

ISAIF 16

FINAL PROGRAM

September 15-19, Prague, Czech Republic

15 th September		Day 1	
8:00 - 9:30		Registration	
9:30 - 9:55		Opening Ceremony in Memory of Prof. Martin Luxa - Room Mars	
9:55 - 10:45	Plenary Invited Lecture 1 - Room Mars Shock Oscillation, Loss Mechanisms and Flow Control: Recent Progress in Transonic Compressor Blade Aerodynamics Dr. Alexander Hergt (<i>The German Aerospace Centre</i>) chair: Prof. Piotr Doerffer (<i>Polish Academy of Sciences</i>)		
10:45 - 11:05		Coffee Break	
	Room MARS	Room JUPITER	Room SATURN
Technical Sessions	A1 Axial Compressors and Fans 1 chair: Prof. Juan Du <i>Chinese Academy of Sciences</i>	B1 Transonic and Supersonic Flows 1 chair Prof. Minoru Yaga <i>University of the Ryukyus</i>	C1 Multiphase Flows 1 chair Prof. Wontae Hwang <i>Seoul National University</i>
11:05 - 11:25	Loss Structure in a Stator Passage of an Axial Flow Compressor at Windmilling Conditions Shunsuke Kawajiri, Hiromi Uruma, Nobumichi Fujisawa, Yutaka Ohta	Intake-combustor interactions in a ramjet-assisted kinetic energy projectile Kishore M, Ramakrishna P A, and Rajesh G	Molecular Dynamics Simulation of Hydrogen-Enriched Slush LNG Process Alex Joseph Puthoor, Vincent Lijo, Ghi Ryang Shin, See Jo Kim, Heuy Dong Kim
11:25 - 11:45	Loss decomposition in compressor flows Dajan Mimic	Analysis of pressure waves instability in transonic flow within convergent-divergent nozzles using experimental approach Manish Tripathi, Stawomir Dykas, Mirosław Majkut, Krystian Smółka	Numerical Investigation on Scour Phenomena around the Monopile using CFD-DEM Coupling Method Je-Eun Lee, and Jae-Ho Jeong
11:45 - 12:05	Shock induced separation on compressor profile for different inlet conditions Michal Piotrowicz, Pawel Flaszynski, Marcin Kurowski, Ahmed Hanfy, Piotr Doerffer, Arun Joseph	Formation of a reduced order model for Mach stem height determination in weak shock reflection domain Abhijeet Mangela, Sivaprasad Gangadharan, Rajesh Gopalapillai	Experimental Study and Thermodynamic Analysis of Phase Transition Behavior of CO2 Hydrate in Salt Solution System Jiaqi Wang, Jiaxing Liu, Kai Zhang
12:05 - 12:25	Effects of Rotor Tip Dihedral on Non-Synchronized Disturbance in a 1.5-Stage Axial Compressor Ria Yoshida , Shinnosuke Hata , Nobumichi Fujisawa , Yutaka Ohta	Study on the Interaction of Cavity Flow with Oscillating Shock Train Sri Sruthi Dandu, Dwarakesh Madavan, L. N. Desikan Sundararajan, Sriram Rengarajan	
12:25 - 12:45	Dantec Dynamics Presentation - Room MARS		
12:45 - 14:15		Lunch	
14:15 - 15:05	Plenary Invited Lecture 2 - Room Mars Transonic and Supersonic Turbomachinery for Rotating Detonation Engines Prof. Guillermo Paniagua (<i>Purdue University</i>) chair: Prof. Jörg Seume (Leibniz University Hannover)		
Technical Sessions	A2 Turbomachinery 1 chair: Prof. Francesca Satta <i>University of Genoa</i>	B2 Flow with Heat Transfer 1/ Multiphase Flows 2 chair: Dr. Zuzana Antořová <i>Czech Academy of Sciences</i>	C2 Transonic and Supersonic Flows 2 chair: Prof. Rajesh Gopalapillai <i>Indian Institute of Technology Madras</i>
15:15 - 15:35	Modeling combustion dynamics using reactive networks: a computationally efficient approach for predicting pollutant formation in gas turbine combustors Giuseppe Mattia Bruno, Bayindir H. Saracoglu	Experimental Investigation on Two-phase Immersion Cooling of High-Power Multi-Server Chips Zhifeng Chen, Li Jia, Xiaohan Sun	Experimental Investigation of Unstable Shock Waves in a Laval Nozzle Shoki Hirano, Takahiro Yamashita, Shinichiro Nakao, Yoshiaki Miyazato
15:35 - 15:55	Instability warning method via fast wavelet transform in a transonic axial flow compressor Zhonggang Fan, Xiaobin Xu, Yang Liu, Dun Ba, Min Zhang, Juan Du	CFD-Based Analysis of Thermal Transport Mechanisms in Tubular Methanol Steam Reforming Reactor Coupled with Marine Engine Exhaust Heat and Phase Change Material Jie Shi, Yuanqing Zhu, Xiao Xiao, Yongming Feng	Behavior of Shock Waves in a Two-Dimensional Hyperbolic Diffuser Atsumi Tateno, Masaki Okajima, Shinichiro Nakao, Yoshiaki Miyazato
15:55 - 16:15	The Fast Aerodynamic Design of Turbomachinery Based on Generative Model Yueteng Wu, Juan Du , Xiaobin Xu, Dun Ba	Investigation of Liquid Breakup Process Solid Booster Rocket Ryoichi S. Amano	

