nagao, Shinichiro	Toshiba Co., Japan
Pianthong, Kulachate	Ubon R. Univ., Tailand
Shimmei, Katsumasa	Hitachi, Ltd., Japan
Shan, Peng	BUAA, China
Santhakumar, S.	IIT Madras, India
Shyy, Wei	Univ. of Michigan, USA
Suh, Sang-Ho	Soongsil Univ., Korea
Tsujimoto, Yoshinobu	Osaka Univ., Japan
Tsukamoto, Hiroshi	Kyushu I. T., Japan
Winoto, S. H.	National Univ. of Singapore, Singapore
Xue, Shengxiong	Hefei General Machinery R.I., China
Yin, Jian'an	Shan Xi Blower Inc., China
Yoo, Jung Yul	Seoul National Univ., Korea



Session Organizer

Session	Session Organizer	E-mail
Cavitation	Shin, Byeong-Rog (Changwon N. Univ., Korea)	brshin@changwon.ac.kr
Compressor	Yang, Soo-Seok (Korea Aerospace Research Institute)	ssyang@kari.re.kr
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Jet technology	Kim, Heuy-Dong (An-Dong National Univ., Korea)	kimhd@andong.ac.kr
General	Ko, Sungho (Chungnam National Univ., Korea), Lee, Do-Hyung (Hanyang Univ., Korea)	sunghoko@cnu.ac.kr, dohyung@hanyang.ac.kr



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

Program Overview

		Room F	Room A	Room B	Room C	Room D	Room E
Tuesday, October 16							
17:00 ~		Registration					
18:00 ~ 20:00	Reception	Reception					
Wednesday, October 17							
09:00~		Registration					
09:00~09:05		Welcome Address					
09:05~09:30	"RAMADA Ballroom"	Opening Ceremony					
09:30~10:10		Plenary Lecture 1 AICFM9-PL01: Prof. Kang, Shin-Hyung (Seoul National Univ., Korea)					
10:10~10:20	Coffee Break	Coffee Break					
10:20~10:50	Invited Session (Rm D & F)	Invited Lecture 1 AICFM9-IL01: Prof. Tom, I-P Shih (Iowa State Univ., USA)			Invited Lecture 2 AICFM9-IL03: Prof. Ng, Wing F. (Virginia Polytechnic Institute and State Univ., USA)		
10:50~11:00	Coffee Break	Coffee Break					
11:00~12:20 (4)	Session A	Special Workshop (Session 1)	Cavitation 1 (AICFM9-013, 241, 114, 010)	Compressor 1 (AICFM9-192, 055, 110, 092)	Fans and Blowers 1 (AICFM9-143, 153, 056, 071)	General 1 (AICFM9-044, 072, 216, 278)	Pump 1 (AICFM9-041, 080, 042, 154)
12:20~13:30	Lunch		Lunch				
13:30~14:50 (4)	Session B		Cavitation 2 (AICFM9-039, 202, 174, 100)	Compressor 2 (AICFM9-085, 132, 313, 124)	Fans and Blowers 2 (AICFM9-068, 166, 086, 133)	General 2 (AICFM9-034, 083, 161, 247)	Pump 2 (AICFM9-059, 060, 158, 082)
14:50~15:00	Coffee Break		Coffee Break				
15:00~16:20 (4)	Session C		Jet Technology 1 (AICFM9-003, 028, 148, 275)	Rotor Dynamics 1 (AICFM9-070, 122, 266, 118)	Renewable Energy 1 (AICFM9-095, 123, 131, 186)	Hydro Turbine 1 (AICFM9-029, 019, 165, 149)	Pump 3 (AICFM9-090, 091, 191, 195)
16:20~16:30	Coffee Break		Coffee Break				
16:30~17:50 (4)	Session D	MEMS 1 (AICFM9-023, 298, 299, 171)	Rotor Dynamics 2 (AICFM9-273, 172, 147, 227)	Supersonic Flow 1 (AICFM9-326, 159, 160, 196)	Hydro Turbine 2 (AICFM9-035, 176, 012, 222)	Pump 4 (AICFM9-205, 234, 258, 282)	
18:30~20:00	Banquet	Banquet					



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

		Room F	Room A	Room B	Room C	Room D	Room E
Thursday, October 18							
09:00~		Registration					
09:00~09:40	RAMADA Ballroom	Plenary Lecture 2 AICFM9-PL03: Prof. Sun, Xiaofeng (Beihang Univ., China)					
09:40~09:50	Coffee Break	Coffee Break					
09:50~10:20	Invited Session (Rm D & F)	Invited Lecture 3 AICFM9-IL02: President Inoue, Masahiro (Sasebo National College of Technology, Japan)			Invited Lecture 4 AICFM9-IL06: Prof. Benim, A. C. (Duesseldorf University of Applied Sciences, Germany)		
10:20~10:30	Coffee Break	Coffee Break, Poster Setup					
10:30~12:30 (4)	Session E	General 3 (AICFM9-069, 155, 162, 038)	Renewable Energy 2 (AICFM9-272,180, 210, 270)	Pump 5 (AICFM9-050, 181, 201, 297)	Poster Session 1 (AICFM9-016, 017, 018, 020, 021, 024, 025, 026 036, 046, 047, 048, 054, 061, 062, 063, 065, 066, 067, 073, 077, 078, 084, 087, 096, 098, 104, 105, 106, 111, 115, 126, 134, 137, 140, 141, 145, 146, 170, 178)		
12:30 ~ 14:00	Lunch	Lunch					
14:00 ~ 17:30	Excursion time	Excursion (Jeju Island)					



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

	Room F	Room A	Room B	Room C	Room D	Room E	
Friday, October 19							
09:00~	Registration						
09:00~09:40	RAMADA Ballroom	Plenary Lecture 3 AICFM-PL02: Prof. Tsujimoto, Yoshinobu (Osaka Univ., Japan)					
09:40~09:50	Coffee Break	Coffee Break					
09:50~10:20	Invited Session (Rm D & F)	Invited Lecture 5 AICFM9-IL04: Prof. Winoto, S. H. (National Univ. of Singapore, Singapore)			Invited Lecture 6 AICFM9-IL05: Prof. Xue, Shengxiang (Hefei General Machinery Research Institute, China)		
10:20~10:30	Coffee Break	Coffee Break, Poster Setup					
10:30~11:50(4)	Session F	Special Workshop (Session 2)	Flow meter and Valve 1 (AICFM9-008, 101, 144, 244)	Gas Turbine 1 (AICFM9-260, 213, 027, 224)	Poster Session 2 (AICFM9- 032, 156, 167, 182, 193, 200, 203, 204, 212, 219, 223, 226, 239, 243, 245, 246, 250, 253, 255, 259, 263, 264, 280, 281, 285, 287, 291, 294, 296, 302, 303, 304, 306, 307, 308, 310,312, 314, 315,319, 323, 337)		
11:50~13:00	Lunch	Lunch					
13:00~13:30	Invited Session (Rm D & F)	Invited Lecture 7 AICFM9-IL07: Dr. Seung-Bae Chen (Samsung Techwin, Korea)			Invited Lecture 8 AICFM9-IL08: Dr. David Ingram (University of Edinburgh, UK)		
13:30~13:40	Coffee Break	Coffee Break					
13:40~15:00 (4)	Session G	Special Workshop (Session 3)	Fans and Blowers 3 (AICFM9-136, 215, 138, 197)	Gas Turbine 2 (AICFM9-198, 152, 076, 317)	Hydro Turbine 3 (AICFM9-249, 211, 015, 014)	General 4 (AICFM9-001, 051, 150, 257)	Pump 6 (AICFM9-005, 006, 040, 053)
15:00~15:10	Coffee Break		Coffee Break				
15:10~16:30 (4)	Session H		Fans and Blowers 4 (AICFM9-007, 274, 184, 261)	MEMS 2 (AICFM9-081, 225, 208, 231)	Compressor 3 (AICFM9-199, 157, 242, 279)	General 5 (AICFM9-022, 190, 031, 052)	Pump 7 (AICFM9-089, 107, 164, 175)
16:30~16:40	Coffee Break		Coffee Break				
16:40~18:00 (4)	Session I	Cavitation 3 (AICFM9-045, 206, 037, 207)	Jet Technology 2 (AICFM9-064, 188, 088, 079)	Compressor 4 (AICFM9-194,169, 311, 262)	Renewable Energy 3 (AICFM9-129, 130, 329, 217)	Pump 8 (AICFM9-189, 233, 235, 283)	



TECHNICAL PROGRAM

Registration/Reception: October 16, 2007 (Tuesday)

17:00~	Registration	Ballroom Lobby
18:00~20:00	Reception	Ballroom Lobby

CONFERENCE SESSIONS (DAY 1) : October 17, 2007 (Wednesday)

09:00~	Registration	Ballroom Lobby
09:00~09:30	Opening Ceremony Chair: Youn-Jea Kim, Sungkyunkwan Univ., Korea	RAMADA Ballroom
09:30~10:10	Plenary Lecture 1 Chair: Youn-Jea Kim, Sungkyunkwan Univ., Korea	RAMADA Ballroom
AICFM9-PL01	NEW INDUSTRIAL APPLICATIONS OF REGENERATIVE PUMPS AND COMPRESSORS Lecturer: Prof. Kang, Shin-Hyung - Seoul National Univ., KOREA	
10:10~10:20	Coffee Break	
10:20~10:50	Invited Lectures 1 and 2 Chair: Seung-Jin Song, Seoul National Univ., Korea	Room D&F
AICFM9-IL01	CONTROL OF SHOCK-WAVE/BOUNDARY-LAYER INTERACTIONS BY BLEED THROUGH ROWS OF HOLES Lecturer: Prof. Shih, Tom I.-P. - Department of Aerospace Engineering, Iowa State Univ., USA	
AICFM9-IL03	Chair: Young-Seok Choi, KITECH, Korea EXPERIMENTAL INVESTIGATION OF THE EFFECT OF HIGH FREESTREAM TURBULENCE ON THE HEAT TRANSFER OF A TURBINE VANE Lecturer: Prof. Ng, Wing F. - Virginia Polytechnic Institute and State Univ., USA	
10:50~11:00	Coffee Break	
11:00~12:20	Cavitation 1 Chair: Akinori Furukawa - Kyushu Univ. , Japan / Byeong-Rog Shin - Changwon National Univ. , Korea	Room A
AICFM9-013	CAVITATION FLOW SIMULATION OF CYLINDER AND HYDROFOIL W.G. Park, B.G. Ahn - Pusan National Univ. , Korea / D.H. Kim, and C.K. Kim - Agency of DefenseDevelopment , Korea	
AICFM9-241	NUMERICAL ANALYSIS ABOUT PRESSURE PROPAGATION AND OSCILLATING CHARACTERISTICS OF CAVITATION SURGE IN CASCADE	



THE 9th ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

AICFM9-114	Yuka Iga , Kei Kawai, Toshiaki Ikohagi - Tohoku Univ. , Japan / Yoshiki Yoshida - JAXA , Japan EFFECT OF HEAT CONDUCTIVITY OF NOBLE GASES ON SINGLE-BUBBLE CAVITATION
AICFM9-010	Kh. Imani, R. Sadighi , M. Silatani - Sharif Univ. of Technology , Iran / A. Moshaii - Institute for Studies in Theoretical Physics and Mathematics / R. Rezaei-Nasirabad - Isfahan Univ. of Technology , Iran AN EXPERIMENTAL STUDY OF CAVITATING TURBULENT FLOW STRUCTURES AROUND A HYDROFOIL Guoyu Wang ,Mindi Zhang - Beijing Institute of Technology , China
11:00~12:20	Compressors 1 Room B
AICFM9-192	Chair: You Hwan Shin - KIST , Korea / Masato Furukawa - Kyushu Univ. , Japan EFFECTIVE REDUCTION OF VIBRATION BY DESIGNING INERTIA ASYMMETRY OF SCROLL COMPRESSOR Jeong-Hwan Suh - Korea Power Engineering Company Inc. , Korea
AICFM9-055	THE METODOLOGY AND INFORMATION TECHNOLOGY TOOLS FOR SYSTEM IMPROVEMENT OF GAS TURBINE ENGINE AXIAL FLOW COMPRESSOR K.M. Ugryumova ,M.L. Ugryumov ,A.A. Tronchuck - Department of Information Technology, National Aerospace Univ. "Kharkov Aviation Institute" ,Ukraine / A.V. Menyeylov - Compressor Department, Motor Sich JSC , Ukraine
AICFM9-110	ATTEMPT ON APPLICATION OF HIGH DOSAGE WATER INJECTION TECHNIQUE TO FLARE GAS COMPRESSOR Xu Zhixian - Sinopec Yangzi Petrochemical Co., Lid , China / Gao Qing - Sinopec Yangzi Petrochemical Co., Lid , China
AICFM9-092	ANALYSIS OF VORTICAL FLOW FIELDS IN A CENTRIFUGAL COMPRESSOR IMPELLER WITH VANELESS DIFFUSER Ken-ichiro IWAKIRI ,Masato FURUKAWA ,Ryota SUZUKI - Kyushu-Univ. , Japan / Seiichi IBARAKI ,Isao TOMITA - Mitsubishi Heavy Industries, Ltd. , Japan
11:00~12:20	Fans and Blowers 1 Room C
AICFM9-143	Chair: D. M. Sharma - IIT-Kanpur, India/Young-Seok Choi - Korea Institute of Industrial Technology, Korea EFFECTS OF BLADE GEOMETRY ON FLOW AND NOISE CHARACTERISTICS OF JET FAN Hidechito Hayashi ,Yoshio Kodama - Nagasaki Univ. , Japan / Masaru Murayama , Atsufumi Ichihashi-Matsushita Ecology Systems Co., Ltd. , Japan
AICFM9-153	OPTIMUM DESIGN OF VOLUTE CONFIGURATION IN A SIROCCO FAN USING CFD AND DOE Young-Seok Choi , Kyoung-Yong Lee - Korea Institute of Industrial Technology , Korea / Uk-Hee Jung - Graduate Student, Korea Univ., Korea Institute of Industrial Technology , Korea /Oh-Myoung Kwon - Korea Univ. , Korea
AICFM9-056	DEVELOPMENT OF HIGH-SPEED LOW-NOISE JET-FAN FOR MODERN TUNNEL VENTILATION SYSTEM Takahiro Nishioka - Hitachi , Ltd. ,Japan / Masayoshi Jyokou , Toshio Kanno - Hitachi Plant technologies, Co. Ltd. , Japan
AICFM9-071	EFFECT OF SHROUDED (END) PLATES ON SURFACE PRESSURE OF A CAMBERED AIRFOIL FOR FANS AND BLOWERS



