

## ISSW-27 Work Program

### Sunday, 19.07

14.00 - 19.00 Registration  
 18.00-19.00 Welcome cocktail  
 19.00-22.00 Bus sightseeing tour

### Monday, 20.07

8.30-9.00 Opening ceremony  
 9.00-9.45 Plenary Lecture *Congress hall; chair: K.Takayama*  
 Intense Shock And Detonation Waves For Nonideal Plasmas  
*Acad. V.E.Fortov*

9.50-10.50 ORAL sessions

Richtmyer-Meshkov Instability — 1 *Congress hall; chair: R.Bonazza*

30672	9.50-10.10	Experimental and computational investigation of Richtmyer-Meshkov turbulence in fluid layers after reshock	<i>B. J. Balakumar, C. Zoldi-Sood, G. C. Orlicz, D. Ranjan, C. D. Tomkins, K. P. Prestridge</i>
30645	10.10-10.30	Experimental and numerical investigation of the Richtmyer-Meshkov instability under re-shock conditions	<i>O. Sadot, E. Leinov, L.A. Levin and G. Ben-Dor, G. Malamud, Y. Elbaz and D. Shvarts</i>
30367	10.30-10.50	Investigation of the Richtmyer-Meshkov instability with 3D stereolithographed interfaces	<i>C. Mariani, L. Biamino, G. Jourdan, L. Houas, M. Vandenboomgaerde, D. Souffland</i>

Blast Waves — 1 *Red Hall C; chair: M.Brouillette*

30712	9.50-10.10	Debris Translation and Accumulation by Blast Waves	<i>C. Needham</i>
30374	10.10-10.30	Blast wave attenuation through composites of varying layer distribution	<i>O.E. Petel, S. Savov, F.X. Jetté, M. Cairns, S. Goroshin, D.L. Frost</i>
30304	10.30-10.50	Explosive driven micro-blast wave interaction inside a 2D ejector	<i>H. Zare-Behtash, N. Gongora-Orozco, K. Kontis, G. Jagadeesh</i>

Numerical Methods — 1 *Red Hall D; chair: M.S.Liou*

30565	9.50-10.10	Hybrid ART for laser interferometric computed tomography measurement of discharged shock waves from two parallel cylindrical nozzles	<i>T. Inage, S. Tsuchikura, M. Ota, K. Maeno</i>
30090	10.10-10.30	DNS of transonic flows using optimized WENO schemes	<i>I. Klioutchnikov, H. Olivier</i>
30380	10.30-10.50	Calculation of steady Mach reflection in nonuniform flow by an unstructured shock-fitting solver	<i>F.Nasuti, R. Paciorri, F.Sabetta, A. Bonfiglioli</i>

10.50-11.05 COFFEE BREAK *Foyer*

11.05-12.45 ORAL sessions

Shock Wave Propagation and Reflection — 1 *Congress hall; chair: C.Law*

30288	11.05-11.25	A new diagnostic approach to shock wave reflection	<i>B.W. Skews, H. Kleine</i>
30327	11.25-11.45	Weak shock wave reflections from concave curved surfaces	<i>S. Gruber, B. W. Skews</i>
30230	11.45-12.05	Comparison between numerical and experimental results on the micro scale	<i>Y. Butrschell, J. Giordano, J.-D. Parrisé,</i>

		shock wave propagation	<i>P. Perrier and I.A. Graur</i>
30360	12.05-12.25	Experimental study of the shock propagation in a micron-scale channel	<i>G. Mirshekari, M. Brouillette</i>
30451	12.25-12.45	Expansion wave propagation and cavitation bubble generation near the water surface	<i>K. Ohtani, K. Takayama, T. Hashimoto</i>

Hypersonic Flows — 1 *Red Hall D; chair: K.Hannemann*

30356	11.05-11.25	Impact of the Rarefied Gas Effects on the Aerobraking Flight with Magnetic Flow Control	<i>H. Otsu, D. Konigorski, H. Katsurayama, T. Abe</i>
30474	11.25-11.45	The Hypersonic Mach Number Independence Principle for Inviscid and Viscous Flow	<i>D. Kliche, Ch. Mundt, E.H. Hirschel, C. Weiland</i>
30153	11.45-12.05	An investigation of the aerothermodynamics behind a blunt body in air and CO <sub>2</sub> -N <sub>2</sub> at superorbital speeds	<i>G. Park, S. L. Gai, A. J. Neely</i>
30280	12.05-12.25	Heat transfer on a cone in a supersonic flow at $M=3.5$	<i>J. Srulijes, F. Seiler, P. Hennig, P. Gleich</i>
30702	12.25-12.45	Models for vibration-dissociation non-equilibrium boundary layers	<i>N. Belouaggadia, I. Armenise, M. Capitelly, R. Brun</i>

Ignition —1 *Red Hall D; chair: A.Sasoh*

30502	11.05-11.25	Shock-Tube ignition data and kinetics modeling discrepancies in the lowtemperature, high-pressure regime for natural gas blends	<i>C.J. Aul, N. Donato, E.L. Petersen</i>
30202	11.25-11.45	Determination of ignition delay times of different hydro-carbons in a new high pressure shock tube	<i>K. A. Heufer, H. Olivier</i>
30074	11.45-12.05	Thermal Oxidation of Ethanol: Experimental and Numerical Analysis of Ignition Chemistry of Ethanol-Air Mixtures in Shock-Heated Gases	<i>L.R. Cancino, A.A.M. Oliveira, M. Fikri, C. Schulz</i>
30379	12.05 - 12.25	Experimental investigation of spontaneous ignition of hydrogen jetting into tube	<i>T. Bazhenova, S. Golovastov, D. Baklanov, V. Golub, K. Ivanov, V. Volodin</i>
30523	12.25-12.45	Asymmetric Shock Reflection Studies in High Total Enthalpy Flows	<i>M. McGilvray</i>

12.45-14.00 LUNCH *ATRIUM Restaurant*

14.00-14.45 Plenary lecture *Congress hall; chair O.Igra*

Measuring techniques in fluid mechanics applied to shock tube research at ISL  
*F. Seiler*

14.50-16.10 ORAL sessions

Shock Wave/Boundary Layer and Shock Wave/Vortex Interactions – 1 *Congress hall; chair: S.Gai*

