

Technical sessions I

February- 15

TS-I-A

Bio-medical applications of shock waves

Time: 15:00 to 17:00

Chair: Prof. G Jagadeesh, IISc

Venue: KRR

- 1.** Blast induced neurotrauma: A biochemical shot without a bullet
Dr. Richa, INMAS, New Delhi **(Invited Talk)**
- 2.** Blast induced traumatic brain injury and why it needs the attention of the shock wave community
Dr. Shailesh Govind Ganpule, IIT Roorkee **(Invited Talk)**
- 3.** Traumatic brain injury-induced lipidomic changes in the preclinical model using LC-MS.
Seema Dharizwal, INMAS-DRDO, New Delhi
- 4.** Blast induced traumatic brain injury leads to altered white matter structural integrity.
Megha Kumari, INMAS-DRDO, New Delhi
- 5.** Repetitive blast exposure exhibits cumulative effect compared to single blast exposure induced mild TBI: a preclinical LC-MS based metabolomics study.
Apoorva, INMAS-DRDO, New Delhi
- 6.** Blast induced neurotrauma leads to alteration in the brain metabolic profile
Palkin Arora, INMAS-DRDO, New Delhi

Technical sessions I (February- 15)
(*contd....*)

TS-I-B

Shock Boundary Layer Interactions

Time: 15:00 to 17:00

Chair: Dr. Arun Kumar R, IIT Jodhpur

Venue: GLH

1. Protuberance induced 3-dimensional shock boundary layer interaction
Prof. Sriram R, IIT Madras **(Invited Talk)**
2. Computational study of shock wave boundary layer interactions over double wedge and double cone at hypersonic speeds
T.R Mohan Ram, M S Ramaiah Univ, Bengaluru
3. Skin friction analysis in shock wave -turbulent boundary layer interaction using SU2
Keerthi J S, M S Ramaiah Univ, Bengaluru
4. Effect of nozzle pressure ratio on the shock-boundary layer interaction and shock-shear layer interaction effects in a planar plug nozzle with partial cowl exit
Bharathwaj M, IIT Kanpur
5. Numerical study of boundary layer separation over a step
Prerna Singh, IIT Kanpur
6. Experimental investigation on the unsteadiness of reattachment shock in a large separation bubble
Ramji V, IISc, Bengaluru

Technical sessions I (February- 15)
(*contd....*)

TS-I-C

Shocks in Chemistry, Plasma and Magnetohydrodynamics

Time: 15:00 to 17:00

Chair: Dr. Jayaram, IISc

Venue: NSH

1. Shockwaves: From fundamental chemical kinetics to combustion and astrophysics!
Prof. Arunan, IISc, Bengaluru (Invited Talk)
2. Understanding the cellular response mediated by RNP condensates to Mars-like stress conditions
Purusharth I Rajyaguru, IISc, Bengaluru (Invited Talk)
3. Minerals in the ISM made in an instant
Arijit Roy, PRL, Ahmedabad
4. Shock tube investigations on ignition delay time of ethylene at low-pressure conditions
C. S. Bhoir, IISc, Bengaluru
5. Pyrolysis study of methyl cyclopentane at high temperature and pressure in a single pulse shock tube
Deepak Kumar Singh, IISc, Bengaluru
6. Strong detonation waves in ideal gas under the effect of magnetic field
P. K. Gangwar, Bareilly College, UP
7. On the structure of magnetohydrodynamics shock waves in viscous
Sewa Singh, Univ of Allahabad, UP

Technical sessions II

February - 16

TS-II-A

Astro-Planetary - I

Time: 09:30 to 10:30

Chair: Prof. Arunan, IISc

Venue: NSH

- 1.** Astrophysical Shocks
Dr. Vijayanand C, VIT, Vellore **(Invited Talk)**
- 2.** Shock Effects in Certain Rock-Forming Minerals
Dr. Thirukumaran Venugopal, Govt. College, Salem. **(Invited Talk)**
- 3.** Studying molecules of life via X-ray Crystallography
Dr. Vijay Thiruvekatam, IIT-Gandhinagar **(Invited Talk)**

TS-II-B

Shock Interactions - I

Time: 09:30 to 10:30

Chair: Prof. Pandian, IIT Madras

Venue: KRR

- 1.** Shock Wave Characteristics in Supersonic Cross Flow Injection with Active Control Strategies
Dr. Arun Kumar R, IIT Jodhpur **(Invited Talk)**
- 2.** Unsteady shock reflections over curved surfaces.
Thara Reshma I. V, Manipal
- 3.** Prediction of mean pressure drop in shock-turbulence interaction using weakly nonlinear analysis
Pranav Thakare, IIT Bombay

Technical sessions II (February- 16)
(contd....)