16:15 - 16:35		Coffee Break	
	Room MARS	Room JUPITER	Room SATURN
Technical Sessions	A3 Axial Turbines chair: Dr. Dun Ba <i>Chinese Academy of Sciences</i>	B3 Transonic and Supersonic Flows 3 chair: Prof. Heuy Dong Kim <i>Gyeongbuk National University</i>	C3 Flow with Heat Transfer 2 chair: Prof. Ali Cemal Benim <i>Düsseldorf University of Applied Sciences</i>
16:35 - 16:55	Effect of Reynolds Number on the Aerodynamic Loss of a Turbine Cascade Lanyi Yan, Daniele Simoni, Virginia Bologna, Pietro Zunino, Yigang Luan	Numerical investigation of sonic jet injection in a confined supersonic cavity flow Gargi Tela, Arun Kumar Rajagopal, Shailesh Kumar Singh, Angan Sengupta	Effect of Boundary Conditions on Heat Transfer in Rayleigh-Benard Convection in Rarefied Flows Krishnansh Bharat Chandarana, Sanjana Rao, Shesh Narayan Dhurandhar, A. Sameen
16:55 - 17:15	Experimental and numerical studies of high subsonic and transonic flows through a linear low-pressure cascade Idalia Jagodzińska, Sławomir Kubacki	Expansion Wave Diffraction Over Curved Protrusions and Depressions Preetha Pushkarni P., Reia Ramkumar, Ilakkiya Selvaraj, S. Vishnu Prasad, Anbu Serene Raj C., Vinoth P., Rajesh G.	Effect of surface roughness on transient heat transfer experiments using liquid crystal thermography Alexandros Peteinaris, Mario Del Mastro, Alexandros Terzis
17:15 - 17:35	Transonic Flow Investigation in a Turbine Blade Tip-Section Cascade: Experimental and Numerical Analysis Jindřich Hála, Michal Lukš, Martin Luxa, Pavlo Kosiak, David Šimurda	Study of Shock Wave Diffraction over Cavities of different Aspect Ratios Aruna V. R., Sai Eswar S. P., Tejashri V. D., Vignesh R., C. Senthil Kumar, S. Vishnu Prasad, Anbu Serene Raj C., Mano M. G. Rajesh	Numerical Investigation on the Characteristics of Trenched Shaped Film Cooling Holes under the Crossflow Conditions Lianfeng Yang, Lanyi Yan, Zhixiang Li, Yigang Luan, Dario Barsi, Pietro Zunino
18:00		Welcome Drink	

