

Day 1 - 15th July 2019, Monday

Time	Program				
08:00 - 08:45	<i>Foyer</i>				
	Registration				
08:45 - 09:00	<i>L77A</i>				
	Opening Address: Prof. Khoo Boo Cheong Chairman, ISSW32 Prof. Gregory Scott Chirikjian Head, Department of Mechanical Engineering, National University of Singapore				
09:00 - 09:45	Session Chair: Prof. A. Koichi Hayashi Paul Vieille Lecture: Shock Wave Moderation by Characterized Disturbances Prof. Akihiro Sasoh Nagoya University				
09:45 - 09:50	Movement				
	Student Competition (1)	Student Competition (2)	Student Competition (3)	Student Competition (4)	Student Competition (5)
	<i>L77A</i>	<i>Auditorium</i>	<i>EA-02-11</i>	<i>EA-06-04</i>	<i>EA-06-05</i>
	<i>Chair & Judge:</i> <i>Kazuhisa Fujita, Vincent Wheatley</i>	<i>Chair & Judge:</i> <i>Abdellah Hadjadj, Friedrich Seiler</i>	<i>Chair & Judge:</i> <i>Riccardo Bonazza, Ozer Igra</i>	<i>Chair & Judge:</i> <i>Christian Mundt, Herbert Olivier</i>	<i>Chair & Judge:</i> <i>Gabi Ben-Dor, Martin Brouillette</i>
09:55 - 10:15	Numerical study of side loads in over-expanded planar nozzles Boubakr Zebiri (OR-10-0082) A. Piquet, A. Hadjadj	Propagation characteristics of the blast wave from an underground magazine model Takumi Sato (OR-01-0190) K. Wakabayashi, Y. Sugiyama, T. Matsumura	Near-field acoustic signatures of overexpanded jets issuing from bevelled nozzle Wei Xiaofeng (OR-25-0036) L. P. Chua, Z. B. Lu, Y. D. Cui, T. H. New	Nitrogen Driver for Low-Enthalpy Testing in Free-Piston Driven Shock Tunnels Ryan Whiteside (OR-06-0305) W.Y.K. Chan, D.E. Gildfind, M.K. Smart, P.A. Jacobs	Magnetohydrodynamic Drag Force Measurements in Expansion Tubes using an Accelerometer Daniel Smith (OR-12-0145) D. E. Gildfind, C. M. James, A. Andrianatos, D. J. Mee and T. J. McIntyre
10:15 - 10:35	Effect of cross wire tab offset on twin-jet mixing characteristics Dhruv Dwivedi (OR-10-0131) Aqib Khan, Rakesh Kumar, Mohammed Ibrahim Sugarno	The Unsteady Processes of a Shock-induced Combustion Ramjet Ma Kaifu (OR-04-0062) Y.F. Liu, Q.H. Sun	Shock wave generation by an unsteady jet blown in tubes of different diameters Kuwabara Daisuke (OR-25-0234) A. Iwakawa, A. Sasoh, T. Yamashita, K. Taguchi	Thermodynamic Effects of Heat Deposition in a Hypersonic Shock Layer under Various Reentry Environment Sneh Deep (OR-07-0019) Gopalan Jagadeesh	Design of Experiments for Expansion Tube Evaluation of Magnetohydrodynamic Aerobraking for Earth Return from Deep Space Alexis Lefevre (OR-12-0207) David E. Gildfind, Steven W. Lewis, Peter A. Jacobs
10:35 - 10:55	Flow Evolution in a Dual-Bell Nozzle during different Modes of Operations Nitish Arya (OR-10-0211) Mayank Verma, Ashoke De	Numerical Investigation on Multiple Waves Propagation Mode of Rotating Detonation Waves Yang Pengfei (OR-04-0088) Jiang Zonglin, Teng Honghui	Shock Detachment in Granular Flows Aqib Khan (OR-15-0295) Priyanka Hankare, Shivam Verma, Rakesh Kumar and Sanjay Kumar	Quantifying Error in Linear Interaction Analysis for a Normal Shock-Vorticity Interaction Pranav Thakare (OR-22-0293) Yogesh Prasaad M. S., Krishnendu Sinha, Vineeth Nair	Study on Relationship between Generation of Underwater Shock Waves and Erosion in Cavitating Flow Yusuke Tamaki (OR-09-0081) T. Shimokawa, A. Abe
10:55 - 11:15	Tea Break				