TS-II-C

Hypersonics - I

Time: 09:30 to 10:30

Chair: Dr. B Murugan, VSSC

Venue: GLH

1. Non-interferometric techniques for quantitative high speed flow visualization
Dr. Gopalkrishna Hegde, IISc **(Invited Talk)**
2. Comparison of weno and hybrid weno finite difference methods for simulation of high speed flows.
Ankit Bajpai, IISc, Bengaluru
3. Numerical investigation of hypersonic flow over spiked blunt bodies.
Vaishnavi B V, M S Ramaiah univ of Applied Sci., Bengaluru

Technical sessions III

February - 16

TS-III-A

Supersonic Flows - I

Time: 10:45 to 13:00

Chair: Dr. Sriram R, IIT Madras

Venue: KRR

1. Medium Independent Jet (MI-Jet) Engine for Hypersonic Propulsion
Prof. Aravind Vaidyanathan, IIST (Invited Talk)
2. Control Strategies in Shock wave Boundary layer Interaction.
Dr. Manishankar C, NAL, Bengaluru (Invited Talk)
3. Influence of momentum ratio on shock train location in nozzle-isolator co-flow configuration
A. Balaji Himakar, IISc, Bengaluru
4. Shock wave characteristics in supersonic crossflow injection with a backward facing step injector
Spandan Maikap, IIT Jodhpur
5. Analysis of unstarting flows due to mass injection
Mythri M S, IISc, Bengaluru
6. Observation of unsteady shock structures in mixing duct of a supersonic ejector operating in critical mode
Pradeep Gupta, IISc, Bengaluru

Technical sessions III (February- 16)
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TS-III-B

Industrial and Bio-Medical Applications of Shockwaves
+
Shock interactions-II

Time: 10:45 to 13:00

Chair: Prof. S G Rakesh, SMVIT

Venue: GLH

1. Industrial applications of shock waves
Dr. Chintoo S Kumar, Machstar group (Invited Talk)
2. Shock Wave Based Therapeutics & Medical Devices – Towards Next Generation Healthcare!
Dr. Akshay Datey, Machstar group (Invited Talk)
3. Computational analysis for designing venturi type hydrodynamic cavitation reactors
Dr. Kuldeep Roy, VIT, Vellore (Invited Talk)
4. Study of helmet configurations and their protection mechanism under blast loading.
Pritam Ghosh, IIT Roorkee
5. Numerical investigation of von neumann reflection in inviscid steady flows
S R Siva Prasad Kochi, IIT Madras
6. Numerical simulation of shock propagation using explicit method and adaptive mesh
S.V. Lokhande, VJTI

Technical sessions III (February- 16)
(*contd....*)

TS-III-C

Ground Test Facilities and Diagnostics
+
Hypersonics-II

Time: 10:45 to 13:00

Chair: Dr. Gopalkrishna Hegde, IISc

Venue: NSH

1. High enthalpy simulation capabilities in ISRO - An overview
Dr. Murugan B, VSSC **(Invited Talk)**
2. Fiber bragg grating sensor for shock tube diagnostics
Gautam Hegde, IISc
3. Parametric study of a conical shock tube
V. Harshit, IISc
4. High-speed flow studies in a academic shock tunnel
B. Sudarshan, B.M.S college of Engg., Bengaluru
5. Hybrid CPU/GPU DSMC algorithm for large-scale re-entry simulations
Dr. Tapan K Mankodi, IIT Guwahati **(Invited Talk)**
6. Aerodynamic analysis on hypervelocity ballistic hb-2 model for a mach number 5.7 flow conditions
Praveen, B.M.S college of Engg., Bengaluru
7. Numerical studies on unstart in 2d scramjet intakes with a bypass-bleed arrangement.
S.V. Nikhilesh, IISc, Bengaluru

Technical sessions IV***February - 16*****TS-IV-A*****Structural Response to Blast Waves*****Time: 15:00 to 17:00****Chair: Prof. S R Nagaraja, Sagar University****Venue: KRR**

- 1.** Comparison and analysis of mid-point deflection of armour steel plates subjected to explosive blast loads through experimental and numerical
B Venkata Ramudu, DMRL, Hyderabad
- 2.** 3D digital image correlation of shock response of e-glass/epoxy composites
C Jayarami Reddy, DMRL, Hyderabad
- 3.** Response of shock induced deformation in cp titanium
Shreshtha Ranjan, IISc, Bengaluru
- 4.** Determination of the attenuation factor of sand using a vertical shock tube
S. K. Mondal, IISc, Bengaluru
- 5.** Spherical converging strong detonation waves in a real gas with solid body rotation
P. K. Gangwar, Bareilly College, UP