30291	14.50-15.10	Three-Dimensional Shock Wave/Boundary Layer Interactions	<i>S. P. Mowatt, B. W. Skews</i>
30260	15.10-15.30	Generation and Propagation of Compressible Coaxial Vortex Rings	<i>R. Mariani, K. Kontis</i>
30632	15.30-15.50	Computation of hypersonic shock boundary layer interaction on a double	<i>A. Bosco, B. Reinartz, S. Muller</i>

		wedge using a differential Reynolds Stress Model	
30292	15.50-16-10	Unsteady three-dimensional compressible vortex flows	<i>J. O. Reeves, B. W. Skews</i>

Plasma — 1 *Red Hall D; chair: E.Nagnibeda*

30224	14.50-15.10	Shock Tunnel Investigation of Electrodynamic Heatshield Effect in Reentry Plasma	<i>Yuka Kato, Hirotaka Otsu, Katsumi Wasai, Tetsuya Tanifuji, Detlev Konigorski, Tomoyui Komuro, Kzauo Sato, Hiyuki Tannno, Katsuhiko Ito, Takashi Abe</i>
30334	15.10-15.30	Realization of Riemann Problem at Gas - Plasma Boundary Formed by Shock Wave	<i>I. Znamenskaya, D. Koroteev, A. Lutsky</i>
30295	15.30-15.50	Shock Wave Interaction with Pulse Surface Energy Deposition Area	<i>I. Znamenskaya, D. Orlov, I. Ivanov, I. Krukov</i>
30067	15.50-16-10	Ionization Rate for Breakdown Waves Propagating into a Pre-ionized Medium	<i>M. Hemmati, R. Peden, N. Rasul</i>

Chemically Reacting Flows — 1 *Red Hall C; chair: R.Brun*

30468	14.50-15.10	A Collisional Radiative Code for Computing the Air Plasma in High Enthalpy Flow	<i>Y. Ogino and N. Ohnishi</i>
30545	15.10-15.30	Study of heterogeneous processes on the different types of heat shield materials by quantum mechanics and molecular dynamics methods	<i>V.L.Kovalev, A.A.Krupnov, M.Yu.Pogosbekian, L.P.Sukhanov</i>
30605	15.30-15.50	Oxidation of normal- and iso-butane over a broad range of stoichiometry, pressure, and temperature	<i>C. J. Aul, B. Rotavera, N. Donato, and E. L. Petersen, H. Curran, G. Bourqu</i>
38015	15.50-16-10	Analytical Study of a Weak Shock Wave in Ionised Gas	<i>S. Goekce, R. Sobbia, P. Leyland</i>

16.10-16.25 COFFEE BREAK *Foyer*

16.25-18.00 POSTER session *Foyer* ; chair: *Yu.Tsirkunov*

30203	Numerical Analysis of $H_2/O_2$ Detonation at High Pressure in 90-degree Bent Pipe	<i>S. Adachi, N. Tsuboi, A.K. Hayashi, E. Yamada, M. Uchida, T. Fujimori</i>
30703	Stagnation flow phenomena at cylinders and spheres in hypersonic nonequilibrium flow	<i>N. Belouaggadia, K. Takayama, R. Brun, H. Olivier</i>
30646	Study on the multi-mode Richtmyer-Meshkov instability utilizing advanced PLIF diagnostic and numerical simulation	<i>O. Sadot, A. Formoza, L.A. Levin and G. Ben-Dor, G. Malamud, Y. Elbaz and D. Shvarts</i>
30840	Experimental and Numerical Investigations of Shock Waves Attenuation over Obstacles	<i>O. Sadot and G. Ben-Dor, A. Hadjadj</i>
30597	Numerical Study of Detonation in Narrow Channel by the DSMC Method	<i>Ye.A. Bondar, A.V. Trotsyuk and M.S. Ivanov</i>
30477	Accounting for the Boltzmann Correction to the Faraday Induction Law for Flows with Shock Waves	<i>V. Borsch</i>

30648	Computational Fluid Dynamic Simulation of a Non-reactive Propagating Shock Wave in a Shock Tube	<i>L.R. Cancino, A.A.M. Oliveira, M. Fikri, C. Schulz</i>
30830	The interaction of Prandtl-Meyer wave with the oblique shock of the same direction	<i>V.N. Uskov, M.V. Chernyshov</i>
30254	Gas flow in a shock tube output section with insert	<i>A.S. Chizhikov</i>
30447	Supersonic Air-Intake Studies with Combined Bleed and Bent Cowl	<i>S. Das and J. K. Prasad</i>
30306	SST model performance for simulation of shock wave / turbulent boundary layer interactions	<i>N.N. Fedorova, I.A. Fedorchenko</i>
30187	Physical and mathematical modeling of ignition of small magnesium particles	<i>A.V. Fedorov, A.V. Shulgin, D.A. Tropin</i>
30676	Modification of Mach reflection by pulse gas discharge	<i>V.P. Fokeev, Yu.I. Grin, V.A. Levin</i>
30438	Ablation experiments of SiC-based materials in air plasma freejets	<i>M. Funatsu, M. Ozawa, H. Shirai, F. Takakusagi</i>
30378	Method for prevention of spontaneous self-decomposition of acetylene	<i>S. Golovastov, D. Baklanov, V. Golub, I. Laskin, A. Mikushkin, V. Volodin</i>
30453	Experimental Study of Shock Wave propagation through 90 degree junction with grooves	<i>N. Gongora-Orozco, H. Zare-Behtash, K. Kontis</i>
30748	A Study on the Unsteady Aerodynamics of Projectiles in Overtaking Blast Flow Fields	<i>G. Rajesh, H.D. Kim</i>
30275	Impingement of a plane shock wave on an acoustic wave in a viscous heatconducting gas.	<i>E. S. Grishechkin, F. V. Shugaev</i>
31097	Progress in the development of efficient numerical tools for multi-species reacting and non reacting supersonic flows	<i>A. Chaudhuri, A. Chinnayya, A. Hadjadj</i>
30330	Multiphase equation of state for ice	<i>D. Hebert, JM. Chevalier, I. Bertron, O. Heuze</i>
30353	Surface morphological study of shock heated chromium film coated as drag reduction element on hypersonic test model	<i>G. M. Hegde, V. Kulkarni, M. Nagaboopathy and K.P.J. Reddy</i>
30335	Electro-fluid dynamics simulations of exploding wires	<i>V. Holzwarth, A. Klomfass</i>
30620	Reflection of a High Explosive (HE)-Driven Blast Wave in the High Pressure Regime	<i>W. M. Howard, A. L. Kuhl</i>
30262	New experimental data on oxygen kinetics behind a strong shock wave front	<i>L.B. Ibraguimova, O.P. Shatalov, Yu.V. Tunik, I.E. Zabelinskii</i>
30602	Fragmentation of a Cylindrical Water Column due to Shock Wave Impact	<i>D. Igra, M. Sun</i>
30538	Experimental investigation of non-	<i>V. Jayaram and K P J Reddy</i>

