

Day 2 - 16th July 2019, Tuesday

Time	Program			
08:00 - 08:45	<i>Foyer</i>			
	Registration			
	<i>LT7A</i>			
	Session Chair: Prof. Arunan Elangannan			
09:00 - 09:45	Plenary Lecture: Healing Touch Shocking Waves ! Prof. Jagadeesh Gopalan Indian Institute of Science			
09:45 - 09:50	Movement			
	Shock / Boundary Layer Interaction (1)	Detonation and Combustion (3)	Medical and Biological Applications (1)	Diagnostics / Flow Visualization (1)
	<i>LT7A</i>	<i>Auditorium</i>	<i>EA-06-02</i>	<i>EA-06-03</i>
	<i>Session Chair: Sudhir Gai</i>	<i>Session Chair: Frank Lu</i>	<i>Session Chair: Tamagawa Masaaki</i>	<i>Session Chair: Cui Yongdong</i>
09:55 - 10:15	Vortex Generators on a Compressible Convex-Corner Flow Su Kao-Chun (OR-21-0045) Kung-Ming Chung	Experimental Measurement of Laminar Burning Velocity of n-Heptane at Variable Extents of Reaction in a Shock Tube Adam Susa (OR-04-0149) A. M. Ferris, D. F. Davidson, R. K. Hanson	Field Data Comparisons with High Fidelity Simulations of Blast Exposure to Breachers During Training Suthee Wiri (OR-08-0034) G. Kamimori, G. Rule	Single-Laser Krypton Tagging Velocimetry (KTV) Investigation of Air and NS ₂ Boundary-Layer Flows Over a Hollow Cylinder in the Stevens Shock Tube Muhammad Mustafa (OR-05-0474) D. Shekhtman, N. J. Parziale
10:15 - 10:35	Occurrence of Görtler Vortices in Hypersonic Ramp Flow Cao Shibin (OR-21-0052) I. Kloutchnikov, H. Olivier	Simplified model of detonation based on wave front curvature Sun Yuanxiang (OR-04-0479) Cheng Wang	Generation of micro-scale shock waves by focusing short-time pulse laser and measurement of pressure for development of regenerative cell-culture systems Tamagawa Masaaki (OR-08-0393) R. Terajima, R. Sakai	Iterative correction of shocked acetone PLIF measurements in the Richtmyer-Meshkov instability using real gas properties Riccardo Bonazza (OR-05-0476) J. Herzog, A. Ames, C. Noble, J. Oakley, D. A. Rothamer
10:35 - 10:55	Low Frequency Unsteadiness of a Mach 2 Step-Induced Shock-Wave/Turbulent-Boundary-Layer Interaction Huang Xin (OR-21-0092) D. Estruch-Samper	Numerical Study of a Rotating Detonation Engine using Ethylene and Air Shan Ruiqin (OR-04-0224) J.M. Li, C.J. Teo, B.C. Khoo	Development of a novel non-invasive shockwave-based therapy to cure chronic diabetic foot ulcers Akshay Datey (OR-09-0414) Dipshikha Chakravorty, Jagadeesh Gopalan	Temperature Measurements in Shock Wave Reflection Processes Harald Kleine (OR-05-0383) B. Kaebbe, S. O'Byrne
10:55 - 11:15	Tea Break			