16 th September		Day 2	
9:00 - 9:50	Plenary Invited Lecture 3 - Room MARS On-site and Laboratory Aerothermodynamic Research on Steam Turbines Dr. Michal Hoznedl (<i>Doosan Škoda Power</i>) chair: Prof. Hongwei Ma (<i>Beihang University</i>)		
	Room MARS	Room JUPITER	Room SATURN
Technical Sessions	A4 Turbomachinery 2 chair: Prof. Slawomir Kubacki <i>Warsaw University of Technology</i>	B4 Flow with Heat Transfer 3 chair: Prof. Li Jia <i>Beijing Jiaotong University</i>	C4 Pressure Systems chair: Dr. David Šimurda <i>Czech Academy of Sciences</i>
10:00 - 10:20	Unsteady Flow Interactions in High-Pressure Turbine Cavity Simulations Daniele Biassoni, Dario Barsi, Francesca Satta, Lorenzo Orsini, Davide Lengani	Numerical Investigation of Flow and Heat Transfer in Divergent Swirl Chambers Lukas-Maximilian Loidold, Bernhard Weigand	Design and optimization of a hydro-pneumatic recoil system for short guns Md Asif, Girijesh Mathur, G. Rajesh
10:20 - 10:40	Unsteady Behavior of Turbine Rotor Tip Leakage Flow Under Different Tip Clearance Anqi Xiao, Hongwei Ma, Yi Yang	Study on latent heat storage behavior by forced convection heat transfer using impinging jet Shinichi Morita, Motoya Tamura, Masahito Kawai, Kazunori Takai, Yasutaka Hayamizu, Naoto Haruki	Permeation of Helium and Nitrogen Gases through PTFE Hoses in atmospheric condition Prajith Kumar K.P., Jojo John, Naman Pherwani, Jagadeesh Peddiraju, Nandakumar V
10:40 - 11:00	Cooling Efficacy and Flow Conditioning in Rotating Detonation Combustors Eric Bach, Andrea Ruan, Sergio Grasa, Ford H. Lynch, Guillermo Paniagua	A Deep Transfer Learning Approach for Elongated Jet Impingement Cooling in Channel Flow Mehmet Berkant Özel, Muhammed Ali Nur Öz, Ufuk Durmaz, Ahmet Ümit Tepe, Ünal Uysal, Orhan Yalcinkaya, Ali Cemal Benim	Experimental Study on the Thermal characteristics of Helium Gas during Pressurization and Regulated Depressurization in Spherical Composite Overwrapped Pressure Vessels and Metallic bottles Prajith Kumar KP, Jojo John, K Babu, Suresh Kumar C, Nandakumar V
11:00 - 11:20 Coffee Break			
Technical Sessions	A5 Hydraulic Turbines chair: Prof. Yutaka Ohta <i>Waseda University</i>	B5 Measurement Techniques chair: Dr. Jan Lepicovsky <i>Czech Academy of Sciences</i>	C5 Supersonic Jets 1 chair: Prof. Abhilash Suryan <i>College of Engineering Trivandrum</i>
11:20 - 11:40	Numerical Analysis of Runner Flow for Development of Multi-Nozzle Turgo Impulse Turbine Yuji Nakanishi, Takuma Masuyama, Rinto Ito, Taishi Yano, Yuki Funami, Sadatoshi Inoue, Yuki Nishikawa	A Study on an Air-Water Fraction Measurement Method in Stratified Internal Flow Using a Fiber Optic Sensor Hanna Kim, Hyewon Lim, Hyeonmin Choi, Hyungmo Kim	Supersonic Jets in Opposing Subsonic Flows Anoop S. L., Arun Kumar R.
11:40 - 12:00	Study on Counter-rotating Sail Wing Turbine for Wave Energy Conversion Yuki Iitsuka, Manabu Takao, Shinya Okuhara, M.M.A. Alam and Yoichi Kinoue	Combine WMS and OFS into a new sensor to measure temperature and two-phase flow distribution Zhengqing Wang, Huije Choo, Hanna Kim, Hyungmo Kim	Experimental and Numerical Study of Underexpanded Hexagonal Jets Rikuto Mizobe, Shinichiro Nakao, Yoshiaki Miyazato
12:00 - 12:20	Numerical Analysis on the Performance of a Wells Turbine with Modified Blades Eru Kurihara, Yuito Isayama, Shinji Narukawa, Hiromitsu Hamakawa	Development and Commissioning of an Infrared Borescope for Real-Time Assessment of the Film-cooling Performance on the Shroud Platform of a First Stage Gas Turbine Guide Vane André Henders, Karsten Kusterer, Daniel Kroniger, Kunio Okada, Hiromitsu Arai, Atsushi Horikawa, Tomoki Taniguchi	Experimental and Numerical Investigation of Underexpanded Square Jets Meru Takamura, Shinichiro Nakao, Yoshiaki Miyazato
12:20 - 12:40	Improving Stator and Rotor Regulation in Low-Head Axial Hydraulic Turbines Through Simultaneous Rotational Speed Adjustment Dario Barsi, Francesca Satta, Marina Ubaldi, Pietro Zunino	Turbulence Measurements with Multi-Sensor Pressure Probes in Unsteady Turbomachinery Flow Field Georgios E. Pateropoulos, Alexandros C. Chasoglou, Reza S. Abhari, Anestis I. Kalfas	Experimental Investigation of Underexpanded Star Jets Taiyo Toyoyama, Shinichiro Nakao, Yoshiaki Miyazato