	catalytic wall reactions using the interaction of SiO <sub>2</sub> and Si <sub>3</sub> N <sub>4</sub> thin films with shock heated test gases	
30354	Heat transfer measurements on a hypersonic waverider at Mach 6 in Shock Tunnel	<i>K. Nagashetty, R. Ramesh Babu, S. Saravanan, G. Jagadeesh and K. P. J. Reddy</i>
30445	Disk gas-phase magnet-hydrodynamic accelerator with non-equilibrium conductivity	<i>S. S. Katsnelson, G. A. Pozdnyakov</i>
30713	Investigation of shock wave effects under high velocity impact of long projectiles having angle of nutation	<i>V. Gorelski, I. Eremin, I. Khorev</i>
30674	Numerical construction of realistic shadowgraph and schlieren images	<i>D. Kikuchi, K. Fujita and M. Sun</i>
30214	Interaction between weak shock wave and turbulent shear flow	<i>J.H. Kim, A. Matsuda and A. Sasoh</i>
30180	Numerical simulation of shock waves propagation in micro channels	<i>Yu.Yu. Kloss, P.V. Shuvalov, F.G. Tcheremissine</i>
30310	Shock Tube Study on Nitromethane Pyrolysis behind Reflected Shock Waves	<i>T. Koike, K. Yasunaga, Y. Hidaka</i>
30279	Paradoxes of the Strong Diverging Blast Waves in Air	<i>L.S. Evterev, S.I. Kosyakov</i>
30454	Effect of Impact Breakup of Solid or Liquid Particles on Two-Phase Supersonic Flow about Solids	<i>I. A. Dukhovskii and P. I. Kovalev</i>
30457	Measurement of Gas Flow Parameters in the Vicinity of Bodies with the Front Stalling Zone	<i>P. I. Kovalev and S. G. Tomson</i>
38408	Study of interaction of shock wave with a wedge under the von Neumann paradox conditions	<i>A.N. Semenov, M.K. Berezkina and I.V. Krassovskaya</i>
30576	Hysteresis phenomenon at the interaction of bow shock waves from cylinder bodies	<i>D. B. Epstein, A. N. Kudryavtsev</i>
30536	Simulation of forming a shock wave in the shock tube on the molecular level with consideration of internal degrees of freedom and behavior of the end of a shock-heated gas.	<i>S.V. Kulikov</i>
30504	Phase-Velocity Explosively Imploded Tubes as a Means to Generate Extremely Strong Shock Waves	<i>J. Loiseau, D. Szirti, A.J. Higgins, V. Tanguay, F. Zhang</i>
30181	Numerical investigation of homogeneous condensation in Prandtl-Meyer expansion flows	<i>X. Luo, W. Cheng, J. Yang</i>
30283	On Richtmyer-Meshkov instability induced by converging shock waves	<i>J. Huang, H. Jia, Z. Zhai, X. Luo, J. Yang</i>
30146	Diaphragmless shock wave generators for industrial applications of shock waves	<i>M.S. Hariharan, Janardhanraj .S, S. Saravanan and G. Jagadeesh</i>
30559	Experimental investigation on the effect of concentrated energy deposition on	<i>D. Mahapatra, G. Jagadeesh</i>

	the cowl/ramp shock interaction process	
30572	Application of infinitely thin detonation model in investigation of detonation engines	<i>V.A. Levin, I.S. Manuylovich, V.V. Markov</i>
30544	Comparison of thrust of Levin-Tarasov rezonator and Laval nozzle	<i>V.A. Levin, V.V. Markov, N.E. Afonina, V.G. Gromov, A.N. Khmelevskiy, G.D. Smekhov</i>

17.00-18.30 Shock Wave Journal Editorial meeting. *PIETARI Restaurant*

19.00-21.00 Cultural evening *Congress hall*

## **Tuesday, 21.07**

8.30-9.15 Plenary lecture: *Congress hall*; chair: H.Hornung

Ground based testing and numerical modelling of supersonic combustion flow paths  
*Klaus Hannemann*

9.20-10.40 ORAL sessions

Detonation and Combustion — 1 *Red Hall C*; chair: *F.Zhang*

31099	9.20-9.40	Formation of the temperature gradient due to a preheated zone ahead of propagating flame as the mechanism underlying the deflagration-to-detonation transition	<i>M.A. Liberman, M. Kuznetsov, A.V. Ivanov, I. Matsukov</i>
30539	9.40-10.00	Simulation of laser-induced detonation in combustible gas-particle mixture with aluminium particles	<i>V. Emelyanov, K. Volkov</i>
30535	10.00-10.20	Superequilibrium increase of a chemical reaction rate in the detonation front and other effects in detonation wave initiated by a shock wave	<i>S.V. Kulikov</i>
30556	10.20-10.40	Computational simulation of detonation transition using a detailed chemical Reaction Model	<i>Van Bo Nguyen, Hua-Shu Dou, Boo Cheong Khoo</i>

Impact and Compaction — 1 *Red Hall D*; chair: *B.Gelfand*

30537	9.20-9.40	Effects of a Shock Wave on the Morphology of Aluminum Particles	<i>G. Schlöffel, H. Albers, F. Seiler, F. Zhang, Ch. Mundt</i>
30352	9.40-10.00	High-Speed Impact on Titanium Nitride Coated Magnesium Alloy at Low Temperature	<i>R. Kubota, A. Shimamoto, D. Numata, K. Takayama</i>
30140	10.00-10.20	Modelling of shock and explosive destruction of constructional element: threedimensional statement and probabilistic approach	<i>A. Gerasimov, S. Pashkov</i>
30516	10.20-10.40	Investigation of a Twice-Shocked Density Inhomogeneity	<i>N. Haehn, C. Weber, J. Oakley, M. Anderson, R. Bonazza</i>