	Shock / Boundary Layer Interaction (2)	Detonation and Combustion (4)	Medical and Biological Applications (2) / Spectroscopy (2)	Diagnostics / Flow Visualization (2)
	<i>LT7A</i>	<i>Auditorium</i>	<i>EA-06-02</i>	<i>EA-06-03</i>
	<i>Session Chair: Chung Kung-Ming</i>	<i>Session Chair: Clinton Groth</i>	<i>Session Chair: Rowan Gollan</i>	<i>Session Chair: Oren Sadot</i>
11:15 - 11:35	Experimental Investigation on the Unsteadiness in Hypersonic Shock-induced Flow Separation Ramji Veerappan (OR-21-0099) Srisha Mv Rao, Gopalan Jagadeesh, R. Sriram	Influence of Combustion on the Shock Pattern and Interface Evolution in Shock Wave-Heavy Bubble Interaction E Fan (OR-04-0264) Jiaao Hao, Ben Guan, Wen Chin-Yung	Quantifying Blast Exposure Levels on Humans Suthee Wiri (OR-08-0247) G. Rule, T. Walliko and C. Needham	A Preliminary Study On the Implementation of Rainbow Schlieren with a Single-Mirror System Raffaello Mariani (OR-05-0243) H. D. Lim, Vevek U S, B. Zang, T. H. New, Y. D. Cui
11:35 - 11:55	Separation Control and Performance Improvement of a Supersonic Airfoil Using Repetitive Pulses Masayuki Takahashi (OR-21-0199) N. Ohnishi, M. Myokan, S. Kubota, H. Bottini, A. Iwakawa, A. Sasoh, F. Gnani	Numerical Study of Shock Wave Interaction in a Fluidic Valve Frank Lu (OR-04-0162) Sushma Yalavarthi	Performance evaluation of a novel cardiology device based on a shock wave-energized guidewire Martin Brouillette (OR-08-0259) M. Razban, L.-P. Riel, M. Charlebois-Ménard, S. Dion	Application of Infrared Thermography in an Expansion Tunnel Timothy Cullen (OR-05-0271) R. Gollan, R. Morgan
11:55 - 12:15	Effect of sphere size on transonic acceleration sensitivity Hamed Roohani (OR-21-0205) I.M.A. Gledhill And B.W. Skews	On the Mutual Interaction of Homogeneous Isotropic Turbulence with a Detonation Wave Sarah Hussein (OR-04-0294) Frank Lu	Development of a laser induced shock wave generator for non-thermal cardiac catheter ablation Hiroaki Yamamoto (OR-08-0188) K. Takayama, H. Shimokawa	Development of Ultrafast-Response Bi-Luminophore PSP for Surface Pressure Measurement on Supersonic Projectiles Daiju Numata (OR-05-0347) K. Ohtani
12:15 - 12:35	Effects of Urban Terrain on Spatial Distribution of Explosion Products Azi Lipshtat (OR-21-0021) S. Pistinner	Shock-Induced Elliptic Reactive Gas Bubble Ignition Oleg Sutyrin (OR-04-0300) V. Levin, P. Georgievskiy	Dual-comb spectroscopy in shock tubes: Multi-species measurements on reaction timescales Nicolas Pinkowski (OR-23-0475) C. L. Strand, Y. Ding, R. K. Hanson, M. Geiser, R. Horvath	Absorption Spectroscopy of CO ₂ Flows in Expansion Tube Satoshi Nomura (OR-05-0350) K. Fujita, U. Dubuet

