

ISAMPE 2016

Proceedings of 2016 International Symposium on Advanced Mechanical and Power Engineering

27-30 October 2016



PUKYONG
NATIONAL UNIVERSITY



Faculty of Engineering
University of Fukui, JAPAN

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ISAMPE2016

Proceedings of 2016 International Symposium on Advanced Mechanical and Power Engineering

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Faculty of Engineering
University of Fukui, Japan

Organized by

Mechanical Engineering
Faculty of Engineering
University of Fukui, Japan

School of Mechanical Engineering
College of Engineering
Pukyong National University, Korea

College of Power Engineering
College of Mechanical Engineering
University of Shanghai for Science and Technology, China

Symposium Chairman

Prof. N. Onoda, Dean of Faculty of Engineering, University of Fukui

Chairman of Organizing Committee

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Committee Members of University of Fukui

Prof. N. Nagai, Prof. F. Tanaka, Prof. N. Hiyoshi, Prof. M. Okada, Prof. X.W. Lei

Committee Members of Pukyong National University

*Prof. Yeon-Won Lee, Prof. Jeong-Hyun Sohn, Prof. Inpil Kang,
Prof. Kyoung Joon Kim, Prof. Chan-Jung Kim*

Committee Members of University of Shanghai for Science and Technology

Prof. Zhonghou Wang, Prof. Ren Dai, Prof. Tao Sun

Symposium Program

Date	Time	Events		
Oct. 27 (Thu.)	19:30~	Welcome Reception		
Oct. 28 (Fri.)	9:00 - 9:45	Opening Ceremony (Integrated Research Building I, 13F) Chairperson: Prof. Tanaka, F., UF Opening Speech: Dean of Faculty of Engineering, UF <div style="text-align: right;">: Prof. Onoda, N.</div> Committee members of PKNU, USST Photo Taking		
	9:45 - 10:30	Keynote Lecture: Cavitation erosion research and international exchange activity Emeritus Prof. Hattori, S., UF Chairperson: Prof. Hiyoshi, N., UF		
		Coffee break and Preparation for Poster session		
	10:45 - 12:00	Poster session (Integrated Research Building I, 13F) Chairperson: Prof. Lei, X.W., UF		
	12:00 - 13:00	Lunch time (Integrated Research Building I, 13F)		
	13:00 - 13:45	Room A (oral) 221M Materials, Design and Manufacturing	Room B (oral) 223L Heat and Mass, Fluid, Power Eng.	Room C (oral) 224M System Eng.
		Coffee break		
	14:00 - 14:45	Room A (oral) 221M Materials, Design and Manufacturing	Room B (oral) 223L Heat and Mass, Fluid, Power Eng.	Room C (oral) 224M System Eng.
		Coffee break		
	15:00 - 15:45	Room A (oral) 221M Materials, Design and Manufacturing	Room B (oral) 223L Heat and Mass, Fluid, Power Eng.	
		Coffee break		
	16:00 - 17:15	Room A (oral) 221M Materials, Design and Manufacturing	Room B (oral) 223L Heat and Mass, Fluid, Power Eng.	
		Free time		
	18:00 - 20:00	Banquet (UF COOP Cafeteria)		
Oct. 29 (Sat.)	9:00~	Technical Tour		
Oct. 30 (Sun.)		Return Flight		

Technical Program

Session : Materials, Design and Manufacturing

Room A : Integrated Research Building IV, 2F, 221M

Chairpersons : D. Pan (USST), M. Okada (UF)