Hypersonic Flows — 2 *Congress hall*; chair: *J.Srulijes*

30549	9.20-9.40	Numerical investigation of shock waves interaction in the unsteady flow after the start-up of a hypersonic shock tunnel	<i>A. Verevkin, Yu. Tsirkunov</i>
30449	9.40-10.00	Experimental and numerical investigation of high-enthalpy flows in a channel with gas supply	<i>M.A. Goldfeld, N.N. Fedorova, I.A. Fedorchenko, Yu.V. Zakharova</i>

30319	10.00-10.20	Flow Features on Supersonic Bodies with Camber, Dihedral and Fillets	<i>P. Naidoo, B. W. Skews</i>
30226	10.20-10.40	Supersonic Drag Reduction Using Repetitive Laser Pulses	<i>Y. Sekiya, J. Kim, R. Rizal, A. Matsuda, T. Sakai, and A. Sasoh</i>

10.40-10.55 COFFEE BREAK *Foyer*

10.55-12.35 ORAL sessions

Facilities, Diagnostics and Flow Visualisation — 1 *Red Hall D; chair: I.Znamenskaya*

30348	10.55-11.15	Visualization and Quantitative Diagnostics in Shock Wave and Detonation Research	<i>N. Fomin, O. Penyazkov</i>
30189	11.15-11.35	Performance study of the improved JF10 high-enthalpy shock tunnel with a FCD driver	<i>Z. Jiang, J. Lin and W. Zhao</i>
30640	11.35-11.55	Femtosecond laser shock wave velocity and density measurements around a spherical shock wave in air	<i>W. Garen, V. Braun, W. Neu, E. Sarchen, U. Teubner</i>
30479	11.55-12.15	High-speed digital cinematography for force and moment measurement in hypersonic facilities	<i>S.J. Laurence, H.G. Hornung</i>
38909	12.15-12.35	Application of image converter cameras of BIFO Company for researches in various fields of a science and technology	<i>Vitaly Lebedev</i>

Shock Wave Propagation and Reflection — 2 *Congress hall; chair: M.Sun*

30458	10.55-11.15	Experimental investigation of dynamic shock wave reflection phenomena	<i>K Naidoo, B W Skews</i>
38339	11.15-11.35	On the shock generated by colliding plates in a gas	<i>H. G. Hornung, D. S. Cohen</i>
30979	11.35-11.55	Theoretical formulas characterizing different regimes of perfect-gas three-shock theoretical solutions of pseudo-steady Mach reflections	<i>Jong-Jian Liu</i>
38354	11.55-12.15	Classification of the pseudo - steady shock wave reflection types	<i>A.N. Semenov, M.K. Berezkina and I.V. Krassovskaya</i>
30456	12.15-12.35	Interaction of a Freely Flying Body with the Blast Area	<i>A.N. Berezkin and P.I. Kovalev</i>

Shock Wave/Boundary Layer and Shock Wave/Vortex Interactions – 2 *Red Hall D; chair: M.Streletz*

30763	10.55-11.15	UFAST project - Unsteady effects in shock wave induced separation	<i>Piotr Doerffer</i>
30743	11.15-11.35	Evaluation of Shear Stress Transport Turbulence Model for Flows with Shock Wave / Turbulent Boundary Layer Interaction	<i>Mikhail S. Gritskevich, Pavel E. Smirnov</i>
38028	11.35-11.55	The Ultimate Patterns of Shock-Vortex Interaction	<i>K. S. Chang and H. Barik, S. M. Chang</i>
30396	11.55-12.15	Investigation of the bow shock / vortex wake interaction	<i>A.A. Davidov, A.B Karagichev, A.E. Lutsky, A.M. Kharitonov, A.M. Shevchenko</i>
30350	12.15-	Comparitive Evolution of Non-	<i>R.T. Paton, B.W. Skews</i>

	12.35	Axisymmetric and Axisymmetric Vortex Loops Behind Accelerating Plates	
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12.35-14.00 LUNCH *ATRIUM Restaurant*

14.00-14.45 Plenary lecture: *Congress hall; chair G.Ben- Dor*

High-delity numerical simulations of shock/turbulence and shock/vortex interactions  
*A. Hadjadj*

14.50-16.10 ORAL sessions

Plasma — 2 *Red Hall D ; chair: S.Bobashev*

30266	14.50-15.10	Comparison of different models for non-equilibrium CO <sub>2</sub> flows in a shock layer near a blunt body	<i>E.V. Kustova, E.A. Nagnibeda, Yu.D. Shevelev, N.G. Syzranova</i>
30567	15.10-15.30	Computer simulation of shock wave structure in a gas with excited rotational and vibrational energy levels	<i>F. Tcheremissine</i>
30167	15.30-15.50	Numerical solution of the Boltzmann equation for the shock wave in a gas mixture	<i>A. A. Raines</i>
30853	15.50-16-10	Computation of the radiative power in a shock layer	<i>N. Bedon, M.-C. Druguet, P. Boubert</i>

Chemically Reacting Flows — 2 *Red Hall C; chair: E.Arunan*

30399	14.50-15.10	Thermal Decomposition of 2-chloroethanol: Single-pulse Shock Tube and ab initio Studies	<i>Chakravarty H. K., Amit Pathak, K. P. J. Reddy, E.Arunan</i>
30309	15.10-15.30	Chemical reactions in non-equilibrium gas mixtures and mass action law breakdown	<i>E. Kolesnichenko, Yu. Gorbachev</i>
30223	15.30-15.50	Numerical investigation on the reacting muzzle flow	<i>X. Jiang, Z. Chen, H. Li</i>
38018	15.50-16-10	Decay of heavy molecule Mo(CO) <sub>6</sub> behind shock wave front in Ar	<i>V.S. Ziborov, V.P. Efremov, V.V. Shumova, V.E. Fortov</i>