12:35 - 13:55

Poster Session (2) and Lunch

Foyer

<p>Reduction of blast-induced shock vibration by artificial cutting slot in tunnel cut-hole blasting Sewook Oh (P-01-0397) S.W. Oh, G.Y. Min, S.W. Park, S.H. Cho, C.G. Suk, H. Park</p>	<p>Thermal decomposition of methyl-2-methylbutanoate behind reflected shock waves B. Rajakumar (P-02-0153) Subhadarsi Nayak</p>	<p>Impact of the Facility-Dependent Effects on Reflected-Shock Conditions over a Wide Range of Pressures and Mach Numbers Sean Cooper (P-02-0467) D. Nativel, M. Fikri, Schulz, E.L. Petersen</p>	<p>Effects of Hydrocarbon Fuels on Reacting Flow and Heat Transfer of Supersonic Combustor Zhong Fengquan (P-03-0096) Xu Xuerui, Fan Wenhui, Zhang Xinyu</p>	<p>Study on self-ignition induced by an imploding arc-shaped shock wave Hou Zihao (P-04-0174) Zhu Yujian, Li Zhufei, Yang Jiming</p>
<p>Experimental Research on Effects of Center Cone on Liquid-Fueled Rotating Detonation Engine Performance Zheng Quan (P-04-0328) Wu Yuwen, Weng Chunsheng</p>	<p>Observations of Radiation behind Reflected Air Shock Waves Shota Ishii (P-05-0229) S. Yamazaki, A. Kimura, M. Funatsu</p>	<p>Development of Two-color Pressure-Sensitive Paint for Investigating Aerodynamic Vibration Phenomena in Transonic Flow Ayana Wakayama (P-05-0361) D. Numata</p>	<p>Colored-Grid Background Oriented Schlieren with Double Pass Imaging for Increasing Measurement Sensitivity Yusuke Hirose (P-05-0425) D. Aoki, Y. Ishimoto, K. Tajima, M. Ota, T. Inage, S. Udagawa</p>	<p>A new blast wave facility at IUSTI Marseille Georges Jourdan (P-06-0411) C. Mariani, D. Bousnina, D. Barros, A. Marty, J. Massoni, L. Houas</p>
<p>The Aerodynamic and Structural Design of the Moderate Mass Piston Used in the Large Scale Hypersonic Gun Tunnel FD-20a Yi Xiangyu (P-06-0437) Chen Xing, Song Keqing, Shen Junmou, Li Ruiqu</p>	<p>Effective Test Time Evaluation in the Detonation Driving High Enthalpy Shock Tunnel Luo Kai (P-07-0240) Qiu Wang, Li Jiwei, Wei Zhao</p>	<p>A Shearing Interferometer Study of Shock Wave Propagation Through Thin Metal Sheeting Jennifer Schulz (P-14-0030) B. Skews</p>	<p>Impact of Shockwaves on the Structure and Dynamics of Nanoparticle Composites Soumya Nanda (P-14-0068) Rahul Mangal, Mohammad Ibrahim S., Depobam Das</p>	<p>Shock and Blast Wave Interaction with Hard Soil Pans Randall Paton (P-14-0102) M. Chitalu, M. Khan</p>
<p>Blast wave loading of CFRP plates in a compartmentalized setup and the structural health state of the plates post-blast Benjamin Katko (P-14-0461) W. Mellor, C. McGuire, J. Zanteson, B. Lawlor, L. Zheng, J. Chan V. Eliasson, Y. Kwon, J. Didoczek</p>	<p>Shock-Shock Interactions in Granular Flow Aqib Khan (P-15-0344) Shivam Verma, Priyanka Hankare, Sute Piyush Prakash, Sanjay Kumar, Rakesh Kumar</p>	<p>Shock wave mitigation propagating through a system of ducts with traps: experiments and numerical simulations Georges Jourdan (P-15-0418) A. Marty, L. Biamino, E. Daniel, L. Houas, D. Leriche, J. Massoni</p>	<p>Bow shock perturbation via entropy spot deposition in dense gases Stephen Winn (P-16-0373) E. Touber</p>	<p>Visualisation and Measurements of Laser-Induced Blast Waves in Water Harald Kleine (P-18-0384) S. O'Byrne, A. Fien</p>
<p>Unsteady temperature characterization in the separated shear layer over a spiked cylinder in hypersonic flow Sneh Deep (P-21-0023) Gopalan Jagadeesh</p>	<p>Unsteadiness in Shock Induced Separation due to Protusions Sourabh Bhardwaj (P-21-0291) R. Sriram</p>	<p>Separation of Laminar Boundary Layers at Swept Corners Frank Lu (P-21-0324) R. R. Pulimidi</p>	<p>Development of a blast wave attenuation technique Katsuya Noritake (P-22-0494) T. Kikuchi, A. Muramatsu</p>	<p>Effect of Energy Deposition Inside the Forward Facing Cavity in a Hypersonic Flow Saravanan Selvaraj (P-24-0216) Sneh Deep, Jagadeesh G, Sudarshan B</p>
<p>Vortical structures of a subsonic jet in a high speed crossflow Ma Yinkai (P-25-0157) Li Zhufei, Yang Jiming, Gao Wenzhi</p>	<p>Failure and phase transitions in strong ceramics under shock loading Sergey Dyachkov (P-20-0509) S. Yu. Grigoryev, A. N. Parshikov, V. V. Zhakhovskiy</p>	<p>Fragmentation of a liquid tin droplet by a short laser pulse Sergey Grigoryev (P-18-0508) V. V. Zhakhovskiy, S. A. Dyachkov, V. V. Medvedev</p>	<p>Characterization of CL-20 Explosive for Short Duration Shock Initiation Shallu Gupta (P-04-0251) Deepika Jindal, Pushpa Gupta, Pal Dinesh Kumar, Arun Agarwal, Prem Lata</p>	

LT7A

Session Chair: Prof. Khoo Boo Cheong

Plenary Lecture:
Transition in Hypersonic Wall-Bounded Flows
Prof. Lee CunBiao
Peking University