Technical sessions IV (February- 16)
(*contd....*)

TS-IV-B

Shock Waves and Materials

Time: 15:00 to 17:00

Chair: Prof. Vijayanand C, VIT

Venue: GLH

1. Application of Shock Waves in Material Research
Dr. V Jayaram, IISc (Invited Talk)
2. Shock Waves Induced Solid State Phase Transitions on Bulk and Nano Materials by Table-Top Semiautomatic Reddy Tube
Dr. Britto Dhas, Sacred Heart College (Invited Talk)
3. Studies on the shock wave effects on biopolymers and nano tubes using the modified Reddy shock tunnel
Dr. B Sudarshan, BMS, Bengaluru (Invited Talk)
4. Fluid structure analysis on missile fin configuration during supersonic flight conditions
Vishal Umapati Choudhari, Ramaiah Univ, Bengaluru
5. Numerical simulation of fluid structure interaction of a flat plate in hypersonic flows
Kartika Ahuja, IISc, Bengaluru
6. Impact induced shock & origin of life
Dr. Surendra, PRL, Ahmedabad

Technical sessions IV (February- 16)
(*contd....*)

TS-IV-C

Supersonic - II

+

Hypersonic - III Flows

Time: 15:00 to 17:00 Chair: Prof. Shailesh Govind Ganpule, IIT Roorkee Venue: NSH

- 1.** Title to be updated soon!
Dr. Saravanan, IISc **(Invited Talk)**
- 2.** Control of transonic swbli over a blunt nosed body using counter-flow jet
D B Singh, CSIR-NAL, Bengaluru
- 3.** Openfoam simulation of pylon cavity flameholder in supersonic flow
Shodhan PP, Ramaiah Univ, Bengaluru
- 4.** Computational study of winged re-entry module using SU2 solver
A U Nachiketh Kumar, M S Ramaiah univ, Bengaluru
- 5.** Computational study towards noise emission of a modified supersonic nozzle
Nikshep R, M S Ramaiah Univ, Bengaluru
- 6.** Computational study of flow over an aerospike nozzle
Rohith R, M S Ramaiah Univ, Bengaluru

Technical sessions V

February- 17

TS-V-A

Astro-Planetary - II

Time: 09:30 to 11:00

Chair: Dr.Pramod Kumar Soni, TBRL

Venue: KRR

- 1.** Spectroscopy Evolution of Nova V2891 Cygni: Evidence for Shock-Induced Processes
Dr. Mudit Srivastava, PRL, Ahmedabad **(Invited Talk)**
- 2.** Numerical modeling of the formation of Ramgarh crater, India.
Dr. Harish, Khalifa University, UAE. **(Invited Talk)**
- 3.** High pressure behavior of silicate and oxide analogs
Dr. Rajkrishna Dutta, IIT Gandhinagar. **(Invited Talk)**
- 4.** Impact fractures on the moon.
K S Sharini, Anna Univ., Chennai
- 5.** Numerical simulations of impact craters on icy bodies.
Mithil Rajput, IIT Kharagpur.
- 6.** Impact crater fractures on the moon: Pathway for lava to intrude within craters.
K B Kimi, PRL, Ahmedabad

Technical sessions V (February- 17)
(*contd....*)

TS-V-B

Hypersonic flow - IV

Time: 09:30 to 11:00

Chair: Prof. Aravind Vaidyanathan, IIST

Venue: GLH

- 1.** Numerical investigation of force coefficients of hypersonic configurations at hypersonic mach numbers
Mohamed Hussain S, MIT, Manipal
- 2.** Numerical study of the flow over an apollo 4 configuration
Adriana McDonald Tariang, IIT Kanpur
- 3.** Numerical analysis on boundary layer suction in hypersonic flows using a modified transition model
R. C. Diviaharshavardini, IIT Madras
- 4.** Heat transfer study over a fin of hypersonic aircraft
Chidananda .C, Ramaiah Univ, Bengaluru
- 5.** Three-dimensional computational study over a hyper-ballistic missile body at mach 8
Bhanuprakash Bhat, M S Ramaiah Univ, Bengaluru
- 6.** Optimisation of 2D scramjet inlet
Vivekanand Nagaral, M S Ramaiah Univ, Bengaluru