Richtmyer-Meshkov Instability — 2 *Congress hall; chair: K.Maeno*

30938	14.50-15.10	Experimental and theoretical study of shock wave instability in poliatomic gas and in glow discharge in different gases	<i>A.S.Baryshnikov, I.V.Basargin, M.V.Chistyakova</i>
30604	15.10-15.30	Richtmyer-Meshkov instability at a gas interface accelerated by a Mach 10 shock wave	<i>D. Ranjan, K. P. Prestridge, M. Andrews, R. Gore, M. Marr-Lyon, and F. Merrill</i>
30427	15.30-15.50	Experimental Study of the Richtmyer-Meshkov Instability on a Low Atwood Number Interface After Reshock and Rarefactions	<i>C. Weber, N. Haehn, J. Oakley, M. Anderson, R. Bonazza</i>
38324	15.50-16-10	Special features of richtmyer-meshkov instability growth on oblique shock arrival at a free surface of a condensed material	<i>V.V. Igonin, S.E. Kuratov, A.I. Lebedev, M.O. Lebedeva, I. Yu. Myshkina, O.V. Ol'khov, A.A. Polovnikov, E.A. Polovnikov, E.E. Meshkov, G.B. Krasovsky</i>

16.10-16.25 COFFEE BREAK *Foyer*



16.25-18.00 POSTER session *Foyer* ; chair: Yu.Tsirkunov

30075	Numerical Simulation Of Shock Wave Diffraction Over a Sphere	<i>S.N. Martyushov, O. Igra and T.Elperin</i>
30138	Restoring of blast wave after interaction with detached obstacle	<i>S.P. Medvedev, E.P. Tyrnov, S.V. Khomik, B.E. Gelfand, M.V. Silnikov, A.I. Mikhailin</i>
30241	Numerical Investigation of the Influence of Different Physical Boundary Conditions on the Thrust of a Scramjet-Nozzle	<i>J.H.Meiß, W. Schröder</i>
30386	Simulation of ignition between a contact surface and a shock	<i>J. Melguizo-Gavilanes, N. Rezaeyan, L. Bauwens</i>
38563	Specific features of Richtmyer-Meshkov instability growth with 2D and 3D initial perturbation geometry	<i>V.V. Igonin, S.E. Kuratov, A.I. Lebedev, M.O. Lebedeva, I.Yu. Myshkina, O.V. Olkhov, A.A. Polovnikov, E.A. Polovnikov, E.E. Meshkov, G.B. Krasovsky</i>
30358	Density measurements using the background oriented schlieren for shock waves and vortex rings	<i>T. Mizukaki</i>
30123	Shock wave structures depending on the wave speed and the nonequilibrium degree of vibrationally excited gas	<i>R.N. Galimov, N.E. Molevich</i>
30442	Heat Transfer Prediction in Hypersonic Flows Using Energy Relaxation Method	<i>S. P. Nagdewe, H. D. Kim</i>
30532	Computational study of shock wave control by pulse energy deposition	<i>N. Ohnishi, M. Tate, and Y. Ogino</i>
30741	Prevention of an arc prolongation in a fuse by means of shock wave focusing: Preliminary study of wire explosion	<i>T. Umeda, K. Ohtani, K. Takayama</i>
30687	Numerical solution of 2D heterogenous mediums problems with singularities and intense absorption of energy	<i>A.V. Ostriik</i>
30373	Elastic blast-protective chambers on the basis of heterogeneous composite materials	<i>B. Palamarchuk, A. Malakhov, A. Manchenko, A. Cherkashin, L. Vyshniakov, L. Vishnevsky</i>
38417	Interaction of Hydrogen with Carbonaceous End-Wall	<i>C. Park, S. Y. Hyun, and K. S. Chang</i>
30179	Shock Hugoniot Measurements in Two-Phase (Solid-Liquid) Suspensions	<i>O.E. Petel, A.J. Higgins</i>
31094	Amplitude and frequency of Mach' disk vibrations upon supersonic jet normal interaction with the surface having the orifice	<i>A.N. Bazhenov, S.V. Bulovich, R.L. Petrov</i>
31095	High-speed high frequency valve and some of its applications	<i>S.V. Bulovich, V.V. Grigor'ev, S.N. Isakov, V.Yu. Mityakov, R.L. Petrov, S.V. Yurkin</i>

30595	Hypersonic shock layer perturbed by acoustic disturbances	<i>A.N. Kudryavtsev, T.V. Poplavskaya, I.S. Tsyryulnikov</i>
30391	Combustion initiation of the gas fuel in a supersonic stream by volumetric plasma action	<i>M.A. Goldfeld, A.I. Golubov, S. S. Katsnelson, G. A. Pozdnyakov</i>
30298	Influence of dispersion for gas mechanics with great gradients	<i>V.A. Kononenko, E.V. Prozorova, A.V. Shishkin</i>
30147	Effect of localized surface heating on hypersonic flow over a flat plate at zero angle of incidence	<i>R. Sriram, M.S. Hariharan, Janardhanraj .S, S. Saravanan, G. Jagadeesh, K.P.J. Reddy</i>
30519	Richtmyer-Meshkov Instability: Reshock Study	<i>D. Ranjan, B. J. Balakumar, G. C. Orlicz, K. P. Prestridge, and C. D. Tomkins</i>
30558	Analytical and Numerical Design Studies on Supersonic Hydrogen Ejector	<i>Srisha Rao M V, G. Jagadeesh</i>
38416	Kinetics of the penetration of shaped charge jets in brittle materials	<i>B. Rummyantsev</i>
30263	Studies on forming of thin metal foils for bio-medical applications of shock waves	<i>Nagaraja S.R, Rakesh S.G., J.K. Prasad, P.K.Barhai, G. Jagadeesh</i>
30343	Experimental and numerical analyses of high-speed fracture behaviors in glass bottles by using underwater shockwave	<i>H. Sakamoto, Y. Ohbuchi, H. Kuramae, S. Kawabe</i>
38414	Square-bore ballistic range for launching three-dimensional projects	<i>A. Sasoh, K. Kikuchi, K. Shimizu, A. Matsuda</i>
30070	Numerical Simulation and Analysis of the Comparability law on Hypervelocity Impact with SPH Method	<i>SHEN Yan-ming, CHEN Jian-qiang</i>
30480	On unsteady regimes in wing wake / bow shock interaction	<i>A.M. Shevchenko, A.S. Shmakov</i>
30095	Aerodynamic characteristics of solid particles acceleration by shock waves	<i>Hong-Hui SHI, Li-Te ZHANG, Xiao-Na ZHANG, Shu-Yuan YUE, Chao WANG, Ruo-Ling DONG, Hui-Xia JIA</i>
30400	Influence of a propagating plane shock wave on grid turbulence	<i>F. V. Shugaev, L. S. Shtemenko, O. I. Dokukina, E. N. Terentiev</i>
30612	Kinetic Theory Analysis of Laser Ablation of Carbon	<i>M. Shusser</i>
30464	Correlation Study in Shock Wave / Turbulent Boundary Layer Interaction	<i>P.A. Polivanov, A.A. Sidorenko, A.A. Maslov</i>
30543	Investigation of Hypersonic Boundary Layer transition on a Cone Model	<i>Tarandeep Singh, K Nagashetty, Ramesh Babu, Reddy KPJ, Sengupta TK, D Das</i>
30265	Modeling of ignition and combustion of hydrogen-oxygen mixtures behind the front of the shock wave	<i>Smekhov G.D., Shatalov O.P.</i>