12:40 - 14:10		Lunch	
14:10 - 15:00	Plenary Invited Lecture 4 - Room MARS Numerical Simulations of Combustion Instabilities Prof. Ryoichi Kurose (<i>Kyoto University</i>) chair: Dr. Bayindir Saracoglu (<i>Von Karman Institute for Fluid Dynamics</i>)		
	Room MARS	Room JUPITER	Room SATURN
Technical Sessions	A6 Icing and Erosion chair: Dr. Dario Barsi <i>University of Genova</i>	B6 Transonic and Supersonic Flows 4 chair: Prof. Arun Kumar <i>Indian Institute of Technology, Jodhpur</i>	C6 Flow with Heat Transfer 4 chair: Prof. Abdulwahab Sameen <i>Indian Institute of Technology Madras</i>
15:10 - 15:30	Numerical Investigation of Sand Erosion in a 1.5-Stage Turbine Mizuki Watanabe, Soichiro Fujimura, Makoto Yamamoto, Koji Fukudome, Masaya Suzuki	Numerical Investigation of Low-Reynolds Number Martian Airfoil Performance in Transonic Flow Conditions Oskar Szulc, Pawel Flaszynski, Piotr Doerffer	Numerical study on transpiration cooling: Effects of porosity and blowing ratios Jisu Park, Ina Jeong , Jeonghun Ko, Changwoo Kang
15:30 - 15:50	Experimental and Numerical Study on Droplet Impact and Icing Characteristics under Shear Flow Yinuo Hua, Yonglei Qu, Zhongxi Sun,Yigang Luan, Minghao Yang	Consideration on Aerodynamic Characteristics of a Busemann Biplane with Staggered Configuration in Transonic Flows Masashi Kashitani, Masato Taguchi, Yuto Hyodo	Investigation of Local Heat Transfer and Flow Characteristics in the Annular Region of a DPHE Using Perforated Wire Coil Inserts Mantri Sandeep Kumar, Satyanand Abraham
15:50 - 16:10	Propeller Geometry Modelling with Thermomechanical Effects on Open and Ducted Fans Jaroslav Cibulka	Discontinuities in Speed of Pressure Propagation in R744 along the Pseudocritical Line: Implications for Transcritical and Supercritical Processes Maria Laura Canteros, Michal Schmirler	Numerical analysis of the wall heat transfer coefficient in the spaces between the outer seals of a steam turbine David Hron, Miroslav Hajšman, Jan Vimmr
16:10 - 16:30		Coffee Break	
Technical Sessions	A7 Axial Compressors and Fans 2 chair: Prof. Makoto Yamamoto <i>Tokyo University of Science</i>	B7 Cavitation chair: Prof. Slawomir Dykas <i>Silesian University of Technology</i>	C7 Turbulence and Design chair: Prof. Václav Uruba <i>University of West Bohemia in Pilsen</i>
16:30 - 16:50	Design optimization of axial slot casing treatment for a high-speed axial fan Dun Ba, Zhonggang Fan, Min Zhang, Xiaobin Xu, Juan Du	Comparative study of the RANS and LES in predicting cavitation and flow characteristics in axial-flow pump Duc-Anh Nguyen, Jin-Hyuk Kim	Experimental and numerical investigation of 3D flow structures in a turbulent channel flow with riblets Jumin Hong, Sangjoon Lee, Donggeun Lee, Juhan Bae, Wontae Hwang
16:50 - 17:10	Numerical Study of Loss Mechanisms and Stall Instability in Mixed-flow Compressor at Low Reynolds Numbers Under Inlet Distortion Shixuan Wang, Jiahui Qiu, Xiaobin Xu, Min Zhang, Juan Du	Numerical Analysis of Instability Phenomena of Near-Critical-Point Flow in a Venturi Tube M.M.A. Alam, Shouichiro Sugino, Manabu Takao	Analysis of Turbulence Induced by an Annular Grid Giorgia Teresa Bozzo, Sami Tasmany, Asim Hafizovic, Andreas Koschu, Andreas Marn
17:10 - 17:30	Performance Prediction of a Two-stage High-speed Axial Fan with Total Pressure Distorted Inflow Based on Body Force Model Jiahui Qiu, Min Zhang, Juan Du	Analysis of the mechanism and influencing factors of vortex cavitation flow in nozzle Hanwen Zhang, Yunpeng Wei, Liyun Fan, Song Zhou, Liming Wen	GA, CNN, and DNN-based CFD Design Methodology Development for Laminar Airfoil, and Investigation on the effect of Angle of Attack Ji-Won Min, Jae-ho Jeong
17:30 - 17:50	Data fusion strategy based on spatial-gaussian regression in axial flow compressor Yueheng Wu, Juan Du , Yangyang Wang, Zhonggang Fan	Numerical Simulation of Cavitating Flow around Clark Y-11.7% Hydrofoil Applying a Modified Homogeneous Cavitation Model Considering Slip Velocity Shin-ichi Tsuda, Masaki Nakashima, Taiki Takamine, Satoshi Watanabe	
18:10		International Committee meeting	