Movement

	Supersonic and Hypersonic Flows (3)	Detonation and Combustion (5)	Shock Wave Interaction with Various Media (1)	Diagnostics / Flow Visualization (3)	Shock / Boundary Layer Interaction (5) / Supersonic and Hypersonic Flows
13:55 - 14:40	<i>LT7A</i>	<i>Auditorium</i>	<i>EA-06-02</i>	<i>EA-06-03</i>	<i>EA-06-04</i>
	<i>Session Chair: Klaus Hannemann</i>	<i>Session Chair: Nobuyuki Tsuboi</i>	<i>Session Chair: Marianne Omang</i>	<i>Session Chair: Harald Kleine</i>	<i>Session Chair: Li Jiangling</i>
14:40 - 14:45					
14:50 - 15:10	<p>Supersonic Flow Control using Multi-pulse Nanosecond Dielectric Barrier Discharge Plasma Actuators Ng Jee Hann (OR-24-0197) Y. D. Cui, B. C. Khoo</p>	<p>Effects of inflow premixing inhomogeneity on wedge-induced oblique detonations in two-phase kerosene-air streams Ren Zhaoxin (OR-04-0279) Wang Bing</p>	<p>Pressure Rise in a Vessel due to Shock Wave Impact Susumu Kobayashi (OR-14-0109) H. Hemmi, J. Zhang, T. Koita</p>	<p>Shock Waves Resulting from Body Impact Beric Skews (OR-05-0017) A. Martinescu</p>	<p>Computational studies on the unsteadiness in hypersonic shock induced leading edge separation Sriram Rengarajan (OR-21-0297) S. K. Karthick</p>
15:10 - 15:30	<p>Investigation of High Temperature Gas Effect on Drag Coefficient of a Blunt Body in JF-12 Hypersonic Shock Tunnel Han Guilai (OR-24-0218) Y. Wang, C. Yuan, Z. Hu, Z. Jiang</p>	<p>Preliminary Measurement of the Propagating Detonation Wave Velocity in the Circular Tube Induced by Combustion of Air-Acetylene Mixture Using Ion Probes Shinsuke Udagawa (OR-04-0368) Y. Suda, T. Inage, M. Ota, Y. Hirose</p>	<p>Blast wave mitigation with galvanized polyurethane foam in a sandwich cladding Ludovic Blanc (OR-14-0154) M.-O. Sturtzer, A. Jung, S. Diebels, A. Kleine</p>	<p>Measurement of shock standoff distance in hypervelocity flow Yuan Chaokai (OR-05-0086) Z. L. Jiang, K. Zhou</p>	<p>Three-dimensionality of Double Wedge Flow at Hypersonic Speeds Bayram Celik (OR-21-0193) Ahmet Selim Durna</p>
15:30 - 15:50	<p>Aerothermal Analysis of 3D Concave Cone in Hypersonic Flow in SCIROCCO Bianca Capra (OR-24-0220) J. Moran, M. Brown, R. Boyce E. Trifoni, A. Schettino, C. Purpura, A. Martucci, R. Gollan</p>	<p>Mechanisms of Detonation Decay and Re-initiation at Tangential Propagation under Porous Layer Sergey Golovastov (OR-04-0421) G. Yu. Bivol</p>	<p>Fluid-Structure Interaction Simulation of In-bore Premature Caused by Hindered Projectile Moving in Gun Barrels Sun Quanzhao (OR-14-0159) Song Yanming, Zhang Jie, Yang Guolai, Lu Baochun</p>	<p>Flow visualization around Hayabusa sample return capsule using high-enthalpy shock tunnel (HIEST) Kohei Shimamura (OR-05-0125) Ginji Uchibe, Yusuke Fujiwara, Aoi Harashima, Kazuhiko Yamada, Hideyuki Tanno, Tomoyuki Komuro</p>	<p>Time Resolved Measurement and Analyse on Shock Train Structures by Suction Control Chen Zhi (OR-17-0481) Z. X. Huang, X. Du</p>
15:50 - 16:10	<p>Radiation Coupling to an Euler-Boundary-Layer Method on Entry Shock Layers Jannis Bonin (OR-24-0232) C. Mundt</p>	<p>On the Differences between Stable and Unstable Detonation Re-initiation Chang Po-Hsiung (OR-04-0365) Lei Li, Li Jun-Ming, Teo Chiang Juay, Khoo Boo Cheong</p>	<p>Numerical simulations of shock-induced motion of a solid body using the overset grid functionality of OpenFOAM Sakamura Yoshitaka (OR-14-0399) K. Nakayama, M. Oshima</p>	<p>Quantitative Density Measurement of Unsteady Flow Field around A Sphere in The Ballistic Range Masanori Ota (OR-05-0355) Y. Hirose, T. Nagashima, Y. Yahagi, T. Inage, S. Udagawa, H. Kiritani, K. Fujita, K. Ohtani, H. Nagai</p>	<p>Cumulative Phenomena for Interaction of Blunt Bodies with Gas Bubbles in Supersonic Flow Pavel Georgievskiy (OR-24-0431) Vladimir Levin, O. Sutyrin</p>