K.S.V. Reddy , Deepakkumar M. Sharma , Kamal Poddar - IIT-Kanpur , India

11:00~12:20	General 1	Room D
	Chair: Sungho Ko - Chungnam National Univ., Korea / Takayuki Saito - Shizuoka Univ., Japan	
AICFM9-044	NUMERICAL SIMULATION OF SALT-OUT TURBULENT FLOW Weidong Jia - Key Laboratory of Modern Agriculture Equipment and Technology of Jiangsu Province , China/ Minguan Yang , Bo Gao , Hui Li - Jiangsu Univ., China	
ICFM9-072	ROTATING DISK APPARATUS FOR POLYMER-INDUCED TURBULENT DRAG REDUCTION Cheng Hai Hong , Hyoung Jin Choi - Inha Univ. , Korea / Jae Ho Kim - Korea Institute of Energy Research , Korea	
AICFM9-216	ON THE PERFORMANCE OF MODIFIED S-A TURBULENCE MODEL IN PREDICTING CORNER SEPARATIONS Wang Danhua , Ma Wei , Lu Lipeng - Beijing Univ. of Aeronautics and Astronautics , China	
AICFM9-278	EFFECT OF SURFACTANT ON BUBBLE-LIQUID INTERACTION IN OSCILLATING-GRID TURBULENCE Koichi Morikawa, Shigeyuki Urano, Toshiyuki Sanada, Takayuki Saito - Shizuoka Univ., Japan	
11:00~12:20	Pump 1	Room E
	Chair: Chang-Ho Choi - Korea Aerospace Research Institute, Korea / Hiroshi Tsukamoto - Kyushu Institute of Technology, Japan	
AICFM9-041	OPTIMIZATION DESIGN OF PUMP IMPELLER Norio KASSAI , Sunao MIYAUCHI - KUBOTA Corporation , Japan / Jun-ichirou FUKUTOMI - The Univ. of Tokushima , Japan	
AICFM9-080	NUMERICAL SIMULATION OF FLOWS INSIDE A VANE PUMP Sang Hyuk Lee , Nahmkeon Hur - Sogang Univ., Korea / Bon Yong Jin - CDAK , Korea	
AICFM9-042	EFFECT OF BLADE GEOMETRY ON TIP LEAKAGE VORTEX OF INDUCER Donghyuk KANG(Korea), Koichi YONEZAWA, Hironori HORIGUCHI , Yoshinobu TSUJIMOTO - Osaka Univ. , Japan / Angelo CERVONE- Chemical Propulsion Laboratory / Yutaka KAWATA - Osaka Institute of Technology , Japan	
AICFM9-154	VORTEX SIMULATION OF THE BUBBLY FLOW AROUND A HYDROFOIL Tomohiro Degawa ,Tomomi Uchiyama - Nagoya Univ. , Japan	
12:20~13:30	Lunch	
13:30~14:50	Cavitation 2	Room A
	Chair: Moon-Sun Chung - KOREA INSTITUTE OF ENERGY RESEARCH , Korea / Mindi Zhang - Beijing Institute of Technology , China	
AICFM9-039	ROTATING BEHAVIOR OBSERVATION OF CAVITATION IN INDUCER WITH SUCTION AXI-ASYMMETRICAL PLATE Jun-Ho Kim(Korea), Ishizaka Satoshi , Watanabe Akinori , Furukawa - Kyushu Univ. , Japan / Takashi AtonoKoichi - Kyushu Polytechnic College , Japan	
AICFM9-202	NUMERICAL INVESTIGATION OF UNSTEADY CAVITATION EFFECTS ON 2D AND 3D HYDROFOIL	



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

AICFM9-174	Chang Jin Lee , Soo Hyung Park , Se Young Lee - Konkuk Univ. , Korea NUMERICAL ANALYSIS OF EROSION-BUBBLE BEHAVIOR CAVITATING FLOW Naoya OCHIAI , Yuka IGA , Toshiaki IKOHAGI - Institute of Fluid Science, Tohoku Univ. , Japan / Motohiko NOHMI - EBARA RESERCH Corporation, Ltd , Japan
AICFM9-100	SINGLE-BUBBLE CAVITATION IN SULFURIC ACID M. Silatani , Kh. Imani , R. Sadighi-Bonabi - Sharif Univ. of Technology , Iran / A. Moshaii - Institute for Studies in Theoretical Physics and Mathematics , Iran / R. Rezaei-Nasirabad - Isfahan Univ. of Technology , Iran
13:30~14:50	Compressors 2 Room B
AICFM9-085	Chair: Je Hyun Baek - POSTECH , Korea / Song Fu - Tsinghua Univ. , China DESIGN AND PROTOTYPING OF CENTRIFUGAL COMPRESSOR FOR ULTRA MICRO GAS TURBINE (THE INFLUENCE OF SCALE EFFECT ON THE PERFORMANCE CHARACTERISTICS) Toshiyuki Hirano , Kousuke Tanida , Takaaki Hagiwara - Graduate School of Hosei Univ. , Japan / Ronglei Gu , Gaku Minorikawa , Hoshio Tsujita , Shimpei Mizuki - Hosei Univ. , Japan
AICFM9-132	NUMERICAL STUDY OF THE UNSTEADY LOSSES IN A COMPRESSOR STAGE Yutao Sun , Yu-Xin Ren , Song Fu - Tsinghua Univ. , China / Aspi Wadia , David Wisler - GE Aircraft Engines, USA
AICFM9-313	"OPTIMIZATION OF A CENTRIFUGAL COMPRESSOR IMPELLER USING A RESPONSE SURFACE METHOD" Semi Kim , Je Hyun Baek - POSTECH , Korea / Junyoung Park , Kuk Young Ahn - KIMM , Korea
AICFM9-124	AN ADVANCED STEPLESS VARIABLE SPEED MECHANICAL DEVICE IS OPTIMAL SELECTION FOR MOTOR DRIVEN HYDROGEN RECYCLE CENTRIFUGAL COMPRESSORS Lu Pengfei - SINOPEC Engineering Incorporation , China
13:30~14:50	Fans and Blowers 2 Room C
AICFM9-068	Chair: D. Sakaguchi - Nagasaki Univ. , Japan / Young-Seok Choi - Korea Institute of Industrial Technology , Korea EFFECT OF RADIAL LOCATION OF LOW SOLIDITY CIRCULAR CASCADE ON NOISE AND DIFFUSER PERFORMANCE IN A CENTRIFUGAL BLOWER Daisaku Sakaguchi , Masahiro Ishida , Tengen Murakami , Hironobu Ueki - Nagasaki Univ. , Japan / Hiroshi Hayami -Kyushu Univ. , Japan / Yasutoshi Senoo - Miura Co. Ltd. , Japan
AICFM9-166	DESIGN OF AXIAL FAN USING INVERSE DESIGN METHOD Kyoung-Yong Lee , Young-Seok Choi , Young-Lyul Kim , Jae-Ho Yun - Korea Institute of Industrial Technology , Korea
AICFM9-086	ON THE RELATIONSHIP BETWEEN VORTICAL FLOW BEHAVIOR AND AERODYNAMIC NOISE IN PROPELLER FANS Jaeho JEONG , Masato FURUKAWA - Kyushu Univ. , Japan / Yoriko NINOMIYA - Yamaha Co.,Ltd. , Japan
AICFM9-133	AN APPLICATION OF WAKE CHARACTERISTICS TO PREDICTION ON BROADBAND FREQUENCY NOISE OF A MULTIBLADE FAN Souichi SASAKI , Hidechito HAYASHI , Yoshio KODAMA - Nagasaki Univ. , Japan



13:30~14:50	General 2	Room D
	Chair: Dal Hyun Yoo - Samsung Electro-Mechanics Co. , Korea / Hiromitsu Hamakawa - Oita Univ. , Japan	
AICFM9-034	THE EFFECTS OF WAVY SURFACE ON FLOW STRUCTURE AFTER A BODY Jamaluddin Md Sherif , Kahar Osman - Univ. Teknologi Malaysia , Malaysia /Asral - Univ. Riau, Pekanbaru, Indonesia	
AICFM9-083	A NUMERICAL STUDY FOR THE IMPROVEMENT OF THE PLATING THICKNESS UNIFORMITY IN ELECTRO CU PLATING PROCESS Dal Hyun Yoo , Hee Soo Yoon , Ji Chul An - Samsung Electro-Mechanics Co. , Korea	
AICFM9-161	VORTEX SHEDDING FROM A CIRCULAR CYLINDER WITH SPIRAL FIN Hiromitsu HAMAKAWA , Keisuke NAKASHIMA , Tomohiro KUDO - Oita Univ. , Japan / Eiichi NISHIDA - Shonan Institute of Technology , Japan / Tohru FUKANO - Kurume Institute of Technology , Japan	
AICFM9-247	PARAMETRIC INVESTIGATION OF A SUDDEN-EXPANSION FLOW R. Sailaja , A. Kushari - IIT Kanpur , India	
13:30~14:50	Pump 2	Room E
	Chair: Hyung-Woon Roh - IVAI, Korea / S.H. Winoto - National Univ. of Singapore, Singapore	
AICFM9-059	DEVELOPMENT OF CENTRIFUGAL PUMP WITH ADJUSTABLE GUIDE VANE Takaki SAKURAI , Atsushi KANEKO , Takashi ENOMOTO , Mitsutoshi HAGINO - Ebara Corporation , Japan	
AICFM9-060	IMPROVEMENT OF GAS/LIQUID TWO-PHASE FLOW PERFORMANCE BY ROTATIONAL SPEED INCREASING OF CENTRIFUGAL PUMP IMPELLER Sinzi SATO , Daiki TAKATA - Ebara Corporation , Japan / Naoki MATSUSHITA , Akinori FURUKAWA - Kyushu Univ. , Japan	
AICFM9-158	STABILITY ENHANCEMENT OF A MIXED-FLOW PUMP CHARACTERISTICS BY USE OF THE INLET WALL BARRIER Ryunosuke Kawashima ,Yoshio Miyairi , Mitsuo Uno - Kyushu Kyouritsu Univ. , Japan / Atsushi Takehara - Graduate School of Kyushu Kyouritsu Univ. , Japan	
AICFM9-082	"INVESTIGATION FOR LOSS GENERATION MECHANISMS OF FLOW IN CENTRIFUGAL IMPELLER BY USING ROTATING CURVED DUCT" Hoshio Tsujita , Naoki Shimada , Shimpei Mizuki - Hosei Univ. , Japan	
14:50~15:00	Coffee Break	
15:00~16:20	Jet Technology 1	Room A
	Chair: Xiping Long - Wuhan Univ., China /Heuy-Dong Kim - Andong National Univ., Korea	
AICFM9-003	JET INPIGEMENT CROSS-FLOW FOR MISSILE & MILITARY AERO-GAS TURBINE Ismail Ibrahim , Ahmad Zahir Mokhtar - Univ. Kuala Lumpur, (MIAT), Malaysia / Rahim Atan - Univ. Technology MARA(UiTM), Malaysia	
AICFM9-028	INFLUENCE OF NOZZLE EXIT THICKNESS ON THE PERFORMANCE OF JET PUMP Xiping Long , Ning Han , Qian Chen , Fengjin Wang - Wuhan Univ., China	



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

AICFM9-148 NUMERICAL ANALYSIS OF THE SUPERCRITICAL STEAM FLOW IN A MAIN STEAM VALVE WITH A CYLINDRICAL FILTER

L.L.SHI, Y.Z.LIU, W.Z.WANG, H.P.Chen - Shanghai Jiao Tong Univ., China / P.N.JIANG - Shanghai Turbine LTD, China

AICFM9-275 SUPPRESSION EFFECT OF T-SHAPED JET VORTEX GENERATOR ON SEPARATING FLOW

Hiroaki HASEGAWA , Naoki HAYASHI , Xuezheng ZHAO - Akita Univ. , Japan

15:00~16:20

Rotor Dynamics 1

Room B

Chair: An Sung Lee - Korea Institute of Machinery and Materials, Korea

AICFM9-070 ROTOR DYNAMIC ANALYSIS CONSIDERING DISTRIBUTED STIFFNESS AND DAMPING COEFFICIENTS OF AIR FOIL JOURNAL BEARINGS

Yong-Bok Lee , Dong-Jin Park , Chung-Hyun Kim , Chang-Ho Kim- Tribology Research Center, Korea Institute of Science and Technology , Korea

AICFM9-122 THE APPLICATION OF A NEW TYPE OF THE MECHANICAL SEAL

Zhou Jinshui - Chemical Branch of the Baosteel Co. Ltd , China

AICFM9-266 A METHOD TO EVALUATE EIGENVALUES OF ROTOR-BEARING SYSTEM USING THE MODAL OPEN LOOP TRANSFER FUNCTION

Hiroto Oyama , Norihisa Anegawa , Hiroyuki Fujiwara , Osami Matsusita - National Defense Academy , Japan