	Student Competition (6)	Student Competition (7)	Student Competition (8)	Student Competition (9)	Student Competition (10)
	<i>L77A</i>	<i>Auditorium</i>	<i>EA-02-11</i>	<i>EA-06-04</i>	<i>EA-06-05</i>
	<i>Chair & Judge:</i> <i>Kazuhisa Fujita, Vincent Wheatley</i>	<i>Chair & Judge:</i> <i>Abdellah Hadjadj, Friedrich Seiler</i>	<i>Chair & Judge:</i> <i>Riccardo Bonazza, Ozer Igra</i>	<i>Chair & Judge:</i> <i>Christian Mundt, Herbert Olivier</i>	<i>Chair & Judge:</i> <i>Gabi Ben-Dor, Martin Brouillette</i>
11:15 - 11:35	Evolution of an air/SF6/air Finite-thickness Fluid Layer Impacted by Shock Wave Liang Yu (OR-13-0058) Liu Lili, Wen Chih-Yung, Zhai Zhigang, Luo Xisheng	Numerical Investigation of a Mach 9 Oblique Detonation Wave Engine with Fuel Pre-injection Zhang Zijian (OR-04-0133) Liu Yunfeng, Jiang Zonglin	Effects of Temperature Fluctuation on Shock Wave Modulation in Shock-Turbulence Interaction Kento Inokuma (OR-14-0124) T. Watanabe, K. Nagata, Y. Sakai	Effects of Turbulence Compressibility on Normal Shock Wave in Shock Turbulence Interactions Kento Tanaka (OR-22-0208) T. Watanabe, K. Nagata	Efficient and Accurate Shock Sensor for CFD Solutions on Curvilinear Grids Takeshi Fujiimoto (OR-11-0307) K. Kitamura
11:35 - 11:55	Richtmyer-Meshkov Instability on Dual-mode interface impacted by shock wave Liu Lili (OR-13-0059) Liang Yu, Wen Chih-Yung, Ding Uchung, Zhai Zhigang, Luo Xisheng	High Compression and Nearly-complete Air-insulation Obtained for a New Rocket Engine Based on the Pulsed Supermulti-jets Colliding Remi Konogaya (OR-04-0175) T. Kobayashi, J. Mikoda, K. Kinoshita, S. Kawaguchi, H. Makimoto, Y. Kobayashi, S. Shinoda, S. Lujiang	Experimental Investigation on Effect of Viscosity on Droplet Aero-breakup at Low Mach Number Shen Shuai (OR-14-0130) Tan Duowang, Li Jianling, Liu Jinhong, Xiao Ma, Wei Fan	Drag Reduction Effect for Hypersonic Lifting body Vehicle with Counterflowing Jet Liu Shicheng (OR-24-0126) Hao Dong, Shen Zhicheng, Deng Fan	Shock Oscillations in a Constant Area Duct due to Far Field Downstream Pressure Perturbations Niraj Panthi (OR-17-0127) Dipanjan Barman, Raghuraman N Govardhan
11:55 - 12:15	Bubble Competition of an Inverse-chevron Interface in Richtmyer-Meshkov Instability Guo Xu (OR-13-0179) Zhai Zhigang, Luo Xisheng	Experimental research of rotating detonation engine fueled by H ₂ , C ₂ H ₄ and H ₂ -C ₂ H ₄ -C ₂ H ₂ mixture Zhou Shengbing (OR-04-0225) Hu Ma	Study on the RR->MR transition in in-viscid flow Wang He (OR-15-0108) Zhai Zhigang, Luo Xisheng	Effect of Forward Facing Cavity Geometry in High Enthalpy Flows B Sudarshan (OR-24-0457) Jagadeesh G and Saravanan S	Starting Shock Swallowing in a Supersonic Wind Tunnel: A Shock Transition Problem? G Sivaprasad (OR-17-0312) R. Ramprakash, G. Rajesh, R. Arun Kumar
12:15 - 12:35	Mode Coupling effect on Converging Richtmyer-Meshkov Instability Zhou Zhangbo (OR-13-0183) Ding Juchun, Zhai Zhigang, Luo Xisheng	Numerical investigation of detonation initiation in the supersonic inflow by a pre-detonator Li Hongbin (OR-04-0420) Jianling Li, Wei Fan, Lei Zhao and Duowang Tan	High-resolution numerical simulation of shock-diffraction induced vorticity generation in cylindrical cavities Nassim Brahmî (OR-15-0349) A. Hadjadj	Numerical study of hypersonic boundary layer instability and unstable modes interaction Yuichiro Uda (OR-24-0398) M. Takahashi, N. Ohnishi	Numerical Estimation on Pseudo-Shock Wave Flow in an Isolator Vignesh Ram Petha Sethuraman (OR-17-0435) Kim Heuy Dong