Time	TITLE & AUTHORS	p.
13:00 - 13:15	Roller Burnishing Method with Driven Rotary Tool Masato Okada, Yuki Miyagoshi, Masaaki Otsu (UF)	1
13:15 - 13:30	Synthesis and Properties of Nanoporous(NP) Platinum by Dealloying Pt-Containing Amorphous Alloy Ruirui Song, Deng Pan (USST)	6
13:30 - 13:45	Analysis of Kink Deformation in Layered Solids Using Spring-Mass Model Xiaowen Lei, Akihiro Nakatani (UF)	12
	Coffee break	
14:00 - 14:15	Validating the Mechanical Nature of the Test Specimen Thickness Effect on Fracture Toughness in the Transition Temperature Region Teruhiro Yamaguchi, Toshiyuki Meshii (UF)	14
14:15 - 14:30	Cost Function for Optimal Design Parameters of Stockbridge Damper Chan-Jung Kim, In-pil Kang, Jeong-Hyun Sohn, Byung-Tak Kim (PKNU)	24
14:30 - 14:45	Applicability of Modified Ritchie-Knott-Rice Failure Criterion to Explain the Warm Prestressing Effect Naohiro Kikuya, Toshiyuki Meshii, Kenichi Ishihara (UF)	26
	Coffee break	
15:00 - 15:15	Applicability of the Modified Ritchie-Knott-Rice Failure Criterion to Transfer Fracture Toughness Jc of Reactor Pressure Vessel Steel Using Specimens of Different Thicknesses—Possibility of Deterministic Approach to Transfer the Minimum Jc for Specified Specimen Thicknesses Yuma Higashino, Toshiyuki Meshii (UF)	32
15:15 - 15:30	Influences of Strain Rate on the Low Cycle Fatigue Properties of Alloy 617 Tae-Su Kim, Jeong-Jun Hwang, Rando Tungga Dewa, Mi-Ran Yeo, Seon-Jin Kim, Woo-Gon Kim, Eung-Seon Kim (PKNU)	50
15:30 - 15:45	Application of the Modified Ritchie-Knott-Rice Failure Criterion to Predict the Fracture Toughness of the Miniaturized Charpy Type SE(B) Specimens Yuto Hayashi, Toshiyuki Meshii (UF)	52
	Coffee break	

Technical Program

Session : Materials, Design and Manufacturing

Room A : Integrated Research Building IV, 2F, 221M

Chairpersons : D. Pan (USST), M. Okada (UF)

Time	TITLE & AUTHORS	p.
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16:15 - 16:30	Low Cycle Fatigue and Fracture Behavior of Alloy 617 at 950°C Elevated Temperature Jeong-Hun Bak, Tae-Su Kim, Jung-Jun Hwang, Rando Tungga Dewa, Mi-Ran Yeo, Seon-Jin Kim, Woo-Gon Kim, Eung-Seon Kim (PKNU)	65
16:30 - 16:45	Engineering Framework to Transfer the Lower Bound Fracture Toughness of 0.45% Carbon Steel Using 0.92TSE(B) Specimens between Different Temperatures in the DBTT Region Takashi Inoue, Toshiyuki Meshii (UF)	67
16:45 - 17:00	Effects of Overlap Joint Weld Gap on Fatigue Performance Myung Koon Son, Seon Jin Kim, Woo Chan Jung (PKNU)	73
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	Free time	

Technical Program

Session : Heat and Mass, Fluid, Power Eng.

Room B : Integrated Research Building IV, 2F, 223L

Chairpersons : Y.W. Lee (PKNU), X. Guo (USST), J. Ohta (UF)

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13:15 - 13:30	CFD Analysis of Pebble Bed Reactor Effective Thermal Parameters Huaiyu Wang, Xueyan Guo (USST)	84
13:30 - 13:45	Hybrid Fin Heat Sinks for Passive Cooling of Electronics Nico S. Effendi, Severianus S. G. R. Putra, Kyoung Joon Kim (PKNU)	93
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14:00 - 14:15	A LES Study on Flow and Heat Transfer of BCC Segments from a Pebble Bed Reactor Xu Jiang, Xueyan Guo (USST)	96
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15:00 - 15:15	Numerical Study on the Flow Tracking Capability of Tracer Particles in a Turbulent Jet Wenhui Sha, Wu Zhou, Xiaoshu Cai (USST)	120
15:15 - 15:30	Numerical Study of LNG Heating on Shell and Tube Heat Exchanger Mohan Kumar Dey, Yoon-Hwan Choi, Yeon-Won Lee (PKNU)	126
15:30 - 15:45	Study of Factors Influencing the Upper Limit for Velocity Measurement Using Single-Frame Long-Exposure Imaging Method Mingliang Feng, Wu Zhou, Xiaoshu Cai (USST)	130
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Technical Program

Session : Heat and Mass, Fluid, Power Eng.

Room B : Integrated Research Building IV, 2F, 223L

Chairpersons : K.J. Kim (PKNU), X. Guo (USST), J. Ohta (UF)

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16:15 - 16:30	Effects of the Form of the Smoke Exhausted on Natural Ventilation Performance during Fires in Road Tunnels with Shafts Kazuhiro Yoshida, Shota Takeuchi, Futoshi Tanaka (UF)	145
16:30 - 16:45	Design and Optimization of Non-axisymmetric Endwall for Turbine Cascade Jian Zhang, Liu Chen, Yu Ban, Chuangjie Ye, Ren Dai (USST)	150
16:45 - 17:00	Development of a Technique for Establishing a Pseudo Tunnel Length Kazuki Fukaya, Takashi Kato, Koichi Sasaki, Futoshi Tanaka (UF)	158
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Technical Program

Session : System Eng.