AICFM9-118 PERFORMANCE AND SAFETY OPERATING TECHNOLOGY OF SEALS FOR CENTRIFUGAL PUMP ON SHIPS

Yu Zhijun , Tang Xiaochen - Jiangsu Zhenhua Pump Co.,Ltd. , China / Ban Yuhong , Yao Liming , Yang Bofeng - Hefei General Machinery Research Institute,Hefei , China

15:00~16:20

Renewable Energy 1

Room C

Chair: Chul-Hee Jo - Inha University, Korea / Toshiaki Kanemoto - Kyusyu Institute of Technology, Japan

AICFM9-095 PERFORMANCE ANALYSIS AND IMPROVEMENT FOR CC-OTEC

WANG Tong , GU Chuangang , YANG Bo , DING Liang - Shanghai Jiao Tong Univ. , China

AICFM9-123 THE INNOVATIVE ENERGY SAVING CONCEPT FOR FCC POWER RECOVERY SYSTEM

Lu Pengfei , Ji Jiang - SINOPEC Engineering Incorporation , China

AICFM9-131 NEW TYPE HYDROELECTRIC UNITS APPLICABLE TO TIDAL CURRENT POWER STATIONS

Toshiaki Kanemoto , Noboru Iwata - Kyushu Institute of Technology , Japan / Akira Inagaki - DMW Corporation , Japan / Toshiaki Setoguchi , Shuichi Nagata - Saga Univ. , Japan

AICFM9-186 PRODUCTION OF BIODIESEL FROM RUBBER SEED OIL AND ENGINE PERFORMANCE TESTS

P. Thaiyasuit , K. Pianthong , P. Techarungpaisan , C. Thinvongpituk , I. Vorapun - Ubon Ratchathani Univ. , Thailand

15:00~16:20

Hydro Turbine 1

Room D

Chair: Tadashi Tsukamoto - Voith Siemens Hydro Power Generation, Japan / You-Taek Kim - Korea Maritime Univ., Korea

AICFM9-029 EFFECTS OF CASING CLEARANCE ON PERFORMANCE OF DUCTED DARRIEUS-TYPE TURBINE WITH



NARROW INTAKE FOR EXTRA-LOW HEAD HYDROPOWER UTILIZATION

Akinori FURUKAWA , Keiji MATSUURA , Kusuo OKUMA , Satoshi WATANABE - Kyushu Univ. , Japan

AICFM9-019 **DESIGN OPTIMIZATION OF FRANCIS TURBINE RUNNER**

Yasuyuki ENOMOTO, Sadao KUROSAWA , Kaneo SUGISHITA - TOSHIBA CORPORATION , Japan

AICFM9-165 **"A VORTICITY ANALYSIS METHOD FOR OPTIMIZING HYDRAULIC DESIGN OF A FRANCIS TURBINE RUNNER**

Liu Shuhong , Wu xiaojing , Wu Yulin , Wu Jiezh - Tsinghua Univ. , China

AICFM9-149 **MPS SIMULATION OF THE FLOW IN A ROTATING PELTON BUCKET AND OUTPUT POWER**

Yuji Nakanishi , Koki Wachi - Kanagawa Univ. , Japan / Tsuneaki Fujii - Voith Fuji Hydro K.K. , Japan

15:00~16:20

Pump 3

Room E

Chair: Young-Ho Lee - Korea Maritime Univ., Korea / Yulin Wu -Tsinghua Univ., China

AICFM9-090 **OPTIMIZATION OF RETURN VANE FOR MULTISTAGE TURBO PUMP**

Kazuyuki SAKODA , Takashi HARA - TORISHIMA PUMP MFG.CO.,LTD. , Japan / Toshiaki KANEMOTO - Kyushu Institute of Technology , Japan / Masafumi MIYANO - Graduate Student , Japan

AICFM9-091 **ON IMPROVEMENT OF CHARACTERISTIC INSTABILITY AND INTERNAL FLOW IN MIXED FLOW PUMPS**

Masahiro Miyabe , Hideaki Maeda , Isamu Umeki , Yoshinori Jittani - Torishima Pump Mfg. Co., Ltd , Japan / Akinori Furukawa - Kyushu Univ. , Japan

AICFM9-191 **NUMERICAL ANALYSIS OF UNSTEADY FLUID FLOW IN A CENTRIFUGAL PUMP**

K.W Cheah , T.S. Lee , S.H Winoto - National Univ. of Singapore , Singapore

AICFM9-195 **SUPPRESSION OF PERFORMANCE CURVE INSTABILITY IN AN AXIAL FLOW PUMP BY J-GROOVE**

Junichi Kurokawa , Jun Matsui - Yokohama National Univ. , Japan / Takahide Nagahara - Hitachi Plant Technology Co. Ltd. , Japan

16:20~16:30

Coffee Break

16:30~17:50

MEMS 1

Room A

Chair: Seung Jin Song - Seoul National Univ., Korea / Mohammadpour - Univ. of Tabriz, Iran

AICFM9-023 **DESIGN OF MICRO-CHANNEL HEAT SINK WITH NUMERICAL OPTIMIZATION TECHNIQUES**

Afzal Husain , Kwang-Yong Kim - Inha Univ., Korea

AICFM9-298 **ESTIMATION OF LEAK FLOW RATE IN A SMALL GAP**

Chungpyo Hong ,Yutaka Asako -Tokyo Metropolitan Univ. , Japan / Jaeheon Lee - Hanyang Univ., Korea

AICFM9-299 **PRESSURE LOSS OF GASEOUS FLOW AT MICROTUBE OUTLET**

Yuji Horii , Yutaka Asako - Tokyo Metropolitan Univ. , Japan

AICFM9-171 **LATTICE BOLTZMANN BGK MODEL FOR GAS FLOW IN A LONG MICROCHANNEL**

Habib Aminfar, Mousa Mohammadpour - Univ. of Tabriz , Iran

16:30~17:50

Rotor Dynamics 2

Room B

Chair: Ho Jong Kim - Doowon Technical College, Korea

AICFM9-273 **APPROACH TO HI-SPEED AND HI-STABILITY ROTATION OF ACTIVE MAGNETIC BEARING EQUIPPED**



FLEXIBLE ROTORS

Hiroyuki Fujiwara , Osami Matsusita - National Defense Academy , Japan / Makoto Ito - Shinkawa Sensor Technology, Inc. , Japan

AICFM9-172 INFLUENCES OF BEARINGS ON THE ROTORDYNAMIC CHARACTERISTICS OF BOILER FEED WATER BOOSTER PUMPS

An Sung Lee , Byung Ok Kim - Korea Institute of Machinery and Materials , Korea

AICFM9-147 NUMERICAL AND EXPERIMENTAL INVESTIGATION OF DYNAMICS OF LABYRINTH-ROTOR COMBINATION UNDER THE INFLUENCE OF LEAKAGE AIR FLOW

WANG Weizhe , LIU Yingzheng , YE Chun, CHEN Hanping, JING Jianping - Shanghai Jiao Tong Univ., China

AICFM9-227 NUMERICAL SIMULATION OF FLOW AROUND HOVERING ROTOR

Shaikh Javed , S B Thombre - Visvesvaraya National Institute of Technology, Nagpur , India / Vilas Kalamkar , Sourabh Jain - IIT Bombay , India / N V Deshpande - Walchand College of Engineering, Sangli , India

16:30~17:50

Supersonic Flow 1

Room C

Chair: Heuy-Dong Kim - Andong National Univ., Korea / J.H. Lee - Deajoo LTD, Korea

AICFM9-326 PERFORMANCE PREDICTION OF AN R141B EJECTOR IN REFRIGERATION APPLICATION

T. Sriveerakul , S. Aphornratana - Sirindhorn International Institute of Technology , Thailand / K. Pianthong - Ubon Ratchathani Univ. , Thailand

AICFM9-159 INVESTIGATION OF THE INTERACTION BETWEEN SUCTION FLOW AND SHOCK WAVE IN BLS CASCADE

WANG Yan-gang , LIU Bo - Northwestern Polytechnical Univ , USA / Ronghui Cheng , Faxiang Lan -Institute Gas Turbine of China , China

AICFM9-160 "EFFECT OF NON-EQUILIBRIUM CONDENSATION OF MOIST AIR ON INTERNAL FLOW FIELD AROUND A CIRCULAR ARC BLADE"

S. Matsuo , S. Nakano , T. Setoguchi - Saga Univ. , Japan / H. D. Kim - Andong National Univ., Korea

AICFM9-196 NUMERICAL ANALYSIS OF AERODYNAMIC CONTROL FOR MISSILES USING FIN-NOZZLE ARRANGEMENT

M. Muralidhar , C. Senthil Kumar , S. Elangovan - Madras Institute of Technology , India / E. Rathakrishnan- Indian Institute of Technology , India

16:30~17:50

Hydro Turbine 2

Room D

Chair: Fujun Wang - China Agricultural Univ., China / Sung-Ho Ko - Chungnam National Univ., Korea

AICFM9-035 RESEARCH FOR A JET INTERFERENCE OF PELTON TURBINE

Tsuneaki Fujii , Tadashi Tsukamoto - Voith Fuji Hydro K.K. , Japan / Toshiaki Karaki, Kiyoshi Komura - CHUBU Electric Power Co., Inc. , Japan / Yuji Nakanishi - Kanagawa Univ. , Japan / Junichi Kurokawa - Yokohama National Univ. , Japan

AICFM9-176 LOWER OLT: REVERSIBLE BULB PUMP-TURBINE DEVELOPMENT

SuzukiRyoji - Voith Fuji Hydro K.K. , Japan

AICFM9-012 ANALYSIS OF PRESSURE PULSATION IN FRANCIS HYDRAULIC TURBINE WITH AIR-ADMISSION BY CFD

Qian Zhongdong , Yang Jiandong - Wuhan Univ. , China



AICFM9-222 INVESTIGATION ON FLOW CHARACTERISTICS OF AUTOMOTIVE TORQUE CONVERTER STATOR IN LOWER VELOCITY RATIO RANGE
Masahiro OGIWARA , Eiji EJIRI - Chiba Institute of Technology , Japan

16:30~17:50 **Pump 4** **Room E**

Chair: Beom-Seok Kim - Korean Register, Korea / Hongyuan Xu - Tsinghua Univ., China

AICFM9-205 THE INTERIOR FLOW FIELD STRUCTURE AND FLOW CONTROL OF AXIAL-FLOW PUMP ARRANGEMENT UNDER OFF-DESIGN CONDITION

Chen Hongxun , Wei Peiru , Liang Xuejie - Shanghai Univ. , China

AICFM9-234 ROTATIONAL SPEED CHARACTERISTICS OF COUNTER-ROTATING AXIAL FLOW PUMP UNIT

Shin Oba - DMW Corporation , Japan / Toshiaki Kanemoto , Makoto Fujimura - Kyushu Institute of Technology , Japan

AICFM9-258 "EFFECT OF IMPELLER INLET GEOMETRY ON PERFORMANCE IMPROVEMENT FOR CENTRIFUGAL BOILER FEED PUMPS"

Xianwu Luo , Junqi Peng , Yao Zhang , Hongyuan Xu - Tsinghua Univ. , China / Weiping Yu - Zhejiang Pump Works , China

AICFM9-282 DEVELOPMENT OF HIGH PERFORMANCE MULTISTAGE CENTRIFUGAL PUMP

Takeshi SANO , Kazuyoshi MIYAGAWA , Yasuharu YAMAMOTO , Norio MITSUI - Mitsubishi Heavy Industries, Ltd. , Japan

18:30~20:00 **Banquet** **RAMADA Ballroom**



THE 9th ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

CONFERENCE SESSIONS (DAY 2):October 18, 2007 (Thursday)

09:00~	Registration	Ballroom Lobby
09:00~09:40	Plenary Lecture 2	RAMADA Ballroom
	Chair: Sung-Ho Ko - Chungnam National Univ., Korea	
AICFM9-PL03	CONTROL OF UNSTEADY FLOW IN TURBOMACHINERY BY CHANGING WALL BOUNDARY CONDITION	
Lecturer	Prof. Sun, Xiaofeng - Beihang Univ., China	
09:40~09:50	Coffee Break	
09:50~10:20	Invited Lectures 3 and 4	Room D&F
	Chair: Jong-Chul Huh - Cheju Univ., Korea	
AICFM9-IL02	DEVELOPMENT AND APPLICATION OF FLOW ANALYSES IN TURBOMACHINERY - PERSONAL EXPERIENCES OF A UNIV. SCHOLAR	
Lecturer	President Inoue, Masahiro - Sasebo National College of Technology, Japan	
	Chair: Yong-Bok Lee - KIST, Korea	
AICFM9-IL06	COMPUTATIONAL ANALYSIS OF TURBULENT SWIRLING FLOWS FOR GAS TURBINE COMBUSTOR APPLICATIONS	
Lecturer	Prof. Benim, A. C. - Duesseldorf Univ. of Applied Sciences, Germany	
10:20~10:30	Coffee Break, Poster Setup	
10:30~12:30	General 3	Room F
	Chair: Shahrir Abdullah - National Univ. of Malaysia , Malaysia /Kyoung-Ho Kang - Korea Atomic Energy Research Institute, Korea	
AICFM9-069	"NUMERICAL ANALYSIS OF THE COMBUSTION PROCESS IN A COMPRESSED NATURAL GAS DIRECT INJECTION ENGINE"	
	Wendy Hardyono Kurniawan , Shahrir Abdullah - National Univ. of Malaysia , Malaysia	
AICFM9-155	MODELING OF WATER HEATER USING WASTE HEAT FROM SPLIT-TYPE AIR CONDITIONER	
	Techarungpaisan, P. , Pumchumpon, S. - Ubon Ratchathani Univ. , Tailand / Theerakulpisut, S., Benjapiyaporn, C. - Khon Kaen Univ. , Tailand	
AICFM9-162	ACOUSTIC RESONANCE AND VORTEX SHEDDING FROM IN-LINE TUBE BANKS	
	Hiromitsu HAMAKAWA , Hiroto MATSUE - Oita Univ. , Japan / Eiichi NISHIDA - Shonan Institute of Technology , Japan / Tohru FUKANO - Kurume Institute of Technology , Japan	
AICFM9-038	"APPLICATION OF AVERAGING BIDIRECTIONAL FLOW TUBE FOR THE MEASUREMENT OF SINGLE PHASE FLOW IN THE PLANT"	
	K.H.Kang , B.J.Yun , D.J.Euh , W.P.Baek - Korea Atomic Energy Research Institute , Korea	
10:30~12:30	Renewable Energy 2	Room A
	Chair: Mann-Eung Kim - Korean Register, Korea /Mitsuo Uno - Kyushu Kyoritsu Univ., Japan	