Tea Break

16:10 - 16:30

	Supersonic and Hypersonic Flows (4)	Detonation and Combustion (6)	Shock Wave Interaction with Various Media (2)	Shock / Vortex Interaction
	LT7A	Auditorium	EA-06-02	EA-06-03
	Session Chair: Anand Veeraragavan	Session Chair: David Frost	Session Chair: Susumu Kobayashi	Session Chair: Beric Skews
16:30 - 16:50	Aeroheating Test of Hayabusa Sample Return Capsule in Hypersonic High-Reynolds Number Flow Hideyuki Tanno (OR-24-0268) T. Komuro, K. Yamada, K. Shimamura, G. Uchibe	Application of Graphene Oxide and its Derivatives in Gaseous Jet A-1/Air to Enhance Detonation Transition Li Jiun-Ming (OR-04-0423) Chang Po-Hsiung, Teo Chiang Juay, Khoo Boo Cheong, Duan Hongwei, Van Cuong Mai	Explosion mitigation by metal grid with water curtain Therese Schunck (OR-14-0237) M. Bastide, D. Eckenfels, J.F. Legendre	Evaluation of Electrically Insulating Coatings for Magnetohydrodynamic Aerobraking Experimentation David Gildford (OR-12-0014) P.A. Jacobs
16:50 - 17:10	Application of the Minimum Entropy Production Principle to the Asymmetric Leading-shocks Reflection of Oblique Shock Train Wang Chengpeng (OR-24-0269) W. S. Wang, P. Xu, L. S. Xue	Flame acceleration and deflagration to detonation transition in the channel with porous walls Grigory Bivol (OR-04-0428) S. V. Golovastov	Pressure relaxation procedure with compaction for the problems of shock wave-particles beds interaction Pavel Utkin (OR-14-0254) Y. Poroshina	Preliminary Experimental Studies of Arc Discharge Plasma Actuators in Mach 2 Flow Wei Han (OR-12-0277) Y.D. Cui, B.C. Khoo
17:10 - 17:30	Free-flight force measurement technique for scramjet powered vehicle in Shock Tunnel Marie Tanno (OR-24-0276) Tanno Hideyuki, Komuro Tomoyuki	Methods of Detonation Wave Control in Gas Mixture Tatiana Zhuravskaya (OR-04-0430) V. Levin	Blast wave interaction with thermal and density inhomogeneities in air Nicholas Apazidis (OR-14-0275) S. Sembian, M. Liverts	Study of Reynolds Stress Anisotropy across Shock Turbulence Interaction using EARSIM Jagadish Babu Vemula (OR-22-0442) Krishnendu Sinha
17:30-17:50	Numerical Simulation of Slightly Rarefied Flow About a Slender Re-entry Vehicle Klaus Hannemann (OR-24-0306) C. Hepp, M. Grabe and V. Hannemann	Successive Pulse Laser Initiated Ignition in Hydrogen-Air Mixture Upasana Priyadarshani Padhi (OR-04-0123) A. P. Singh, R. Joarder	Numerical study on micro-explosive induced shock wave propagation in a closed space Kiyonobu Ohtani (OR-14-0354) T. Ogawa, A. Abe and A. Nakagawa	Instantaneous and Time-averaged Flow Dynamics Induced by Nanosecond Pulsed SDBD Plasma Actuation Meng Xuanshi (OR-12-0182) Hu Haiyang, Li Huaxing, Wang Jianlei, Liu Feng, Luo Shijun