17th September	Day 3
8:15	Conference Tour - Kutná Hora
20:00	Banquet

18th September	Day 4
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	Room MARS	Room JUPITER	Room SATURN
Technical Sessions	A8 Centrifugal Compressors chair: Dr. Jiahui Qiu <i>Chinese Academy of Sciences</i>	B8 Flow Control chair: Prof. Yoshiaki Miyazato <i>The University of Kitakyushu</i>	C8 Supersonic Jets 2 chair: Prof. Pawel Flaszynski <i>Polish Academy of Sciences</i>
9:00 - 9:20	Impeller-Diffuser Interaction on Stall Process in a Centrifugal Compressor Mika Rokugawa , Momoko Inui , Nobumichi Fujisawa , Yutaka Ohta	Effect of a Ring-shaped Obstacle on the Performance of a Fluidic Diode for Wave Energy Conversion Masato Yamashita, Shinya Okuhara, Manabu Takao,Ashraful Alam	Experimental Investigation of Underexpanded Jets from Grooved Nozzles Ryoma Sakai, Shunta Togoshi, Shinichiro Nakao, Yoshiaki Miyazato
9:20 - 9:40	Experimental Investigation on Unsteady Flow at the Tip of a Centrifugal Compressor Based on Wall Pressure Array Junde Guo, Hongwei Ma	Synthetic Jet Array for Active Control of Laminar Channel Flow Zuzana Antořová, Zdeněk Trávníček	Effect of jet temperature on mean flow of an ideally expanded supersonic jet – A CFD study Sanjoy Kumar Saha
9:40 - 10:00	Experimental and Numerical Investigation of the Effect of Blade Geometries in Radial Turbo Compressors Erman Aslan, Barış Can Sarıtaş, Şeref Soylu, Ali Cemal Benim	Flow Control by the Surfactant Solution with Reversible Viscosity Change Hitoshi Ishikawa, Hirai Shiji, Yu Nishio, Yukishige Kondo	Visualization and Acoustic Characteristics of Underexpanded Jets from Tabbed Convergent Nozzles Shunta Togoshi, Takeshi Miyaguni, Shinichiro Nakao, Yoshiaki Miyazato
10:00 - 10:20	Influence of Tip Clearance on Supercritical CO2 Compressor IGV Control and Enhancement under Gas-like and Liquid-like States Chengbin Liang, Qun Zheng, Yuting Jiang, Tao Fu	Experimental Investigation of Passive Secondary Flow Control Devices Applied to a Compact Aeroengine NGV Virginia Bologna, Daniele Petronio, Francesca Satta, Daniele Simoni, Francesco Bertini	