- AICFM9-272 **THE FLUID-CROSSING GATE FOR PIPELINE DEVELOPMENT AND APPLICATION**
Jae Hag Kim, Young Ho Park, Sang Seek Bae, Joo Heon Han - Korea Water Resources Corporation, Korea / Gi Ho Song - KyeMyoung Construction
- AICFM9-180 **“EXPERIMENTAL STUDY ON PERFORMANCE IMPROVEMENT OF CROSS-FLOW WIND TURBINE”**
Satoshi Hase , Eiji Ejiri - Chiba Institute of Technology , Japan
- AICFM9-210 **STUDIES ON THE AERODYNAMIC PERFORMANCE OF A VERTICAL AXIS WIND TURBINE WITH STRAIGHT BLADES**
Takao MAEDA , Yasunari KAMADA , Yuu OUCHI - Mie Univ. , Japan / Katsuyoshi NAKANO - Shinko Electric Co., Ltd. , Japan
- AICFM9-270 **INVERSE DESIGN OF AIRFOILS FOR HAWT BLADE**
Hyungki Shin , Seokwoo Kim - Korea Institute of Energy Research , Korea

10:30~12:30 **Pump 5** **Room B**

Chair: You-Taek Kim - Korea Maritime Univ., Korea / Hongxun Chen - Shanghai Univ., China

- AICFM9-050 **IMPROVEMENT OF THE VIBRATION ANALYSIS FOR THE LARGE-SIZED VERTICAL PUMP**
Michiko SUGIYAMA - EBARA Corporation , Japan
- AICFM9-181 **“ENGINEERING THERMOFLUID STRUCTURAL ANALYSIS OF REACTOR COOLANT PUMP FOR APR1400”**
Jung Ho Kang , Young Uk Kim - PHILOSOPHIA, Inc. , Korea / Kune Yull Suh - Seoul National Univ. , Korea
- AICFM9-201 **PUMP VIBRATION IN THE IN-GROUND TYPE LNG TANK**
HoYeon Kim , HyeongSeop Lim , HeeSeog Seo - Korea Gas Corporation , Korea / JungHee Seo , YoungJune Moon - Korea Univ. , Korea
- AICFM9-297 **THERMAL RELIABILITY ANALYSIS OF THE BEARING UNITS IN A CENTRIFUGAL PUMP**
Jung-Hwan Moon, Jin-Huek Hur, Seung-Jae Moon, Jae-Heon Lee - Hanyang Univ., Korea, Hoseon Yoo - Soongsil Univ., Korea

10:30~12:30 **Poster Session 1**

Chair: Won-Gu Joo - Yonsei Univ., Korea

- AICFM9-016 **INFLUENCE OF BOUNDARY CONDITIONS RELAXATION ON CRITICAL FLOW VELOCITY OF FLUID-CONVEYING PIPES WITH SUPPORTED ENDS**
J. D. Jin , X. D. Yang , Y. F. Zhang - Shenyang Institute of Aeronautical Engineering , China
- AICFM9-017 **EXPERIMENTAL STUDY OF CAVITATION INCEPTION IN STAGGERED CASCADE**
Kang Can , Yang Minguan , Li Hui - Jiangsu Univ., China
- AICFM9-018 **EXPERIMENTAL STUDY OF WATER-AIR TWO-PHASE FLOW IN STAGGERED CASCADE**
Yang Minguan , Kang Can , Luo Tiqian - Jiangsu Univ., China
- AICFM9-020 **INVERSE SHAPE DESIGN OF A TURBINE CASCADE USING THE TRANSPIRATION METHOD**
Eun Seok Lee , Yong Hyun Jeong , Woo Seok Seol - Korea Aerospace Research Institute , Korea
- AICFM9-021 **EFFECTS OF SURFACE ROUGHNESS ON PERFORMANCE OF AXIAL COMPRESSOR BLADE WITH SWEEP AND LEAN**



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

- Abdus Samad , Kwang Yong Kim - Inha Univ. , Korea
- AICFM9-024** **THREE-DIMENSIONAL RANS ANALYSIS IN STEAM TURBINE BYPASS VALVE**
Kwang Yong Kim , An Tai Cho - Inha Univ. , Korea
- AICFM9-025** **OPTIMIZATION OF COOLING CHANNEL ROUGHENED BY DIMPLES**
Abdus Samad , Kwang Yong Kim , Dong Yoon Shin - Inha Univ. , Korea
- AICFM9-026** **DESIGN OPTIMIZATION OF LOW-SPEED AXIAL FLOW FAN BLADE WITH THREE-DIMENSIONAL RANS ANALYSIS**
Kwang Yong Kim , Ki Sang Lee , Abdus Samad - Inha Univ. , Korea
- AICFM9-036** **NUMERICAL HYDRAULIC SIMULATION ON CLOSED COOLING WATER HEAT EXCHANGER CIRCUIT**
S.M. Park , J.H. Kim , S.S. Seol , H.H. Kim , S.W. Kim - Hyundai Heavy Industries , Korea
- AICFM9-046** **AN EXPERIMENTAL INVESTIGATION OF HEAT TRANSFER AND FRICTION USING INCLINED DISCRETE RIBS ON ABSORBER PLATE OF A SOLAR AIR HEATER**
K.R. Aharwala - S.G.S.G.I.T. S. Indore , India / B. K. Gandhi , J.S. Saini - I.I.T. Roorkee , India
- AICFM9-047** **NANOJET INJECTION STUDIES ON THE VARIOUS NANOSCALE SYSTEMS**
Sang Hwan Lee , Dong Jin Chae , Cheol O Ahn , In Soo Seo - Hanyang Univ. , Korea
- AICFM9-048** **A NUMERICAL ANALYSIS FOR PREDICTION OF FLOW RATE OF THE MOTOR COOLING FAN**
Sang Hwan Lee , Tae In Kang , In-Soo Seo - Hanyang Univ., Korea, Juhee Lee - Hoseo Univ., Korea
- AICFM9-054** **EXPERIMENTAL STUDY ON INTERNAL ROTATIONAL FLOW FIELD OF VORTEX PUMP**
Minguan Yang , Bo Gao , Weidong Jia , Hui Li , Haifei Gu - Jiangsu Univ. , China
- AICFM9-061** **STRUCTURAL EFFECTS OF SHROUDS AND FILLETS ON LIQUID ROCKET TURBOPUMP TURBINES**
Suk Hwan Yoon , Seong Min Jeon , Jin Han Kim - Korea Aerospace Research Institute , Korea
- AICFM9-062** **TEST RESULTS OF THE MECHANICAL FACE SEAL FOR A TURBOPUMP**
Hyun D. Kwak , Seong Min Jeon , Jin Han Kim - Koera Aerospace Research Institute , Korea
- AICFM9-063** **ON THE SIZE REDUCTION OF THE SOLID PROPELLANT GAS GENERATOR FOR LIQUID ROCKET ENGINES**
Moongeun Hong , Soo Yong Lee - Korea Aerospace Research Institute , Korea
- AICFM9-065** **A CORNER SEPARATION OF A STATOR IN DIAGONAL FLOW FAN**
Yoichi KINOUE, Norimasa SHIOMI, Kenji KANEKO, Toshiaki SETOGUCHI - Saga Univ., Japan
- AICFM9-066** **NUMERICAL ANALYSIS OF FLOW STRUCTURE AND HEAT TRANSFER FOR DIFFERENT DIMPLE DEPTHS WITHIN A CHANNEL**
Se Youl Won , Young Sheop Park - Korea Hydro & Nuclear Power Co. Ltd. , Korea
- AICFM9-067** **PERFORMANCE OF A CROSS-FLOW FAN WITH VARIOUS SHAPES OF A REARGUIDER AND AN EXIT DUCT**
Tae An Kim , Youn J. Kim - Sungkyunkwan Univ. , Korea / D.-W. Kim , S.-K. Park - Samsung Electronics Co., Ltd. , Korea
- AICFM9-073** **FLOW RATE CONTROL IN MICRO CHANNEL WITH PROTRUSIONS CONSIDERING SURFACE TENSION EFFECT**



- AICFM9-077 **INVESTIGATION OF OFF-DESIGN PERFORMANCE IN CENTRIFUGAL COMPRESSOR FOR HFC-134A TURBO-CHILLER**
Dohyung Lee, Jaeyeon Jhun, Taeseok Shin- Hanyang Univ., Korea
Han Young Park , Jin Taek Chung - Korea Univ. , Korea / You Hwan Shin , Yoon Pyo Lee , Kwang Ho Kim - KIST , Korea
- AICFM9-078 **STUDY ON CONDENSATION PHENOMENA FOR ROOM AIR CONDITIONER USING VISUALIZATION TECHNIQUE**
A Mi Lee , Han Seo Ko - Sungkyunkwan Univ., Korea / Dong Won Kim , Seon Uk Na - Samsung Electronics Co.,LTD , Korea
- AICFM9-084 **ON THE STATIC PRESSURE FLUCTUATION BETWEEN THE SIROCCO FAN BLADES AND THE MECHANISM OF NOISE GENERATION IN THE CAR AIR-CONDITIONING SYSTEM**
Yasuhiko SAKAI , Takaaki KATO , Yuu MORIGUCHI , Kouji NAGATA , Takashi KUBO - Nagoya Univ. , Japan / Masaharu SAKAI , Kouji ITO - DENSO CORPORATION , Japan / Yasushi MITSUISHI - NIPPON SOKEN, INC. , Japan
- AICFM9-087 **TEST RESULT FOR ROTORDYNAMIC COEFFICIENTS OF BUMP FLOATING RING SEAL DEPENDING ON THE THICKNESS OF BUMP**
Kyoung Wook Kim , Chang Ho Kim , Yong Bok Lee - Korea Institute of Science and Technology , Korea / Tae-Woong Ha - Kyungwon Univ. , Korea
- AICFM9-096 **A STUDY ON THE SOLID-LIQUID 2 PHASE HELICAL FLOW IN AN INCLINED ANNULUS**
Sang Mok Han , Nam Sub Woo , Young Kyu Hwang - Sungkyunkwan Univ. , Korea
- AICFM9-098 **CONTROL OF GUIDE VANES FOR SMOOTHING THE PERFORMANCE OF VERTICAL-AXIS WIND TURBINE**
Byung Kook Kim , Woo Seog Song , Seung Bae Lee - Inha Univ. , Korea / Hoi Ryoung Kim - AeroNet Inc. ,Korea / Sang Kyu Nam - KR Inc. , Korea
- AICFM9-104 **APPLICATION PRACTICE OF HYDRODYNAMIC END FACE SEAL WITH CIRCULAR ARC GROOVES**
Zheng Renwu - SINOPEC Fujian Refining Chemical Co.,Ltd , China / Xiao'ou Li , Jinlong Xing , Yetao Sheng - Hefei General Machinery Research Institute , China
- AICFM9-105 **DISCUSSION ON FAILURES AND RELIABILITY OF CANNED-MOTOR PUMP (CMP)**
Wang Leqin , Wu Keyang , Wu Dazhuan - Zhejiang Univ. , China
- AICFM9-106 **DESIGN OF MODEL SCRAMJET ENGINE FOR SHOCK TUNNEL TEST**
Sang Hun Kang , Yang Ji Lee , Soo Seok Yang - Korea Aerospace Research Institute , Korea
- AICFM9-111 **BLADE NUMBER EFFECT FOR A DUCTED WIND TURBINE**
Sheng-Huan Wang, Shih-Hsiung Chen - National Cheng Kung Univ., Taiwan
- AICFM9-115 **NEW INVERSE METHOD OF CENTRIFUGAL PUMP BLADE**
Zhang Renhui ,Yang Junhu , Liu Yi - Lanzhou Univ. of Technology , China
- AICFM9-126 **RESEARCH ON REDUCTION OF OUTLET PRESSURE PULSE OF CENTRIFUGAL PUMP BASED ON UNSTEADY FLOW NUMERICAL SIMULATION**
Li Hong , Ji Liujin - Jiangsu Univ. , China