30311	Experimental investigation of heat transfer characteristic on secondary injection surface with injection angle	<i>J. Song, H.H. Cho, M.S. Yu, J.J. Yi, J.C. Bae</i>
30473	Continuously Rotating Detonation Waves in an Annular Chamber	<i>Tae-Hyeong Yi, Jing Lou, and Cary Turangan</i>
30201	Shock-tube studies on the reactions of some aromatic compounds with chain carriers in combustion	<i>K. Takahashi, K. Kondo, R. Cho, S. Inoue</i>
30574	Development of a diaphragmless driver section for a narrow channel shock tube	<i>S. Udagawa, T. Inage, M. Ota, W. Garen, K. Maeno</i>
30395	Heat Transfer and Force Measurements on a Scramjet engine configuration in Hypersonic Shock Tunnel	<i>V. Hima Bindu, S. Saravanan and K. P. J. Reddy</i>
30441	An experimental study on focusing of underwater micro shock waves induced by Q-switched Ho : YAG laser	<i>H. Yamamoto, K. Takayama, H. Shimokawa, T. Hashimoto</i>
38412	On the primary breakup of axisymmetrical dissemination of Liquid in motion	<i>Yang Lei, Huang Zhongwei</i>
30305	Propagation of explosive driven micro-blast wave over grooved surfaces	<i>N. Gongora-Orozco, H. Zare-Behtash, K. Kontis, G. Jagadeesh</i>
30619	Loading of plane target by thin concave impactor	<i>E. B. Zaretsky, M. Mayseless, E. Muzychuk</i>
38711	Mathematical simulation of liquid with high volume of gas phase	<i>M. N. Davydov, V. K. Kedrinskii</i>
30512	Shock wave reflection from a circular cylinder	<i>E. Timofeev, A. Hakkaki-Fard, Y. Su</i>
30475	Shock wave propagation in gas mixtures	<i>J. Falcovitz, O. Igra, D. Igra</i>

18.00-20.00 IAC meeting

### **Wednesday, 22.07**

09.30 Buses start for excursion / test site

13.00-14.00 LUNCH

14.30-18.00 Peterhof parks and fountains

### **Thursday, 23.07**

8.30-9.15 Plenary lecture: *Congress hall; chair K.Kontis*

From explosions to drug delivery - changing paradigms of shock wave research

*G. Jagadeesh, Rakesh S.G., P.K.Barhai*

9.20-11.00 ORAL sessions

Hypersonic Flows — 3 *Red Hall C; chair: R.Morgan*

30870	9.20-9.40	Experimental investigation of the influence of the flow structure on the aerodynamic coefficients of the IXV vehicle	<i>Gawehn, T., Neeb, D., Gulhan, A., Dormieux, M., Binetti, P., Walloschek, T.</i>
30651	9.40-10.00	Hypersonic Flow around Flare-type Membrane Aeroshell with Torus Frame	<i>Kazuhiko Yamada, Takashi Abe, Yuka Kato</i>
30649	10.00-10.20	Experimental and numerical investigation of a hypersonic shock tunnel flow past a blunted cone	<i>R. Hruschka, G. Park, N. Deepak, S. O'Byrne, H. Kleine</i>
30515	10.20-10.40	Scaling Experiments in a Hypersonic Radiating Flow	<i>R.G. Morgan</i>

30314	10.40-11.00	Mach-4.5-cross-flow/side-jet-interference on an actual cylindrical missile configuration	<i>F. Seiler, B. Sauerwein, J. Srulijes, F. Leopold, K. Weinand, K. Dahlem, P. Hennig, D. Stern</i>
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Numerical Methods — 2 *Red Hall D; chair: E. Timofeev*

30598	9.20-9.40	Shock wave propagation in viscous gas in a long tube	<i>D. Khotyanovsky, A. Kudryavtsev, M. Ivanov</i>
38336	9.40-10.00	Recent Development of AUSM and Applications to High Speed Flows	<i>Meng-Sing Liou</i>
38330	10.00-10.20	Shock Polar Theory for Convex Equations of State	<i>L.F. Henderson</i>
30507	10.20-10.40	Development and validation of a simulation code for predicting shock-induced motion of solid objects	<i>Y. Sakamura, A. Nishino, K. Nakayama</i>
31111	10.40-11.00	Non-linear theory of conservation laws of solid medium	<i>V. G. Grudnitsky</i>

Shock Wave Propagation and Reflection — 3 *Congress hall; chair: B. Skews*

31164	9.20-9.40	Neumann Reflection over Curved Bodies in Shock Tubes	<i>Atsushi Abe, Kazuyoshi Takayama</i>
31132	9.40-10.00	Traces of mechanism which overcomes the impasse that afflicts transition from regular to extraordinary Mach reflection	<i>Alfred Siegenthaler, Harald Kleine</i>
30357	10.00-10.20	Dynamic transition of strong shock reflection at atmospheric pressure	<i>S. Kobayashi, T. Adachi, T. Suzuki</i>
30599	10.20-10.40	Numerical Study of Three-Shock Intersection at Von Neumann Paradox Conditions	<i>G. Shoen, D. Khotyanovsky, Ye. Bondar, A. Kudryavtsev, M. Ivanov</i>
30077	10.40-11.00	Internal structure of three shocks intersection	<i>A. Sakurai and M. Tsukamoto, D. Khotyanovsky and M. Ivanov</i>