Room C : Integrated Research Building IV, 2F, 224M

Chairpersons : C.J. Kim (PKNU), F. Kuratani (UF)

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13:30 - 13:45	A Method for Localizing and Grasping Objects in a Picking Robot System Using Kinect Camera Trong Hai Nguyen, Sang Kwun Jeong, Hak Kyeong Kim, Sang Bong Kim (PKNU)	178
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Technical Program

Poster Session : 10:45 ~ 12:00

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Chairperson : X.W. Lei (UF)

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9	A Study on the Heat Transfer of an Intercooler for ME-GI Engine Using CFD Analysis Shin-Ji Kang, Yoon-Hwan Choi, Yeon-Won Lee (PKNU)	239
10	CFD Analysis of Static Pressure Distribution Coefficients Used in Manifolds Hydro-Dynamic Calculation Method Yuan Gao, Hongguang Wang (USST)	242

Technical Program

Poster Session : 10:45 ~ 12:00

Integrated Research Building I, 13F

Chairperson : X.W. Lei (UF)

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15	Smoke Stratification in Model Scale Tunnel Fire Tests with Longitudinal Ventilation Yuji Kaga, Keita Kasumi, Futoshi Tanaka (UF)	274
16	Numerical Study on Secondary Flow in Turbine Rotor with Endwall Jet Flow Chuangjie Ye, Ren Dai (USST)	277
17	Behavior of Microbubbles in a Liquid under Ultrasonic Irradiation (Sound Pressure Profile and Forces) Yoshihiro Yamashita, Ryota Kurachi, Yuki Dono, Junichi Ohta (UF)	283
18	Effects of Axisymmetric Contoured Endwall on Stator Secondary Flow and Rotor Performance Yu Ban, Jian Zhang, Chuangjie Ye, Liu Chen, Ren Dai (USST)	287
19	Effect of Hammering Processing on the Vibration Characteristics of Cymbals Tasuku Ishihara, Kento Kitabayashi, Fumiyasu Kuratani, Tatsuya Yoshida (UF)	294
20	Performance Improvement of Position Estimation by Double-PLL in SPMSM Driver Song-Cheol Lee, In-Seok Song, Soon-Jae Kwon, Man-Go Kim, Young-Seok Jung (PKNU)	298

Technical Program

Poster Session : 10:45 ~ 12:00

Integrated Research Building I, 13F

Chairperson : X.W. Lei (UF)

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22	Defect Detection in Concrete Structures Using Hammering Test Hiroaki Matsumoto, Weihua Zhu, Wei Wang, Fumiyasu Kuratani, Tatsuya Yoshida (UF)	304
23	Converter Circuit for Energy Harvesting from Foot Strike In-Seok Song, Song-Cheol Lee, Soon-Jae Kwon, Man-Go Kim, Young-Seok Jung (PKNU)	308
24	Driving Control of Two-Wheeled Vehicle Which can Manipulate Handle Keisuke Ito, Syuntaro Fujikawa, Ryoji Kawatani (UF)	310
25	A Survey Study on Development of Robots to Remove Fuel Debris of the Fukushima Daiichi Nuclear Power Plant Koki Fukimbara, Masayuki Kawai	314