THE 9th ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

- AICFM9-134** **EFFECTS OF VENT SHAFT SHAPE ON THE VENTILATION PERFORMANCE IN A SUBWAY TUNNEL**
Jung Yup Kim - Korea Institute of Construction Technology , Korea / Kwang Yong Kim - Inha Univ. , Korea
- AICFM9-137** **UNCERTAINTY ASSESSMENT USING MONTE CARLO SIMULATION IN ALTITUDE ENGINE TEST**
Bo Hwa Lee , Kyung Jae Lee , In Young Yang , Soo Seok Yang , Dae Sung Lee - Korea Aerospace Research Institute , Korea
- AICFM9-140** **CFD ANALYSIS FOR THE INTERNAL FLOW CHARACTERISTICS OF A CROSS-FLOW HYDRAULIC TURBINE**
Young-Do Choi , Jea-Ik Lim , Chang-Goo Kim , You-Taek Kim , Young-Ho Lee - Korea Maritime Univ. , Korea
- AICFM9-141** **PERFORMANCE CHARACTERISTICS OF 5KW TUBULAR-TYPE HYDROTURBINE BY CFD**
You Taek Kim , Sang Hyun Nam , Young Jin Cho , Young Do Choi , Chung Do Nam , Young Ho Lee - Korea Maritime Univ. , Korea
- AICFM9-145** **ANGULAR CALIBRATION OF AN ULTRASONIC ANEMOMETER IN A STANDARD WIND TUNNEL**
Sejong Chun , Yong Moon Choi , Hae Man Choi , Saeng Hee Lee - KRISS , Korea
- AICFM9-146** **MEASUREMENT OF VELOCITY DISTRIBUTION IN WIND TUNNEL TEST SECTIONS PRIOR TO REGULAR CALIBRATION SERVICE**
Sejong Chun , Yong Moon Choi , Hae Man Choi , Saeng Hee Lee - KRISS , Korea
- AICFM9-170** **CENTRIFUGAL COMPRESSOR BLADE OPTIMIZATION USING KNOWLEDGE-BASED APPROACH**
SHU Xinwei, WANG Tong, GU Chuangang, YANG Bo,GAO Chuang, XU Wei - Shanghai Jiao Tong Univ.
- AICFM9-178** **DEVELOPMENT OF INLET DISTORTION SIMULATION DEVICE FOR GAS TURBINE ENGINE INLET DISTORTION TEST**
Kyung Jae Lee , Bo Hwa Lee , Sang Hun Kang , Jae Hong Jung , Soo Seok Yang , Dae Sung Lee - Korea Aerospace Research Institute , Korea / Jae Su Kwak - Korea Aviation Univ. , Korea / Yong Ryun Kim , Myung Ho Kim - Agency for Defense Development , Korea

12:30~14:00 **Lunch**

14:00~17:30 **Excursion (Jeju Island)**



CONFERENCE SESSIONS (DAY 3):October 19, 2007 (Friday)

09:00~	Registration	Ballroom Lobby
09:00~09:40	Plenary Lecture 3	RAMADA Ballroom
	Chair: Choon-Man Jang - KICT, Korea	
AICFM9-PL02	CAVITATION INSTABILITIES OF HYDROFOILS AND CASCADES	
Lecturer	Prof. Tsujimoto, Yoshinobu - Osaka Univ., Japan	
09:40~09:50	Coffee Break	
09:50~10:20	Invited Lectures 5 and 6	Room D&F
	Chair: Sang-Hwan Lee - Hanyang Univ., Korea	
AICFM9-IL04	FLOWS OVER CONCAVE SURFACES: DEVELOPMENT OF PRE-SET WAVELENGTH GORTLER VORTICES	
Lecturer	Prof. Winto, S. H. - National Univ. of Singapore, Singapore	
	Chair: Kwang-Yong Kim - Inha Univ., Korea	
AICFM9-IL05	ULTRA HIGH PRESSURE WATER-JET RUST REMOVAL LINE DESIGN AND TEST	
Lecturer	Prof. Xue, Shengxiong - Hefei General Machinery Research Institute, China	
10:20~10:30	Coffee Break, Poster Setup	
10:30~11:50	Flow Meter and Valve 1	Room A
	Chair: Tae-il Kang - Mt. H Control Valves, Korea	
AICFM9-008	DOWNHOLE MULTIPHASE FLOW RATE MEASUREMENT BASE ON MULTILATERAL WELL IN OFFSHORE	
	Ding FENG , Song YIN - Yangtze Univ. , China	
AICFM9-101	3D FLOW FIELD ANALYSIS OF THE MAIN STEAM ISOLATION VALVES	
	Zhang Ming , Yao Weida - Shanghai Nuclear Engineering Research and Design Institute , China	
AICFM9-144	FLOW CHARACTERISTICS OF CRYOGENIC BUTTERFLY VALVE FOR LNG CARRIER	
	Kim Sang Wan, Kim Jeong Hwan, Choi Young Do, Lee Young Ho - Korea Maritime Univ., Korea	
AICFM9-244	NUMERICAL ANALYSIS OF 3-D FLOW THROUGH LNG MARINE CONTROL VALVES FOR THEIR ADVANCED DESIGN	
	Y.J. Ahn - Graduate School, Changwon National Univ., Korea / B.R. Shin - Changwon National Univ., Korea	
10:30~11:50	Gas Turbine 1	Room B
	Chair: Jae Su Kwak - Korea Aerospace Univ., Korea /Bo Liu - Northwestern Polytechnical Univ., USA	
AICFM9-260	RELATION OF THE CLOCKING EFFECT AND THE SECONDARY FLOW IN A 1.5 STAGE AXIAL TURBINE	
	Minsuk Choi , Je Hyun Baek - POSTECH , Korea / Jongil Park - Hyundai Industries Co. , Korea / Hee Taeg Chung - Gyeongsang National Univ. , Korea	
AICFM9-213	NUMERICAL PREDICTIONS OF HEAT TRANSFER COEFFICIENT ON A GAS-TURBINE BLADE SUBJECTED TO HIGH FREE-STREAM TURBULENCE USING LES	
	Masaaki Fujikawa , Chisachi Kato , Yang Guo - The Univ. of Tokyo , Japan	



- AICFM9-027 **IMPROVEMENT OF THE HUE DETECTION BASED TRANSIENT LIQUID CRYSTALS TECHNIQUE**
Shin somin , Jae Su Kwak - Korea Aviation Univ. , Korea
- AICFM9-224 **ANALYTICAL AND EXPERIMENTAL STUDY ON MISTUNED VIBRATION OF RADIAL INFLOW TURBINE IMPELLER**
Hiroaki Hattori , Masaru Unno , Masazumi Hayashi - IHI Corporation , Japan
- 10:30~12:30 Poster Session 2**
Chair: Youn-Jae Kim - Sungkyunkwan Univ., Korea
- AICFM9-032 **EFFECT OF HOLE SHAPE ON THE HEAT TRANSFER IN A RECTANGULAR DUCT WITH PERFORATED BLOCKAGE WALLS**
Somin Shin , Jae Su Kwak - Korea Aerospace Univ., Korea
- AICFM9-156 **COUPLED AERODYNAMIC-THERMODYNAMICS-STRUCTURAL OPTIMIZATION OF GAS TURBINE BLADE DESIGN**
Fan Jiang , Wang Rongqiao , Ma Hongwei , Shen Xiuli - Beihang Univ. , China
- AICFM9-167 **DESIGN AND MANUFACTURE OF THE STORAGE AIR HEATER FOR SUPERSONIC GROUND TEST FACILITY**
Yang Ji Lee , Sang Hun Kang , Poo Min Park , Soo Seok Yang - Korea Aerospace Research Institute, Korea
- AICFM9-182 **RESEARCH OF FLOW CHARACTERISTICS IN THE IMPELLER OF HIGH SPECIFIC SPEED MIXED-FLOW PUMP WITH VARIABLE OPERATING MODES**
SHULIANG CAO , QINZHAO ZHANG , YAN CHEN - Tsinghua Univ. , China / LI LU - China Institute of Water Resources and Hydropower Research , China
- AICFM9-193 **EFFECT OF THE IMPELLER TIP CLEARANCES ON THE FLOW CHARACTERISTICS OF DRAIN PUMP**
Hyeon-Seok Seo , Youn-Jea Kim - Sungkyunkwan Univ. , Korea
- AICFM9-200 **NUMERICAL STUDY ON CHARACTERISTICS OF THE TRANSIENT PRESSURE INDUCED BY PCV TROUBLES IN A PRESSURE REGULATING SYSTEM**
Chang Hoon Shin , Jong Man Ha , Cheol Gu Lee - Korea Gas Corporation , Korea
- AICFM9-203 **THE STUDY OF THE CAVITATION FOR THE URGENCY RELEASED VALVE IN HYDRAULIC DAM**
Hyung Woon Roh - IVAI ,Korea / Young Ho Lee - Korea Maritime Univ. , Korea / Kab Soo Lee - Kwater , Korea / Sang Ho Suh - SoongSil Univ. , Korea
- AICFM9-204 **A STUDY OF THE OCCURRED VORTEX CHARACTERISTICS IN PUMP INTAKE SYSTEM USING THE MODEL TEST AND COMPUTER SIMULATION**
Hyung Woon Roh - IVAI , Korea / Young Ho Lee - Korea Maritime Univ. , Korea / Yu Mi Oh - Korea Water Resources Corporation , Korea / Sang Ho Suh - SoongSil Univ., Korea
- AICFM9-212 **A STUDY ON CONDITION MONITORING OF TURBO SHAFT ENGINE USING NEURAL NETWORK**
Changduk Kong - Chosun Univ. , Korea / Seonghee Kho, Jayoung Ki - Easy Gas Turbine R&D Co., Ltd. , Korea / Changho Lee - Korea Aerospace Research Institute , Korea
- AICFM9-219 **NUMERICAL STUDY OF TURBINE/EXHAUST HOOD INTERACTION USING ACTUATOR DISK MODEL**
Ji-Hyun Im, Won-Gu Joo - Yonsei univ. , Korea / Ik-Hyung Lee, Young-Sang Kim , Hong-Sik Im - Doosan Heavy Industries & Construction C., Ltd. , Korea



- AICFM9-223 CAUSES OF SPIRAL VIBRATION OF MORTON EFFECT AND ITS PROCEDURES TO SOLVE**
Kaiji Ono , Osamu Saito , Akio Simoda , Naomichi Omori , Hideki Ogata - IHI Corporation , Japan
- AICFM9-226 EFFECT OF ASPECT RATIO ON RECTANGULAR MICROCHANNEL FLOW**
Md. Tajul Islam, Yeon-Won Lee - Pukyong National Univ. , Korea
- AICFM9-239 HEAT TRANSFER MEASUREMENT ON CONCAVE SURFACE IN ROTATING JET IMPINGEMENT**
Sung Kook Hong - Yonsei Institute of Automotive Technology, Korea / Dong Hyun Lee, Hyung Hee Cho - Yonsei Univ., Korea
- AICFM9-243 NUMERICAL SIMULATION OF 3-D FLOW THROUGH MULTI-STAGE NOZZLE FOR CUTTING FLUID SUPPLYING APPARATUS**
S.H. Jung - Graduate School, Changwon National Univ. , Korea / S.I. Ahn - Hantech I & P Co., Ltd. , Korea / B.R. Shin - Changwon National Univ. , Korea
- AICFM9-245 NUMERICAL STUDIES OF F-5E INLET AT SUPERSONIC SPEEDS**
YL Wu , EYK Ng , Imran Halimi Bin Ibrahim - Nanyang Technological Univ. , China / K Wong , R. Gunasekeran - Republic of Singapore Air Force
- AICFM9-246 EFFECTS OF CENTERLINE CURVATURE AND CROSS-SECTIONAL SHAPE TRANSITIONING IN THE SUBSONIC DIFFUSER OF THE F-5 FIGHTER JET**
Imran Halimi Bin Ibrahim, EYK Ng, YL Wu - Nanyang Technological Univ. , China / K. Wong , R. Gunasekeran - Republic of Singapore Air Force, Singapore
- AICFM9-250 THE EFFECT OF THE VARIATION OF THE DOWNSTREAM REGION DISTANCE AND THE BUTTERFLY VALVE ANGLE ON FLOW CHARACTERISTICS IN A 90 DEGREE ELBOW**
Se Youl Won , Young Sheop Park - Korea Hydro & Nuclear Power Co. Ltd , Korea
- AICFM9-253 REPORT ON BULB TYPE HYDRO TURBINE ACCIDENT**
Sung Ho Ko - CHUNG NAM NATIONAL Univ., Korea / Jung Jae Hyun, Jae Hyuck Hwang, Yong Chae Jeong, Jin Ho Shin - Korea Water Resources Corporation, Korea
- AICFM9-255 THE CHARACTERISTIC ANALYSIS OF RESPONSE CONTROL FOR THE POWER PLANT FAN PITCH BLADE CONTROL ACTUATOR**
Tae Ha Son, Jun-Young Hur - Korea Electric Power Research Institute , Korea
- AICFM9-259 NOISE PREDICTION METHOD OF THE SYSTEM FAN BY USING FLOW NETWORK MODEL**
Chan Lee - Univ. of Suwon , Korea / Oh Kyung Kwon , Jae Ho Yun - Korea Institute of Industrial Technology , Korea
- AICFM9-263 OPTIMUM DESIGN OF ELECTROSTATIC PRECIPITATOR IN A ROAD TUNNEL FOR FLOW UNIFORMITY**
C.-M. Jang - Korea Institute of Construction Technology , Korea / K.-S. Lee , K.-Y. Kim - Inha Univ. , Korea
- AICFM9-264 PERFORMANCE CHARACTERISTICS ON TURBO BLOWER OF A REFUSE COLLECTING SYSTEM ACCORDING TO OPERATION CONDITIONS**
C.-M. Jang , D.-W. Kim - Korea Institute of Construction Technology , Korea / S.-Y. Lee - ANST , Korea
- AICFM9-280 COMPARISON AND SELECTION OF ADJUSTING METHODS OF LARGE LOW HEAD PUMP UNIT OPERATION MODE**