12:35 - 12:55	Experimental Investigation on Nonlinear Converging Richtmyer-Meshkov Instability Li Ming (OR-13-0185) Ding Juchun, Luo Xisheng		The Aerodynamic Performance of an Aerofoil in Tri-sonic Ground Effect Sean Morrow (OR-15-0376) H. Roohani, B. W. Skews, I. Gledhill and B. J. Evans		Quantitative Measurement of Compressible Turbulent Mixing Layer by background oriented Schlieren method Mizuki Ito (OR-17-0456) K. Hatanaka, M. Hirota, T. Saito
Poster Session (1) Student Competition and Lunch					
<i>Foyer</i>					
<i>Chair & Judge: Koichi Hayashi, Richard Morgan</i>					
12:55 - 13:55	Unsteady Flow in Rotating Detonation Nozzle Xia Hanguing (P-04-0117) Huang Yue, Peng Han, Luan Zhenye	Effects of various components fluidic jet on Deflagration-to-Detonation Transition in Pulse Detonation Engine Luan Zhenye (P-04-0142) Peng Han, Huang Yue, Xia Hanguing	Application of Unstructured-mesh CE/SE Method to Study Two-phase Rotating Detonation Waves Wang Fang (P-04-0171) Bai Qiao-Dong, Weng Chun-Sheng	Numerical Investigation of Hybrid Detonation in Aluminum Particles with Hydrogen-Air Mixtures Ma Jiawen (P-04-0239) Zongmin Hu, Zonglin Jiang and Honghui Teng	Unified Gas-Kinetic Scheme for the Disperse Gas-Particle Flow and Its Application in the Shock-Driven Multiphase Instability Wang Zhao (P-14-0013) Hong Yan
	A Study on the Effect of Wedge Position on Mach Stem Height in Steady Supersonic Flows Thara Reshma I.V. (P-15-0104) Shobhan Roy and G. Rajesha	Unsteady shock wave reflection over concave surfaces Elad Koronoi (P-15-0203) O. Sadot, M. Geva	Dynamic Two and Three-Dimensional Features of Rapidly Pitching Bodies in Supersonic Flow Timothy Missing (P-15-0274) B. W. Skews, H. Roohani	A Study of Two and Three Dimensional Numerical Simulations of Converging Shock Wave V S Saranyamol (P-17-0144) Soumya Ranjan Nanda, Mohammed Ibrahim. S	Effect of turbulence in unsteady shock interaction and heat transfer mechanism in a hypersonic flow over double wedge Gaurav Kumar (P-21-0210) A. De
	Acceleration Effects on the Flow-Field for a Cone-cylinder at Angle of Attack Irshaad Mahomed (P-24-0032) H. Roohani, B.W. Skews, I.M.A Gledhill	Experimental Investigation on Plate Boundary Layer Transition in JF-12 Hypersonic Shock Tunnel Liu Meikuan (P-24-0091) Han Guilai, Jiang Zonglin	Unsteady Heat Transfer Measurement on Pulsating and Oscillating Flow in Shock Tunnel at Mach 8 N Gopalakrishna (P-24-0194) S. Saravanan	Paper reviewers in Student Competition: Romie Bura, Wai Lee Chan, Yongdong Cui, David Gildfind, Rowan Gollan, Yunfeng Liu, Daniel Tze How New, Honghui Teng, Mohd Rashdan Saad, Anand Veeraragavan, Huangwei Zhang, Mengqi Zhang	
LT7A					
<i>Session Chair: Prof. David Mee</i>					
13:55 - 14:40	Plenary Lecture: A Study of Integration of a Rotating Detonation Engine to a Waverider Forebody Prof. Frank Lu University of Texas at Arlington				
14:40 - 14:45	Movement				
	Supersonic and Hypersonic Flows (1)	Detonation and Combustion (1)	Richtmyer-Meshkov Instability (1)	Chemical Reacting Flows (1)	Facilities (1)
	LT7A	Auditorium	EA-02-11	EA-06-04	EA-06-05
	<i>Session Chair: David Mee</i>	<i>Session Chair: Liu Yunfeng</i>	<i>Session Chair: Devesh Ranjan</i>	<i>Session Chair: Eric Petersen</i>	<i>Session Chair: Hu Zongming</i>