11.00-11.15 COFFEE BREAK *Foyer*

11.15-12.55 ORAL sessions

Nozzle Flows and Jets 1 *Red Hall D; chair: J.M. Yang*

30869	11.15-11.35	Experimental and Numerical Analysis of the Structure of Pseudo-Shock Systems in Laval Nozzles with Parallel Side Walls	<i>Gawehn T., Gulhan A., Al-Hasan N.S. and Schnerr G.H.</i>
30841	11.35-11.55	Shock-initiated flow in a reflected nozzle	<i>L.G. Gvozdeva, I.N. Ryzhkina, N.W. Tarusova</i>
30324	11.55-12.15	Numerical Predictions for Transverse Injection Flows	<i>E. Erdem, K. Kontis</i>
30282	12.15-12.35	New explanation of noise production by supersonic jets with "gas dredging"	<i>H. Oertel sen., F. Seiler, J. Srulijes</i>
30097	12.35-12.55	Oscillation flow induced by underwater supersonic gas jets	<i>Hong-Hui SHI, Chao WANG, Xiao-Gang WANG, Qiang GUO, Ruo-Ling DONG, Li-Te ZHANG, Hui-Xia JIA</i>

Multiphase Flows — 1 *Red Hall C; chair: V. Kedrinsky*

30347	11.15-11.35	Investigation on the dispersion of solid particles by high explosive	<i>Yann Gregoire, Michel-Olivier Sturtzer, Boris A. Khasainov, Bernard Veyssiere</i>
30065	11.35-11.55	Detonability of aluminum particles in water vapor and carbon dioxide	<i>F. Zhang, K. B. Gerrard, G. Schllffel, R. C. Ripley</i>
30564	11.55-12.15	Drag-Force in Supersonic Dense Gas-Solid Flow	<i>T. Xu, H. Ji, F.S. Lien, F. Zhang</i>
30338	12.15-12.35	Particle Entrainment in Supersonic Flow	<i>Z. Zarei, D.L. Frost, E.V. Timofeev</i>
30361	12.35-12.55	Investigation of shock wave passing through a cloud of water droplets	<i>G. Jourdan, L. Biamino, C. Mariani, C. Blanchot, E. Daniel, J. Massoni, L. Houas, R. Tosello, D. Praguine</i>

**Shock Wave Propagation and Reflection — 4 Congress hall; chair: R.Henderson**

30256	11.15-11.35	Particulate foams, shock resistance to shattering	<i>A. Britan, M. Liverts, G. Ben-Dor</i>
30257	11.35-11.55	Shock wave mitigation by particulate foams	<i>A. Britan, M. Liverts, H. Shapiro, G. Ben-Dor</i>
30313	11.55-12.15	Perturbed wave patterns in the flow behind a shock reflecting off a porous wall	<i>C. Law, B.W. Skews</i>
30398	12.15-12.35	Cavity Shape Effects on Shock-Induced Pressure Distributions	<i>D.A. MacLucas, B.W. Skews</i>
30596	12.35-12.55	Shock wave profiles on a transonic wing during acceleration	<i>H. Roohani, B.W. Skews</i>

**12.55-14.00 LUNCH ATRIUM RESTAURANT**

14.00-14.45 Plenary lecture: Congress hall; chair A.Podlaskin

Collisionless Shocks in High Energy Astrophysics and Cosmology

*Andrei M. Bykov*

14.50-16.30 ORAL sessions

**Facilities, Diagnostics and Flow Visualisation — 2 Red Hall C; chair: H.Olivier**

31096	14.50-15.10	Temperature measurements of light emission of an imploding polygonal shock	<i>M. Kjellander, N. Tillmark, N. Apazidis</i>
31100	15.10-15.30	Development of a Detonation-Driven Gas Gun Capable of 3-km/s Projectile Velocity	<i>J. Verreault, P. Batchelor, A.J. Higgins</i>
30871	15.30-15.50	Application of Particle Image Velocimetry and the Background Oriented Schlieren Technique in the High Enthalpy Shock Tunnel Gottingen HEG	<i>T.Kirmse, A. Schroder, J. Martinez Schramm, S. Karl, K. Hannemann</i>
30873	15.50-16-10	Post Flight Experiments of the SHEFEX I Configuration in the High Enthalpy Shock Tunnel Göttingen (HEG)	<i>Jan Martinez Schramm and Tarik Barth</i>
30524	16.10-16.30	Implosion-Driven Hypervelocity Launcher	<i>A.J. Higgins, D. Szirti, J. Loiseau, V. Tanguay, F. Zhang</i>

**Detonation and Combustion — 2 Red Hall D; chair: C.Needham**

30404	14.50-	A thermally summarized reaction model	<i>Yujian Zhu, Jiming Yang,</i>
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	15.10	for stoichiometric acetylene-oxygen detonations	<i>Mingyu Sun</i>
30388	15.10-15.30	Three-Dimensional Numerical Simulation of Detonation Waves: Head-on Pattern	<i>H.-S. Dou, B. C. Khoo</i>
30297	15.30-15.50	Supersonic gas-flow chamber of hydrogen detonation combustion	<i>O.P.Shatalov, Yu.V.Tunik</i>
30173	15.50-16-10	Explosive mixture composition influence on flame evolution	<i>M.F. Ivanov, A.D. Kiverin, V.A. Galburt</i>
30345	16.10-16.30	On the effectiveness of the semi-closed blast inhibitors	<i>B.E. Gelfand, M.V. Silnikov, M.V. Chernyshov</i>