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

- AICFM9-281 Baoyun Qiu , Wei Jiang , Haihong Cao , Zhaohui Gao , Fei Wang - Yangzhou Univ. , China
STUDY ON OPTIMIZATION OF OUTFLOW CIRCULATION OF AN AXIAL FLOW PUMP
- AICFM9-285 Baoyun Qiu , Haihong Cao , Xiaoli Feng , Fei Wang , Zhaohui Gao , Wei Jiang - Yangzhou Univ. , China
FAULT DIAGNOSTICS OF THE THERMAL PHYSICS SYSTEMS BASED ON MULTIAGENT APPROACH
- AICFM9-287 O.Yu. Sokolov , M.L. Ugryumov , I.A. Trofimova - National Aerospace Univ., Ukraine
NPSHR OPTIMIZATION OF AXIAL FLOW PUMPS
- AICFM9-291 Wen Guang LI - Lanzhou Univ. of Technology, China
LEVITATION CHARACTERISTICS OF DISK-TYPE STATOR USING ULTRASONIC WAVE GENERATOR
- AICFM9-294 Sanghwa Jeong - chosun Univ., Korea / Gwangho Kim, Sangmoon Shin, Hojin Seo, Taeho Kim, Jinwan Park - Chosun Univ., Korea
MULTI-OBJECTIVE OPTIMIZATION OF TURBOMACHINERY BLADE
- AICFM9-296 Abdus Samad , Kwang-Yong Kim - Inha Univ., Korea
INTERNAL FLOW CHARACTERISTICS BY NOZZLE SHAPE OF CROSS-FLOW HYDRAULIC TURBINE FOR WAVE POWER SYSTEM
- AICFM9-302 Young Do Choi, Chang Goo Kim, Young Jin Cho, You Taek Kim , Young Ho Lee - Korea Maritime Univ. , Korea
CALCULATION OF CAVITY GROWTH BASED ON A TWO-FLUID MODEL
- AICFM9-303 Moon Sun Chung , Jong Won Kim - Korea Institute of Energy Research, Korea
COMPARISON THE RESULTS OF MEASURED METHOD AND NON-FREE VORTEX DESIGN
- AICFM9-304 Ferenc Szlivka , Ildik? Moln?r - Szent Istvan Univ. , Hungary
FUNDAMENTAL STUDY ON WATER INJECTION COOLING SYSTEM OF CENTRIFUGAL COMPRESSOR FOR MICRO GAS TURBINE
- AICFM9-306 Nguyen Huy Hoang - Graduate School of Engineering, Nagoya Univ., Japan / Yutaka Hasegawa - Ecotopia Science Institute, Nagoya Univ. / Shinya Maekawa - Yamaha Marine Company Limited, Japan
DEVELOPMENT OF THE VIRTUAL ANECHOIC FAN TESTER TO AXIAL FLOW FANS
- AICFM9-307 Wook Kim, Wan-Ho Jeon, Jang-Hyung Cho - CEDIC, Korea
A DURABILITY TEST FOR FUEL CELL TURBO-BLOWER SUPPORTED BY OIL-FREE FOIL BEARINGS
- AICFM9-308 Yong Bok Lee, Hee Sub Lee , Chang Ho Kim - Korea Institute of Science and Technology , Korea
RESEARCH OF TURBULENT FLOW IN THE CHEMICAL PUMP
- AICFM9-310 Liu Dong, Yang Min guan - School of Energy and Power Engineering, Jiangsu Univ., China
STUDY OF MODULATED VALVE FOR PWM SPRAY
- AICFM9-312 ChunDu Wu , Wei Zhang - Key Laboratory of Modern Agriculture Equipment and Technology of Jiangsu Province , China / Bo Zhang - College of Environment, Jiangsu Univ. , China
NUMERICAL SIMULATION OF SOLID-LIQUID FLOW IN A NEW KIND OF CYCLONE
- AICFM9-314 Li Wei , Chu JinYu , Wu ChunDu , Zhang Wei - JiangSu Univ. , China
NUMERICAL SIMULATION OF LIQUID JET GAS PUMP
- Qingjiang Xiang , Shouqi Yuan - Jiangsu Univ. / Hongqi Lu - Wuhan Univ. , China



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

AICFM9-315	CHARACTERISTICS OF A HELICAL SCREW AGITATOR WITH A DRAUGHT TUBE Jung Hoon Hwang , Youn Jea Kim - Sungkyunkwan Univ. , Korea
AICFM9-319	EFFECT OF MESH SCREEN DEVICE ON THE FLOW AND NOISE FIELD OF OVER-EXPANDED JET Hyun-Goo Kang , Heuy-Dong Kim - Andong National Univ. , Korea / Yong-Hun Kweon - POSCO , Korea / Aoki Yosiyuki - Kyushu Univ.
AICFM9-323	DEVELOPMENT OF TURBINE ALIGNMENT TECHNIC AND EQUIPMENT USING STRAIN GAUGE Seong Bong Kim , Jae Won Jung , Suk Keun Bong , Ho Cheol Park - Korea plant service & engineering , Korea
AICFM9-337	INTER-ANNUAL VARIATIONS IN WIND RESOURCE AND APPLICATION OF WASP Kyungnam Ko, Munjong Kang, Jongchul Huh - Cheju National Univ., Korea
11:50~13:00	Lunch
13:00~13:30	Invited Lectures 7 and 8 Room D&F
	Chair: Jae-Ho Choi - Samsung Techwin, Korea
AICFM9-IL07	PAST, PRESENT AND FUTURE OF TURBOMACHINERY BUSINESS IN SAMSUNG TECHWIN
Lecturer	Dr. Seung-Bae Chen - Samsung Techwin Co. Ltd., KOREA
	Chair: Young-Ho Lee - Korea Maritime Univ., Korea
AICFM9-IL08	THE DEVELOPMENT OF PROTOCOLS FOR EQUITABLE TESTING AND EVALUATION IN OCEAN ENERGY - A THREE YEAR STRATEGY
Lecturer	Dr. David Ingram - Univ. of Edinburgh, United Kingdom
13:30~13:40	Coffee Break
13:40~15:00	Fans and Blowers 3 Room A
	Chair: Yoshiyuki Maruta - Ebara Research Co. Ltd., Japan / Chang-Woo Lee - Dong-A Univ., Korea
AICFM9-136	REDUCING AERODYNAMIC NOISE OF MULTI-BLADES FAN WITH SILENCER BOX Yoshiyuki MARUTA - Ebara Research Co., Ltd. , Japan / Hidenobu OKAMOTO - Ebara Corporation , Japan / Tohru SAITOH , Ken-ichi TAKEDA - Oiwa Machinery Corporation , Japan
AICFM9-215	ON THE NATURAL VENTILATION IN LOCAL ROAD TUNNELS: EFFECT OF THE NATURAL VENTILATION ON THE OPTIMAL CAPACITY AND VENTILATION EFFICIENCY OF JET FAN Chang Woo Lee , Hong Chae Park , Hong Ryul Cho - Dong-A Univ. , Korea
AICFM9-138	DEVELOPMENT OF AXIAL FLOW FAN FOR COOLING TOWER USING 3-D INVERSE DESIGN METHOD Hidenobu OKAMOTO - EBARA RESEARCH Co., Ltd. , Japan / Masashi KITAMURA - EBARA SHINWA Ltd., Japan
AICFM9-197	FLUCTUATING SURFACE PRESSURE ON A CROSS-FLOW-IMPELLER BLADE Y.lida , J.Funaki , K.Hirata - Doshiha Univ. , Japan / A.Takushima - Samsung Yokohama Research Institute , Japan
13:40~15:00	Gas Turbine 2 Room B
	Chair: Won-Gu Joo - Yonsei Univ., Korea



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

- AICFM9-198 **SECONDARY FLOW CONTROL IN A TURBINE CASCADE**
R.K. Sullerey , Alok Mishra - Indian Institute of Technology , India
- AICFM9-152 **NUMERICAL INVESTIGATION OF EFFECT OF NON-AXISYMMETRIC ENDWALL PROFILING ON SECONDARY FLOW IN TURBINE CASACDE**
LIU Bo, GUAN Jiwei , WANG Yangang , GAO Limin , NAN Xiangyi - Northwestern Polytechnical Univ. , USA
- AICFM9-076 **A STUDY ON INFLUENCE OF ADMISSION ARC POSITION IN PARTIAL ADMISSION STAGES OF STEAM TURBINE**
Naoto SAKAI , Tetsuya HARADA , Yoshinobu IMAI - Kawasaki Heavy Industries, Ltd. , Japan
- AICFM9-317 **PREDICTION OF SWIRL FACTOR IN A SECONDARY FLOW PATH OF STEAM TURBINE**
KyoungJin Lee , HongYoung Cheon , JinHwan Kim , JongJin Park - DOOSAN Heavy Industries and Construction Co., LTD. , Korea

13:40~15:00 **Hydro Turbine 3** **Room C**

- Chair: Akinori Furukawa - Kyushu Univ., Japan / Young-Do Choi - Korea Maritime Univ., Korea
- AICFM9-249 **NUMERICAL INVESTIGATION OF HORSESHOE VORTICES IN THE DRAFT TUBE OF A BULB TURBINE**
Kenji Shingai , Satoshi Araki , Kiyohito Tani - Hitachi, Ltd. , Japan
- AICFM9-211 **DEVELOPMENT OF A LOW AIR LEAKAGE DRAFT TUBE OF PUMP-TURBINES**
Yoshihiro SHINDO , Shigenori WATANABE - Tokyo Electric Power Company , Japan / Hiroshi KOMIYA , Takanori NAKAMURA - Toshiba Corporation Power Systems Company , Japan
- AICFM9-015 **NUMERICAL SIMULATION OF SWIRLING FLOW IN DRAFT TUBE OF A LARGE FRANCIS TURBINE**
Cuilin Liao , Fujun Wang , Jiamei Ma , Xiaoqin Li - China Agricultural Univ. , China
- AICFM9-014 **NOVEL REPAIR TECHNIQUE FOR LIFE-EXTENSION OF HYDRAULIC TURBINE COMPONENTS IN HYDROELECTRIC POWER PLANTS**
Yasuhiro MATSUMOTO , Yasuhiro Matsumoto , Jun AOYAMA - The KANSAI Electric Power Co.,Inc. , Japan / Jun ISHII - Ishikawajima Inspection&Instrumentation Co.,Ltd. , Japan

13:40~15:00 **General 4** **Room D**

- Chair: Peng Shan - Beijing Univ. of Aeronautics and Astronautics, China /Kune Y. Suh - Seoul National Univ., Korea
- AICFM9-001 **A MASS ADDITION APPROACH TO THE BYPASS TURBOMACHINE THROUGH FLOW INVERSE DESIGN PROBLEM**
Peng Shan - Beijing Univ. of Aeronautics and Astronautics , China
- AICFM9-051 **LEAK DETECTION IN PIPE USING TRANSIENT FLOW AND GENETIC ALGORITHM**
Young-joon KIM, Koji MIYAZAKI, Hiroshi TSUKAMOTO - Kyushu Institute of Technology, Japan
- AICFM9-150 **ENGINEERING THERMOFLUID DYNAMIC ANALYSIS OF SUPERCRITICAL CARBON DIOXIDE TURBOMACHINERY FOR KALIMER-600**
Tae W. Kim , Nam H. Kim , Kune Y. Suh - Seoul National Univ. , Korea / Seung O. Kim - Korea Atomic Energy Research Institute , Korea



AICFM9-257	FRONT WING DESIGN OPTIMIZATION OF A FORMULA CAR USING FAST CFD SOLVER SC/TETRA Chulho Kim , Junichi Nakanishi , Masami Koike - Software Cradle Co., Ltd. , Japan
13:40~15:00	Pump 6 Room E
	Chair: Jin-Hyoung Kim - Small Business Corporation, Korea /Kyoji Kamemoto - Yokohama National Univ., Japan
AICFM9-005	STRUCTURAL FEATURES AND OPTIMAL DESIGN OF BAOYING PUMPING STATION IN CHINA S-TO-N WATER DIVERSION PROJECT ZHANG Rentian - Jiangsu Surveying and Design Institute of Water Resources Co., Ltd. , China / DENG Dongsheng - Jiangsu Water Supply Co., Ltd. , China / ZHU Honggeng - College of Hydraulic Science and Engineering, Yangzhou Univ. , China
AICFM9-006	COMPARISON AND ANALYSIS OF MIXED-FLOW PUMP MODELS AND PUMPING SYSTEM CHARACTERISTICS ZHU Honggeng - Yangzhou Univ., China / DENG Dongsheng - Jiangsu Water Supply Co., Ltd., China / ZHANG Rentian - Jiangsu Surveying and Design Institute of Water Resources Co., Ltd., China
AICFM9-040	EXPERIMENTAL STUDY ON TWO-WAY FLOW PASSAGES IN PUMPING SYSTEM Jinmu ZHU - Wuhan Univ., China
AICFM9-053	CFD PREDICTION AND MODEL EXPERIMENT ON SUCTION VORTICES IN PUMP SUMP Okamura Tomoyoshi, Kamemoto Kyoji, Matsui Jun - Yokohama National Univ., Japan
15:00~15:10	Coffee Break
15:10~16:30	Fans and Blowers 4 Room A
	Chair: Je Hyun Baek - POSTECH, Korea / K. Funazaki - Iwate Univ., Japan
AICFM9-007	INTERNAL FLOW FIELDS WITH TIP LEAKAGE VORTEX IN A SMALL AXIAL FAN (EFFECT OF TIP CLEARANCE SIZE) Norimasa SHIOMI , Kenji KANEKO, Yoichi KINOUE , Wei-Sin SIM , Naoto SHIMOHARA , Toshiaki SETOGUCHI - Saga Univ. , Japan
AICFM9-274	A NUMERICAL STUDY ON THE UNSTEADY FLOW BEHAVIOR AND THE PERFORMANCE OF AN AUTOMOTIVE SIROCCO FAN Yohan Jung, Je Hyun Baek - POSTECH , Korea
AICFM9-184	INTERNAL FLOW FIELDS WITH TIP LEAKAGE VORTEX IN AN AXIAL FAN (EFFECT OF INLET GEOMETRY) Naoto SHIMOHARA , Kenji KANEKO , Norimasa SHIOMI , Yoichi KINOUE , Wei-Sin SIM , Toshiaki SETOGUCHI - Saga Univ. , Japan
AICFM9-261	STUDIES ON FLOW FIELD AROUND AN AIXAL-FLOW COOLING FAN USED IN A NARROW SPACE zHongbin YUAN , Ken-ichi FUNAZAKI , Takashi SHIMADA , Kazutoyo YAMADA , Hideo TANIGUCHI - Iwate Univ. , Japan
15:10~16:30	MEMS 2 Room B
	Chair: Masahiro Ota - Tokyo Metropolitan Univ., Japan /Seung Ho Cho - Seoul National Univ., Korea