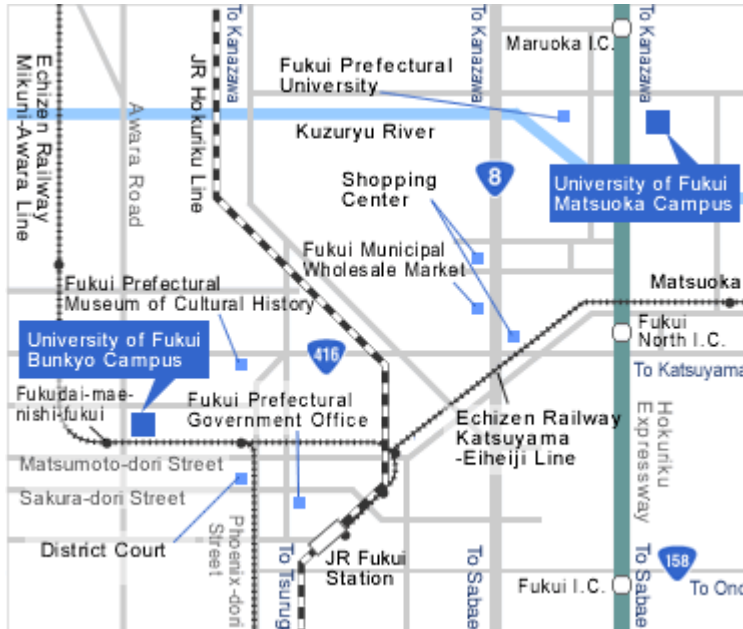
Technical Tour and Return Flight

Date	Time	Events
Oct. 29 (Sat.)	9:00 - 10:00	Limousine bus (60min) Attendants: Prof. N. Hiyoshi, UF Kim and Huang, UF students We will pick you up at your hotel.
	10:00 - 12:00	Fukui Prefectural Dinosaur Museum (FPDM) https://www.dinosaur.pref.fukui.jp/en/
	12:00 - 14:00	Limousine bus (30min) Lunch SkiJam KATSUYAMA http://www.skijam.jp/green/restaurant/index.php
	14:00 - 16:00	Limousine bus (60min) Ichijodani Asakura Clan Ruins http://asakura-museum.pref.fukui.lg.jp/080_english/
	16:00 - 18:15	Limousine bus (30min) Lavely partner Lpa Largest Shopping Mall in Fukui http://www.lp-lpa.co.jp/ (in Japanese)
	18:15 - 20:30	Limousine bus (15min) Farewell dinner Community resort RELAIM http://www.relain.co.jp/ (in Japanese)
	20:30 - 21:00	Limousine bus (30min) We will go back to a hotel.

Oct. 30 (Sun.)	4:30 -	Return Flight Limousine bus (240min) Go to KIX Airport (BX123 11:00 departure from KIX Airport) PKNU group
	7:00 -	Go to KYOTO Limousine bus (240min) USST group (Departure from KIX Airport on Oct. 31)

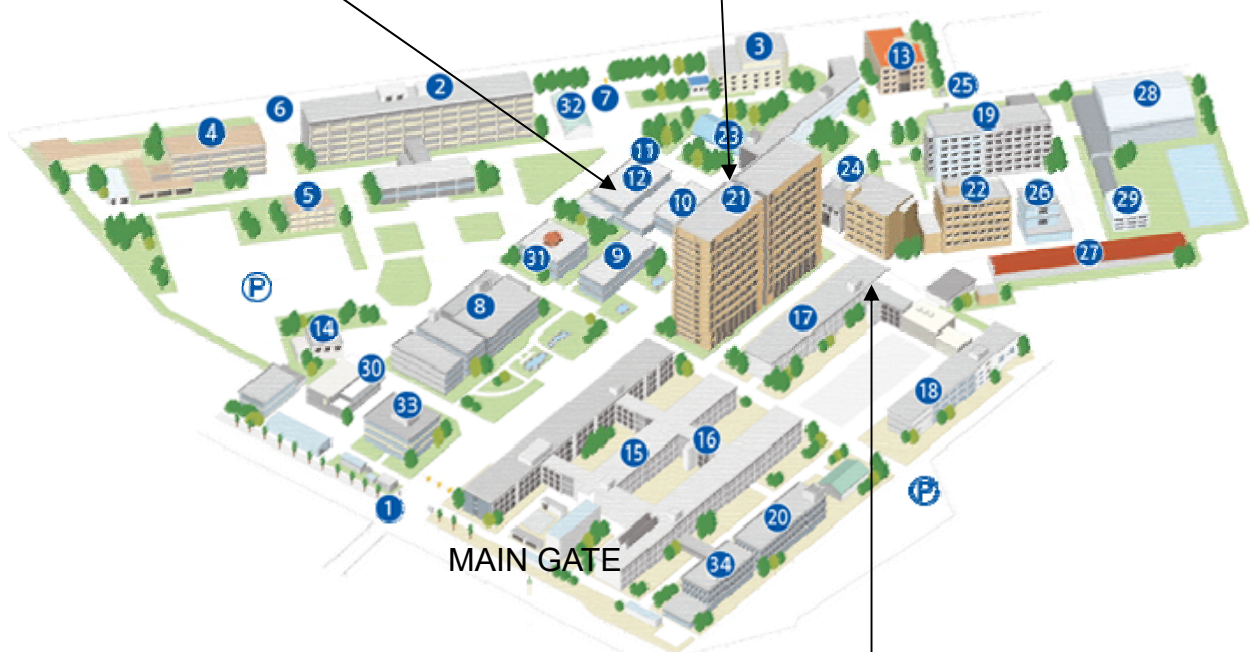
MAP

Access to University of Fukui



⑫ UF COOP Cafeteria
Banquet

⑳ Integrated Research Building I
13F : Opening Ceremony, Keynote Speech,
Poster Session , Coffee Break



⑰ Integrated Research Building IV
2F : Room A, Room B, Room C, Coffee Break