14:50 - 15:10	Effect of Mixing Duct Geometry of Supersonic Ejector in the Critical Flow Regime Pradeep Gupta (OR-24-0152) Srisha Rao Mv, Pramod Kumar	The fast dynamic registration of ultra-disperse carbon particles during detonation of energetic materials Konstantin Ten (OR-04-0018) Aleksey Kashkarov, Edward Prueel, Ivan Rubzov, Vladimir Titov, Boris Tolochko, Dmitriy Petrov, Aleksandr Garmashev, Evgeniy Smirnov	Investigating the two-fluid plasma Richtmyer-Meshkov instability: A tale of two codes Daryl Bond (OR-13-0169) V. Wheatley, R. Samtaney, Y. Li	Modification of the two-temperature model parameters of oxygen in air mixtures Kim Jaegang (OR-03-0139)	Using a simplified Canny edge detector to detect shock arrival in expansion tubes and shock tunnels Christopher James (OR-06-0031)
15:10 - 15:30	Analysis on the Performance of an Inward Turning Four-ducts Combined Inlet with Wide Working Range Zhu Chengxiang (OR-24-0050) Z. Hu, F. Kong, M. Wu, Y. You, F. Gul, Z. Li and Y. Zhang	Optimization of Detonation Dampers for Ducts Transporting Gaseous Fuels Zbigniew Walenta (OR-04-0390) A. M. Slowicka	The Richtmyer-Meshkov instability of an isotope interface in a two-fluid plasma Vincent Wheatley (OR-13-0170) D. Bond, R. Samtaney, Y. Li, D. Pullin	Numerical Investigation of Thermochemical Nonequilibrium Flows using Eilmer3 Thirukumar Nadesan (OR-03-0166) Teo Chiang Juay, Li Jiun-Ming, Khoo Boo Cheong	Theoretical Analysis of the Flow Field in FD21 Free Piston Shock Tunnel Yi Xiangyu (OR-06-0443) Yi, X. Chen, Z. X. Bi, N. Chen, B. B. Zhang, J. M. Shen, C. Li
15:30 - 15:50	Supersonic Sphere Flow Unstable Bifurcations Andrea Sansica (OR-24-0135) J.-Ch. Robinet, A. Hashimoto	Investigation of detonation initiation due to the shock wave reflection from the multiple elliptical surfaces Alexander Lopato (OR-04-0056) P. Utkin, A. Vasil'Ev	Experimental investigation of the converging Richtmyer-Meshkov instability Georges Jourdan (OR-13-0213) C. Mariani, L. Biaino, D. Barros, L. Houas, M. Vandenboomgaerde, D. Souffland, P. Rouzier	Wall Heat Flux Analysis of a Film-Cooled Single-Element Combustion Chamber with Large-Eddy Simulations Raffaele Olmeda (OR-03-0241) Christian Stemmer	Rebuilding the Test Conditions of Impulse Facilities Sangdi Gu (OR-06-0029) H. Olivier
15:50 - 16:10	Simulation of Time Resolved Radiative Emission in the X2 Expansion Tube Theodore Millard (OR-24-0009) Christopher M. James	Properties of detonation propagation in auto-igniting mixtures Huang Chengyang (OR-04-0078) Zheng Chen and Ralf Deiterding	Atwood number effect on the Richtmyer-Meshkov instability of cylindrically uniform interface Ravi Samtaney (OR-13-0256) Zou Liyong, Mahamad Al-Marouf, Wan Cheng	Fully Catalytic Behavior of Ceria in Powder form-a Strong Shock Absorbing TBC Material Vishkantaiah Jayaram (OR-03-0492) J. Kavitha, K. Subbarao, Prakash Gopalakrishnan	Investigation on Start-up Process of a Ø300mm Ludwieg Tube Wind Tunnel Fan Xiaohua (OR-06-0156) Yang Bo, Sun Qizhi
16:10 - 16:30	Tea Break				
	Supersonic and Hypersonic Flows (2)	Detonation and Combustion (2)	Richtmyer-Meshkov Instability (2)	Chemical Reacting Flows (2)	Facilities (2)
	LT7A	Auditorium	EA-02-11	EA-06-04	EA-06-05