10:20 - 10:40	Coffee Break
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Technical Sessions	A9 Vortex Flow chair: Prof. Yuji Nakanishi <i>Kanagawa University</i>	B9 Aeroacoustics chair: Prof. Hitoshi Ishikawa <i>Tokyo University of Science</i>	C9 Unsteady Flows and Aeroelasticity chair: Prof. Oskar Schulz <i>Polish Academy of Sciences</i>
10:40 - 11:00	Scale Resolved Simulations for Mixing in Transonic Nozzle Flow Max Nüßle, Bernhard Weigand	Improvement of Sound Absorption Performance of Cross-Flow Perforated Panel Hiromitsu Hamakawa, Daisuke Kodama, Jin Muramoto, Eru Kurihara, Hiroyuki Ohtsubo	A phase lag between a cascade blade in flutter motion and measured surface unsteady pressure Jan Lepicovsky, David Šimurda, Petr Šidlof
11:00 - 11:20	Implementation of Low-Temperature Gas State Using The Ranque-Hilsch Vortex Tube Alex Joseph Puthoor, Abhilash Suryan, Heuy Dong Kim	Spectral analysis of wall-pressure fluctuations in electronic expansion valves Dongmin Kim, Seunghan Lee, Jinyul Hwang	The stall flutter evoked by flow instability in the case of a blade cascade: experimental research Pavel Procházka , Pavel Šnábl, Vladislav Skála, Václav Uruba
11:20 - 11:40	Investigation of the link between vortex dynamics and flow bifurcation in symmetric sudden expansion Sivaprasad Gangadharan, Rajesh G.	Design and Aeroacoustic Evaluation of a High-Enthalpy Multi-Nozzle Ejector for Turboshift Engine Boning Fan, Caifeng Zhang, Xiaowen Xuan, Xiaoyu Zhang, Jichao Li	3D Unsteady Modelling of Fully Separated Flow on Isolated Airfoil using Various Models of Turbulence Jiří Fürst, David Šimurda, Petr Šidlof
11:40 - 12:00	Streamwise Vorticity Dynamics in the Near Wake behind a Wall-Mounted Cylinder of low Aspect Ratio Václav Uruba, Pavel Procházka	Research on Aerodynamic and Stealth Performance Optimization of Helicopter Exhaust Nozzle Tao Sun, Xiaobin Liu, Yigang Luan	

12:00 - 13:30		Lunch	
	Room MARS	Room JUPITER	
Technical Sessions	A10 Bioflow and MHD Flow chair: Prof. Manabu Takao <i>Matsue College</i>	B10 UAV and Bots chair: Prof. Petr Sidlof <i>Technical University of Liberec</i>	
13:30 - 13:50	Nasal Airflow based Sleep Apnea Detection using Transfer learning methods Jesna K A, Biju K S, Christy James Jose	Development of lead screw driven bot for solar PV panel cleaning with water conserving approach Noel Thomas Jacob, Diya Sunil, Joseph Christine Pottakkal, Julius Shaji Edamaruku, Suresh Lal S.R.	
13:50 - 14:10	Influence of CT Image Resolution on CFD-Based Virtual Rhinomanometry Bartosz Kopiczak, Krzysztof Karbowski, Konrad Nering, Ziemowit Malecha, Robert Chrzan, Jolanta Gawlik, Aleksandra Sucherska, Joanna Szaleniec and Jakub Karbowski	Energy-Efficient UAV Navigation: A Bio-Mimetic Approach for Dense Urban Skies Harish Kumar Balakrishnan, Shifa Sherin K P, Amal Salih J, Sravan P, Abhijith J S, Abhilash Suryan, Sonia S Raj	
14:10 - 14:30	A comparison of Poisson and EDAC solver using finite element formulation for MHD flows Esmitha Ganesan, A. Sameen, T. Jaychandran		
14:30 - 15:00	Closing Ceremony and ISAIF17 Invitation		
15:00 - 15:20	Coffee Break		

19 th September	Day 5 Optional
9:00 - 14:30	Excursion - Doosan Škoda Power