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

- AICFM9-081 **Y-CHANNEL MICROMIXER EFFICIENCY EVALUATION USING LIF CONFOCAL MICROSCOPE**
Dohyung Lee , Sungsu Lee , Jaeyeon Jhun , M. Baig - Hanyang Univ. , Korea
- AICFM9-225 **ROTATION OF MICRO ROTORS INDUCED BY LASER IRRADIATION**
Yusuke Ozawa, Ying He , Masahiro Ota - Tokyo Metropolitan Univ. , Japan
- AICFM9-208 **NUMERICAL SIMULATION OF LAMINAR FLOW OVER ROUGH SURFACE MIMICKED FROM THE INSECT WING**
Le Quang Tuyen , Doyoung Byun , Soo Hyung Park - Department of Aerospace engineering, Konkuk Univ., Korea
- AICFM9-231 **FABRICATION AND TEST OF MICRO-DRIPPING MODE OF ELECTROSTATIC DROP-ON-DEMAND INKJET HEAD**
Sanguk Son , Youngmin Kim , Sukhan Lee , Jaeyong Choi , Yongjae Kim , Han Seo Ko - Sungkyunkwan Univ., Korea / Doyoung Byun - Konkuk Univ. , Korea

15:10~16:30 **Compressors 3** **Room C**

- Chair: Soo Seok Yang - Korea Aerospace Research Institute, Korea /Xiao Jun - Shanghai Jiaotong Univ., China
- AICFM9-199 **EFFECT OF PIPING SYSTEMS ON SURGE IN CENTRIFUGAL COMPRESSOR**
Hideaki Tamaki - Ishikawajima-Harima Heavy Industries Co., Ltd. , Japan
- AICFM9-157 **THE MASTER MODEL TECHNOLOGY RESEARCH OF COMPRESSOR ROTOR BLADE**
Fan Jiang , Wang Rongqiao, Chen Zhiying, Shu Huai - Beihang Univ., China
- AICFM9-242 **OVERHAUL OF AIR COMPRESSORS IN HANARO**
Yong Chul Park , Yong Sub Lee , Hwang Sung Jung , In Chul Lim - Korea Atomic Energy Research Institute , Korea / Ho Chun Kang - Shin-IL MACHINERY , Korea
- AICFM9-279 **COMPUTATIONAL INVESTIGATION FOR COMPRESSOR OPERATING RANGE EXTENSION BY USING RING AT OUTLET OF VANELESS DIFFUSER**
GAO Chuang , GU Chuan-gang , Wang Tong , Xiao Jun - Shanghai Jiaotong Univ. , China

15:10~16:30 **General 5** **Room D**

- Chair: Katsuya Hirata - Doshisha Univ. , Japan /Byung-Jo Yun - Korea Atomic Energy Research Institute, Korea
- AICFM9-022 **OPTIMIZATION OF A MICRO-MIXER WITH THREE-DIMENSIONAL ANALYSIS OF FLOW MIXING**
M. A. Ansari , Kwang Yong Kim - Inha Univ. , Korea
- AICFM9-190 **BASIC CHARACTERISTICS OF THE FLOW PAST A RING**
S.YAJIMA , A.NAGASE , A.FUJIKAWA , J.FUNAKI , K.HIRATA - Doshisha Univ. , Japan
- AICFM9-031 **TUBE FOR THE MEASUREMENT OF SINGLE PHASE FLOW IN THE PLANT**
Byong Jo Yun, Hyoung Kyu Cho, Won Pil Baek - Korea Atomic Energy Research Institute, Korea
- AICFM9-052 **RESEARCH ON A NEW TYPE OF SQUIRT GUN FOR CLEANING**
Jinmu ZHU, Xiping LONG, Weifeng WU, Hao YAO - Wuhan Univ., China



15:10~16:30		Pump 7	Room E
		Chair: Byeong-Rog Shin - Changwon National Univ., Korea /Yuji Nakanishi - Kanagawa Univ., Japan	
AICFM9-089		HYDRAULIC DESIGN VALIDATION OF A LARGE CENTRIFUGAL PUMP STATION BY USING CFD APPROACH Fujun Wang , Guohui Cong , Min Yang - China Agricultural Univ. , China / Shuhe Bu - Water Resources and Hydropower Planning and Design General Institute , China / Lanying Qi - Beijing Municipal Institute of Hydraulic Eng. Planning, Design & Research , China	
AICFM9-107		HYDRAULIC PERFORMANCE PREDICTION OF A NEW ELBOW TYPE SUCTION BOX ZHU Honggeng - Yangzhou Univ., China / YUAN Shouqi - Jiangsu Univ., China	
AICFM9-164		FLOW MEASUREMENT IN AN OPEN TYPE SUCTION CHANNEL WITH A SUDDEN ENLARGEMENT Wang Lin , Liu Shuhong , Xu Zhaofeng , Wu Yulin , Wu Yulin - Tsinghua Univ. , China / Takahide Nagahara - Hitachi Plant Technologies Co.	
AICFM9-175		AIR-ENTRAINING VORTEX INTO A SIMPLE SUCTION PIPE INSERTED INTO A SUCTION SUMP Y. Nakatani , Y. Kubota , M. Hattori , J. Funaki , K. Hirata - Doshisha Univ. , Japan	
16:30~16:40		Coffee Break	
16:40~18:00		Cavitation 3	Room A
		Chair: Shuji Hattori - Univ. of Fukui, Japan / Yulin Wu - Tsinghua Univ., China	
AICFM9-045		DIAGNOSIS OF PRELIMINARY CAVITATION IN PUMPS BY WAVELET ANALYSIS Weidong Jia - Key Laboratory of Modern Agriculture Equipment and Technology of Jiangsu Province, China / Minguan Yang, Chunlin Wang, Bo Gao and Haifei Gu - Jiangsu Univ., China	
AICFM9-206		CAVITATION EROSION RESISTANCE OF CAST IRON AND NONFERROUS METALS BASED ON DATABASE Shuji Hattori , Tetsuo Kitagawa - Univ. of Fukui , Japan	
AICFM9-037		ESTIMATION OF CAVITATION EROSION RATE IN PUMPS Shigeyoshi Ono , Ichirou Harada - Hitachi Plant Technologies, Ltd., Japan / Masashi Fukaya, Ryujiro Udo - Hitachi, Ltd., Japan / Hitoshi Soyama - Tohoku Univ., Japan	
AICFM9-207		CAVITATION EROSION OF TI-NI SHAPE MEMORY ALLOY DEPOSITED COATINGS AND FE BASE SHAPE MEMORY ALLOY SOLID Shuji HATTORI , Seiji FUJISAWA - Univ. of Fukui , Japan / Tomonobu OWA - Nagano Prefectural Institute of Technology , Japan	
16:40~18:00		Jet Technology 2	Room B
		Chair: H.D.Kim - Andong National Univ., Korea /J.H. Lee - Deajoo LTD, Korea	
AICFM9-064		STUDY ON THE FLOW CHARACTERISTICS OF SPIRAL NOZZLE T. H. Kim , S. Matsuo , T. Setoguchi - Saga Univ., Japan / H. D. Kim - Andong National Univ. , Korea / Y. W. Lee - Pukyong National Univ. , Korea	
AICFM9-188		INVESTIGATION ON SUPERSONIC LIQUID JETS K. Pianthong , W. Seehanam , A. Matthujak - Ubon Ratchathani Univ., Thailand	
AICFM9-088		NUMERICAL ANALYSIS OF FLOW IN AN AXIAL-FLOW WATERJET PROPULSOR	



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

AICFM9-079 Yaojun Li, Fujun Wang - China Agricultural Univ., China / Shuhe Bu - Water Resources and Hydropower Planning and Design, China / Lanying Qi - Beijing Municipal Institute of Hydraulic Eng., China
COUPLED FLOW-HEAT TRANSFER SIMULATIONS OF AXISYMMETRIC NOZZLE WITH CHEVRON TRAILING EDGE
Huang Hong-Yan , Wang Qiang - Beihang Univ., China

16:40~18:00 **Compressors 4** **Room C**

AICFM9-194 Chair: Tae Choon Park - Korea Aerospace Research Institute, Korea / Kenji Kaneko - Saga Univ., Japan
EXPERIMENTAL INVESTIGATION OF THE UNSTEADY FLOW IN A CENTRIFUGAL COMPRESSOR STAGE
Zhou Li , Cai Yuanhu - Northwestern Polytechnical Univ. , USA / Xi Guang - Xi'an Jiaotong Univ. , China

AICFM9-169 **NUMERICAL INVESTIGATION FOR PARAMETRIC STUDY OF ROTATING STALL IN CENTRIFUGAL COMPRESSOR WITH VANELESS DIFFUSER**
GAO Chuang, WANG Tong, GU Chuangang, YANG Bo, SHU Xinwei,
XIAO Jun - Shanghai Jiao Tong Univ., China

AICFM9-311 **A NUMERICAL ANALYSIS OF THREE DIMENSIONAL VISCOUS FLOW IN TRANSONIC COMPRESSOR ROTOR**
V.R. Kalamkar, G.R. Shevare , B. Roy - IIT, India

AICFM9-262 **TWO CORNER SEPARATIONS IN A DECELERATING SQUARE CHANNEL FLOW**
Yoichi Kinoue, Toshiaki Setoguchi, Norimasa Shiomi, Kenji Kaneko - Saga Univ., Japan

16:40~18:00 **Renewable Energy 3** **Room D**

AICFM9-129 Chair: Kyung-Chun Kim - Pusan National Univ., Korea / Toru Shigemitsu - Univ. of Tokushima, Japan
ANALYSIS OF FLUID-STRUCTURE INTERACTION ON A 100KW HORIZONTAL AXIS WIND POWER GENERATOR
Yoon Ki Kim , Kyung Chun Kim - Pusan National Univ. , Korea

AICFM9-130 **DEVELOPMENT OF LIVESTOCK BIO-ENERGY MGT SYSTEM**
Kwang-beom Hur, Sang-kyu Rhim, Jung-keuk Park - Korea Electric Power Corporation , Korea / Jae-hoon Kim - BK21 Mechatronics Group, Chungnam National Univ. , Korea

AICFM9-329 **PREPARATION OF PROTOTYPE INTELLIGENT WIND TURBINE GENERATOR**
Hiromi Mitarai , Koichi Kubo , Kota Ikeda , Toshiaki Kanemoto - Kyushu Institute of Technology , Japan

AICFM9-217 **STUDY ON PERFORMANCE IMPROVEMENT OF CROSS-FLOW WIND TURBINE WITH SYMMETRICAL CASING**
Junichiro FUKUTOMI , Toru SHIGEMITSU - The Univ. of Tokushima , Japan / Yuichi TAKEYAMA - The Univ. of Tokushima , Japan

16:40~18:00 **Pump 8** **Room E**

AICFM9-189 Chair: Young-Do Choi - Korea Maritime Univ., Korea / Tomoyoshi Okamura - Yokohama National Univ., Japan
EVALUATION METHOD OF PUMP SUMP PERFORMANCE OF DRAINAGE PUMPING STATION BY NUMERICAL SIMULATION
Kenji Kawakita - Torishima Pump MFG. Co.,LTD , Japan / Hiroshi Yamamoto - Public Works Research



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

- Institute, Japan / Yukihiro Yamamoto - Kubota Corporation , Japan
- AICFM9-233 NUMERICAL SIMULATION OF THE AIR ENTRAINMENT VORTEX**
Li Haifeng, Chen Hongxun, Yang Fan , Yan Yonghua - Shanghai Univ. , China / Zheng Ma - China Ship Scientific Research Center, China
- AICFM9-235 AN EXPERIMENTAL STUDY ON SIMILARITY OF VORTEX FORMATION CHARACTERISTICS IN TWO DIFFERENT SCALE MODELS OF PUMP SUMP**
Kyoji Kamemoto, Kazuma Suzuki, Takahiro Mugiyama - Yokohama National Univ., Japan
- AICFM9-283 DEVELOPMENT OF HIGH PERFORMANCE AXIAL FLOW PUMP WITH ADJUSTABLE VANES**
Kazuta Kobayashi, Kazuyoshi Miyagawa, Yasuharu Yamamoto - Mitsubishi Heavy Industries, Ltd., Japan



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

Plenary and Invited Lectures

Plenary Lecture

Oct. 17(Wednesday)	09:30~10:10	Prof. Kang, Shin-Hyoung	Seoul National University, KOREA - New Industrial Applications of Regenerative Pumps and Compressors
Oct. 18 (Thursday)	09:30-10:10	Prof. Sun, Xiaofeng	Beihang University, CHINA - Control of Unsteady Flow in Turbomachinery by Changing Wall
Oct. 19 (Friday)	09:30-10:10	Tsujimoto, Yoshinobu	Osaka University, JAPAN - Cavitation Instabilities of Hydrofoils and Cascades

Invited Lecture

Oct. 17 (Wednesday)	10:20-10:50	Prof. Shih, Tom I-P	Iowa State University, USA - Control of Shock-Wave/Boundary-Layer Interactions by Bleed
Oct. 17 (Wednesday)	10:20-10:50	Prof. Ng, Wing F	Virginia Polytechnic Institute and State University, USA - Experimental Investigation of the effect of high freestream
Oct. 18 (Thursday)	09:50-10:20	President Inoue, Masahiro	Sasebo National College of Technology, JAPAN - Development and Application of Flow Analyses in
Oct. 18 (Thursday)	09:50-10:20	Prof. Benim, A C	Duesseldorf University of Applied Sciences, GERMANY - Computational Analysis of Turbulent Swirling Flows for Gas
Oct. 19 (Friday)	09:50-10:20	Prof. Winoto, S H	National Univ. of Singapore, SINGAPORE - Flows over Concave Surfaces: Development of Pre-Set
Oct. 19 (Friday)	09:50-10:20	Prof. Xue, Shengxiong	Hefei General Machinery Research Institute, CHINA - Ultra High Pressure Water-Jet Rust Removal Line Design
Oct. 19 (Friday)	13:00-13:30	Dr. Chen, Seung-Bae	SAMSUNG TECHWIN Co. Ltd., KOREA - Past, President and Future of Turbomachinery
Oct. 19 (Friday)	13:00-13:30	Dr. David Ingram	Institute for Energy System, University of Edinburgh, UK - The Development of Protocols for Equitable Testing and Evaluation in Ocean Energy-a Three Year Strategy



Announcement of International Workshop on Marine Energy Technology and Standardization in Industrial Fluid Machinery (AICFM-9)

1. Purpose & Scope

Encouraged by the success of AICFM-9(Asian International Conference on Fluid Machinery-9), the organizing committee has decided with pleasure to hold a new special workshop during the conference to foster deeper interest and more participation particularly from the industry filed at home and abroad. The preferred topics will be energy conversion technology and standardization in the area of renewable energy, especially such as marine energy & wind, hydro power but not limited to them. By this occasion, industrial and research sectors throughout the world will have a good opportunity to introduce their up-to-date technology and to promote business chance as well as to enjoy the state of the art from the conference.