	<i>Session Chair: Jagadeesh Gopalan</i>	<i>Session Chair: Zbigniew Walenta</i>	<i>Session Chair: Jeffrey Jacobs</i>	<i>Session Chair: Kim Jaegang</i>	<i>Session Chair: Luo Changtong</i>
16:30 - 16:50	Effect of Boundary Layer Suction on Shock Train Oscillations in an Inlet/Isolator Model Nie Baoping (OR-24-0155) Huang Rong, Li Zhufei, Yang Jiming	Theoretical Study on the Deflagration to Detonation Transition Process Liu Yunfeng (OR-04-0040) W.S. Zhang, Z.J. Zhang, Z.L. Jiang	The evolution of mixing modes in Richtmyer-Meshkov Instability Devesh Ranjan (OR-13-0298) G. Pathikonda, M. Mohaghar, J. Carter	Preliminary commissioning of hydrogen supersonic combustion in FD-21 free piston driven shock tunnel Lu Hongbo (OR-03-0248) X. Chen, K. Song, C. Li, J. Ding, Z. Bi, X. Yi, Y. Chen, X. Sha, J. Lin, F. Ji	A New Aerosol Shock-Tube Facility for the Study of Mixtures with Large Hydrocarbons Joshua Hargis (OR-06-0333) S.P. Cooper, O. Mathieu, E.L. Petersen, B. Guo

16:50 - 17:10	Flow Evolution in a Rectangular Forward-Facing Closed Cavity Srisha Rao (OR-24-0180) Prahallada Jutur, G. Jagadeesh	Study on Self-sustaining Mode of Detonation Wave under Concentration Gradients with Detailed Reaction Mechanism Song Qingguan (OR-04-0106) Y. Han, W. Cao, C. Wang, W.H. Han	Experimental investigation of Richtmyer-Meshkov instability induced by a nonuniform shock wave before and after reshock Liao Shenfei (OR-13-0346) L. Zou, J. Liu	Large Eddy Simulation of Shock-Induced Ignition in an Ethylene-Fueled Model Supersonic Combustor Huang Zhiwei (OR-03-0281) Zhang Huangwei, He Guoqiang	Generating 5-km/s Low Density Hypersonic Test Flows in an Expansion Tube for Studying Ultraviolet Radiation Matthew Thompson (OR-06-0337) C.M. James, S.W. Lewis, D.E. Gildfind, R.G. Morgan
17:10- 17:30	Measurement of hypersonic boundary layer transition on cone model using Infrared thermography Sha Xinguo (OR-24-0191) Feng Ji, Zhang Tingting, Yuan Xiangjiang, Qing Shen	Experimental Study of Rotating Detonation Rocket Engine at JAXA Makoto Kojima (OR-04-0120) H. Kawashima, H. Tanno	Can a starting vortex boost the turbulent transition of a Richtmyer-Meshkov instability-induced air/helium mixing zone? Marta Santos (OR-13-0445) Y. Bury, P. Graumer, S. Jamme	Three-Dimensional Simulation of A Scramjet Combustor Fueled by Ethylene Pan Kuo-Long (OR-03-0372) W. S. Lee	Development and Status Tuning of FD21 Free Piston Shock Tunnel Xing Chen (OR-06-0441) Z. X. Bi, X. Y. Yi, N. Chen, B. B. Zhang, J. M. Shen, C. Li, R. M. Sun, K. Q. Song
17:30- 17:50	Experimental Study on Shock Pattern and Noise Emission of a Rocket Nozzle Exhaust Jet Ralf Stark (OR-25-0244) F. Strauss, G. General, D. Schneider	Experimental study on cell structure characteristics of detonation wave with a small perturbation Wu Yuwen (OR-04-0132) Chu Chi, Weng Chunsheng, Zheng Quan	Experimental investigation of Richtmyer-Meshkov instability in convergent interface of solid tin and foamed polystyrene Zhang Shaolong (OR-13-0490) Zhang Zhengwei, Sun Qizhi, Liu Wei, Li Jun, Chi Yuan, Zhang Nanchuan	The Study of Radiation Characteristics of Thermo-chemical Nonequilibrium Flow Field Using State-to-State Model Zheng Weijie (OR-07-0330) Zeng Ming, Hao Zhu, Wang Dongfang	Flow Characteristics in a Conical Shock Tube Sergey Medvedev (OR-06-0464) S.V. Khomik, A.M. Tereza, M.V. Silnikov, A.I. Mikhaylin, V.N. Shishkin