2. Participants

Engineers, researchers and CEOs in industry who are engaged or interested in renewable energy and who will participate in the AICFM-9, October 16-19, 2007, Jeju Island, Korea are welcomed (<http://www.AICFM-9.org>)

3. Agenda

17th (Wed.)~19th(Fri.) October, 2007

4. Venue

The venue is Ramada Plaza Hotel, Jeju, same place of AICFM-9



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

5. Registration

- 1) AICFM-9 regular registration covers the registration of this workshop
- 2) Workshop CD & Book will be supplemented with Full Service of AICFM-9 Participant Membership

6. Hosting Organization : Korean Agency for Technology & Standards(KATS)

7. Workshop Committee

- 1) Chairperson : Young-Ho Lee(Korea Maritime University), e-mail: lyh@hhu.ac.kr
- 2) Secretariat : Young-Do Choi(KMU), e-mail: ydchoi@pivlab.net
- 3) International Committee
 - Chul-Hee Jo(Inha University, Korea)
 - Francis Loughran(British Embassy in Korea, U.K.)
 - John Buckley(Department of Trade and Industry, U.K.)
 - Mann-Eung Kim(Korean Register of Shipping, Korea)
 - Morihito Inagaki(Tokyo Electric Generation Co. Korea)
 - Doo-Hyun Paik(Kwater, Korea)
 - Ina Hironori(Turbomachinery Society of Japan, Japan)
 - Jun-Ho Kim(Korean Agency for Technology and Standards, Korea)
 - Min-Hwan Oh(Saman Corp., Korea)
 - Woo-Seop Lim(HyoSung Ebara Co., Korea)

8. Sponsors

Department of Trade and Industry(U.K.), British Embassy in Korea, Korean Register of Shipping

Exhibition

- Date** Oct. 17 (Wed) - 19 (Fri)
- Place** Ramada Ballroom lobby, Ramada Plaza Hotel
- Exhibitors related to Fluid Machinery(Compressor, Turbine, Pump, Fan and Blower, etc.), Renewable Energy, and Fluid Machinery S/W.



Program of International Workshop on Marine Energy Technology and Standardization in Industrial Fluid Machinery

17th Oct. (Wed.)

Session	Time	Speaker	Title	Invited Lecture	Nationality	Affiliation
(Session 1) Renewable Energy Policy (1) (Chairperson : Prof. Young-Ho Lee)	11:00-11:20	Richard Brooks	UK Renewable Energy Policy and Standard	○	U.K.	DBERR (Department for Business, Enterprise & Regulatory Reform)
	11:20-11:40	Anthony Derrick	Marine Energy Industry in the UK	○	U.K.	IT Power
	11:40-12:00	Doo-Hyun Paik	Construction Status and Policy of Shiwa Tidal Power Plant		Korea	K-Water (Korea Water Resource Corporation)
	12:00-12:20	Arieta Gonelevu	Renewable Energy Policy and Developments in Fiji	○	Fiji	DOE, Ministry for Works & Energy
Lunch	12:20-13:30					
(Session 1) Renewable Energy Policy (2) (Chairperson : Dr. Young-Do Choi)	13:30-14:10	David Ingram	Marine Energy : Research, Development, Demonstration and Deployment	○	U.K.	Institute for Energy Systems, University of Edinburgh
	11:10-14:30	Chul-Hee Jo	Tidal Current Power Research and Application in Korea		Korea	Inha Univ.
	14:30-14:50	Chang-Jo Yang	Introductions and Overview of Tidal In-Stream Energy Conversion Technologies		Korea	Mokpo Maritime Univ.
Coffee Break	14:50-15:00					
(Session 1) Renewable Energy Standardization (Chairperson : Prof. Chul-Hee Jo)	15:00-15:20	Chung-Ryul Soh	Offshore Wind Energy Development and Standardization	○	Korea	Korea Wind Energy Association
	15:20-15:40	Yoshihiro Sindo	The State of the Policy to introduce and Development of standardizing Micro-Hydro Power	○	Japan	TEPCO
	15:40-16:00	Jong-Gu Yoon	New & Renewable Energy Standardization Strategy in Korea		Korea	KATS (Korean Agency for Technology and Standards)
	16:00-16:20	Mann-Eung Kim	Standardization of Ocean Energy Converter		Korea	Korean Register of Shipping
Coffee Break	16:20-16:30					
(Session 1) Renewable Energy Development (1) (Chairperson : Dr. Mann-Eung Kim)	16:30-16:50	Seiwoong Oh	Romax Wind Turbine Design		U.K.	Romax Technology
	16:50-17:10	Morihito Inagaki	The Technology and Practical Examples of Micro-hydro Power in Japan		Japan	The Tokyo Electric Generation Company, Incorporated
	17:10-17:30	Beom-Seok Kim	CFD Analysis for the Performance & Flow Characteristics of a Rotor Blade for Wind Power Generator		Korea	Korean Register of Shipping
	17:30-17:50	Hyun-Goo Kim	Jejudo Wind Resource Database KIER-WindJeju		Korea	Korea Institute of Energy Research, Wind Energy Research Group
Banquet (AICFM-9)	18:30-20:00					



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

19th Oct. (Fri.)

Session	Time	Speaker	Title	Invited Lecture	Nationality	Affiliation
(Session 2) Renewable Energy Development (2) (Chairperson : Dr. Key-Yong Hong)	10:30-11:00	Cameron Johnstone	Development and Testing of an Innovative Turbine for Harnessing Power from the Tide	O	U.K.	University of Strathclyde
	11:00-11:20	Min-Hwan Oh	A Study on Modernization and Diagnosis for Turbine-Generator Equipment		Korea	Saman Corporation
	11:20-11:40	Seung-Gi Gug	Air Cooling and Heating System using the Temperature Difference of Seawater		Korea	Korea Maritime University
	11:40-12:00	Tohmatsu Kuniaki	BP's commitment on Environment and Biofuels development		Japan	BP
Lunch	12:00-13:00					
AICFM-9 Invited Lecture 7 & 8	13:00-13:30					
Coffee Break	13:30-13:40					
(Session 3) Renewable Energy Development (3) (Chairperson : Prof. Seung-Gi Gug)	13:40-14:00	Key-Yong Hong	A Brief Overview of WEC Development in Korea		Korea	MOERI
	14:00-14:20	Manabu Takao	Wave Power Plant Using an Impulse Turbine with Coreless Generator		Japan	Matsue National College of Technology
	14:20-14:40	Hyung-Kyoo Choi	Ganghwa Tidal Power Project		Korea	KOMIPO (Korea Midland Power Co., Ltd.)
	14:40-15:00	Kazutaka Toyota	Experimental Study on Primary Conversion of Backward Bent Duct Buoy in Regular Waves		Japan	Saga University
Coffee Break	15:00-15:10					
(Session 3) Industrial Applications (1) (Chairperson : Dr. Wan-Ho Jeon)	15:10-15:30	Wan-Ho Jeon	CFD Application to Industrial Fluid Machinery		Korea	CEDIC Co., LTD.
	15:30-15:50	Jin-Sung Kim	Effect of Flowcut on Performance of a Centrifugal Compressor for Chillers		Korea	LS Cable Ltd., Advanced R&D Center, Machinery & Technology Group
	15:50-16:10	Gil-Young Kim	Optimization of a Centrifugal Compressor for Chillers Using DOE		Korea	LS Cable Ltd., Advanced R&D Center, Machinery & Technology Group
	16:10-16:30	Deok-Soo Kim	Design of Mixed Flow Pump using Inverse Design Method		Korea	Hyosung Ebara Co., LTD.
Coffee Break	16:30-16:40					
(Session 3) Industrial Applications (2) (Chairperson : Prof. Youn-Jea Kim)	16:40-17:00	Youn-Jea Kim	Flow Characteristics in a Cross-Flow Fan		Korea	Sungkyunkwan University
	17:00-17:20	SooHong Lee	Analysis of Velocity Distribution around Cross Flow Fan for Room Air Conditioner Using PIV		Korea	Samsung Electronics Co.
	17:20-17:40	Jin Baek Kim	Experimental investigation of fan noise and cooling speed for room air-conditioner		Korea	Samsung Electronics Co.
	17:40-18:00	Tae Hun Kim	Numerical study of sweat test for air-conditioner reliability		Korea	Samsung Electronics Co.



Social Program

Welcome Reception

Date & Time 18:00~ 20:00, Oct. 16(Tue)

Place Ramada Ballroom lobby, Ramada Plaza Hotel

All participants are invited to attend the Welcome Reception.
AICFM-9 participants will have the opportunity to meet with everyone in a relaxed atmosphere before the conference at ocean view site.



Conference Banquet

Date & Time 18:30~ 20:00, Oct. 17(Wed)

Place Grand Ballroom, Ramada Plaza Hotel

(<http://www.ramadajeju.co.kr/english/banquet/banquet01.asp>)

AICFM-9 participants will have the opportunity to meet with everyone and enjoy the traditional fine art with a good dinner.

Ticket is required for banquet.



Excursion Program : October 18, 2007

1. Purpose & Scope

AICFM-9 offers some interesting programs in the afternoon of Oct. 18, where the conference attendants can participate with partial financial support of AICFM-9. Please confirm the event program and inform your participation by E-mail at kfma@kfma.or.kr with your reservation form by Oct. 12. All events are on a first come, first served basis. Therefore, application will be closed at the coming up to the each limited number.

A. Playing Golf at Halla-San Country Club (11:50 am-6:00 pm):

The magnificent view Mt. Halla and the year-round green grass of Jeju makes golf the landing sport and leisure activity on the island. Halla-San Country Club's golf course has excellent fairways and scenic surroundings. Up to six teams will join the game. Beer party after the game and some prizes will be supported by AICFM-9.

(1) Meeting Point: Oct. 18th 11:50am at Ramada Hotel Front Door

(2) Entry Fee: 150,000Won (US\$160) (Golf club rental is possible with extra fee)

(3) A limited number of 24 Players, on a first come, first served basis.

B. Udo (Cow Island) Sightseeing Tour (1:00 pm-7:00 pm):

The only beach in Korea with coral sands. The island was named "Udo" or "Cow Island" as its contours look like a cow lying down on the grass. There are 8 scenic wonders of Udo: day and night, sky and earth, front and back, and east and west. The movie "In October" and "The mermaid" were shot at Cow Island, capitalizing on its picturesque scene of a fishing village and a



THE 9TH ASIAN INTERNATIONAL CONFERENCE ON FLUID MACHINERY
Final Program

lush, peaceful grassy field. The white sand beach facing the indigo and turquoise sea of Jeju is very impressive. It represents another eye-catcher along with Mt. Hallain Jeju. Visit at <http://english.jeju.go.kr/> for more information.

- (1) Meeting Point: Oct. 18th 1:00pm at Ramada Hotel Front Door
- (2) Entry Fee: 10,000Won (US\$10)
- (3) Limited number: 90 persons, on a first come, first served basis.

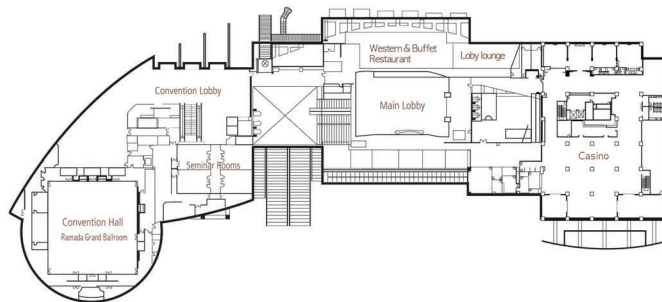
C. Mt. Halla Climbing (Eorimok Trail) (12:40 pm-6:30 pm):

A course easily accessible thanks to its shorter climbing length (4.7Km) and gentle slope. The course includes Eorimok square, Sajebi Hill, Manse Hill, Witsae Oreum (The top is under control). Beginners are welcome. Visit at <http://english.jeju.go.kr/> for more information. (1) Meeting Point: Oct. 18th 12:40pm at Ramada Hotel Front Door (2) Entry Fee: 5,000Won (US\$5) (3) Limited number: 90 persons, on a first come, first served basis. Contact Point: For more information, please contact Prof. Byeong-Rog Shin at brshin@changwon.ac.kr.



Floor Information of The Venue

Second Floor



Presentation Halls