**Blast Waves — 2 Congress Hall; chair: Z.L.Jiang**

30116	14.50-15.10	Blast waves ignition delay times for hydrogen-air mixtures at relatively lowtemperature and elevated pressure	<i>B.E. Gelfand, S.P. Medvedev, S.V. Khomik</i>
30364	15.10-15.30	Experimental investigation of a shocked door dynamic opening	<i>L. Biamino, C. Mariani, G. Jourdan, L. Houas, A.Massol</i>
30390	15.30-15.50	A study on the dynamics of conduit flow and fragmentation induced by underwater explosion	<i>Yujian Zhu, Dai Kikuchi, Mingyu Sun</i>
30541	15.50-16-10	Micro-Blast waves	<i>G. Jagadeesh, K. Kontis</i>
38321	16.10-16.30	Shock-wave dynamics during oil-filled transformer explosion	<i>V.P. Efremov, A.V. Utkin, M.F. Ivanov, A.D. Kiverin, E.M. Apfelbaum, V.S. Iorish, K.V. Khishchenko, V.E. Fortov</i>

16.30-17.45 Adjournment

17.45-18.15 Award ceremony *Congress Hall*

19.30-22.30 Banquet *ASTORIA Restaurant*

**Friday, 24.07**

8.30-9.15 Plenary lecture: *Congress hall; chair Z.Walenta*

Condensation induced waves and wave induced condensation

*M.E.H. van Dongen, V. Holten, X. Luo*

9.20-11.00 ORAL sessions

Shock Wave Propagation and Reflection — 5 *Congress Hall; chair: M.Ivanov*

31093	9.20-9.40	Organised motions in an asymmetric supersonic mixing layer	<i>Sudhir L. Gai and Luke Janicke</i>
30682	9.40-10.00	Acoustic Wave Generation from Shock Waves in a Supersonic Jet Impinging on an Inclined Flat Plate	<i>Y. Goto and T. Nonomura, K. Fujii</i>
30677	10.00-10.20	Mach reflection of a strong shock wave at the transition to regular reflection	<i>V.P. Fokeev</i>
30625	10.20-10.40	An experimental study of reflection of underwater conical shock waves	<i>N. Nagayasu, S. Yamashita, K. Ohtani, K. Takayama</i>
38356	10.40-11.00	Interaction of micro-bubbles with a micro-explosion induced shock wave in a narrow gap	<i>Akihisa Abe, K. Ohtani, K. Takayama</i>

Medical, Biological and Industrial Applications 1 *Red Hall D; chair: S.H.R.Hosseini*

30874	9.20-9.40	Explosive decompression of viscous magma: wave field structure and features of boundary layer development in a volcano channel	<i>V. Kedrinskiy, V.Davydov</i>
30846	9.40-10.00	Experimental study of shock wave attenuating layers for tissue protection during strong shock wave application	<i>S.H.R. Hosseini, K. Takayama, T. Saito, H. Akiyama</i>
30744	10.00-10.20	Study on the relationship between apple and underwater shock wave	<i>A. Oda and S. Itoh</i>
30261	10.20-10.40	Micro Blast Wave Assisted Bacterial Cell Transformation	<i>Rakesh S.G., K.N. Nataraja, P.K.Barhai, G. Jagadeesh</i>

Numerical Methods — 3 *Red Hall C; chair: K.S.Chang*

30066	9.20-9.40	On the HLLC Riemann solver for interface interaction in compressible multifluid flow	<i>X. Y. Hu and N. A. Adams</i>
30071	9.40-10.00	Numerical simulation of complex interaction flow over vehicle with multi lateral jets	<i>CHEN Jian-qiang, ZHANG Yi-feng, JIANG Ding-wu, MAO Mei-liang</i>
30233	10.00-10.20	Pulsed laser deposition of thin films direct Monte-Carlo simulation of the plume behaviour	<i>Z. A. Walenta, Z. Szymanski</i>
38351	10.20-10.40	Collision of a solar wind shock wave with the Earth's bow shock: Three-dimensional magnetohydrodynamic model	<i>E. A. Pushkar</i>
30366	10.40-11.00	Computation of weak steady shock reflections through a unstructured shock-fitting solver	<i>M. Ivanov, A. Bonfiglioli, R. Paciorri, F. Sabetta</i>

11.00-11.15 COFFEE BREAK *Foyer*

11.15-12.55 ORAL sessions

Shock Wave Propagation and Reflection — 6 *Congress hall; chair: S.Kobayashi*

30580	11.15-11.35	Numerical investigation of interaction between a shock wave and small flow disturbances	<i>A. N. Kudryavtsev, A. Yu. Ovsyannikov</i>
30552	11.35-11.55	Shock tube experiments on the mitigation of a shock wave through a system of plates	<i>G. Jourdan, C. Mariani, L. Biamino, L. Houas, A.Massol, O.Igra</i>
30641	11.55-12.15	Viscous simulation of shock reflection hysteresis in conical and ideal planar nozzles	<i>E. Shimshi, G. Ben-Dor, A. Levy</i>
30420	12.15-12.35	Gasdynamic structures of forerunner type for interaction of a shock with temperature inhomogeneities	<i>P.Yu. Georgievskiy, V.A. Levin, O.G.Sutyryn</i>
38029	12.35-12.55	Influence of relaxation effects on shock wave propagation in gases	<i>Lipnitsky Yu.M., Panasenko A.V.</i>

Multiphase Flows — 2 *Red Hall D; chair: K.P.J.Reddy*

30517	11.15-11.35	Acceleration of solid particles in explosive dispersal	<i>R. C. Ripley, J. Leadbetter</i>
30450	11.35-11.55	Experimental study of laser ablation induced vapor plume expansion	<i>A. B. Gojani, J. J. Yoh</i>

30936	11.55-12.15	Blast wave propagation in cavitating liquid	<i>A. Chernyshev, E. Kumzerova, A. Schmidt</i>
30301	12.15-12.35	Parametric Study of a Micro Jet Excited by Shock/Interface Interaction by Numerical Simulation	<i>H. Chen, C.-Y. Wen</i>
30476	12.35-12.55	Experimental study of formation of detonation wave of condensation	<i>J. Deppe, A. Emelianov, A. Eremin, V. Fortov, A. Makeich, H. Jander, H.G. Wagner</i>

**Blast Waves — 3** *Red Hall C; chair: V.Golub*

30966	11.15-11.35	The effect of blast wave re-focusing on the lifetime of a laser-generated plasma	<i>S. Brieschenk, S. O'Byrne, H. Kleine</i>
30764	11.35-11.55	TNT blast wave generation and its propagation to far field	<i>T. Saito, M. Hirota</i>
30621	11.55-12.15	The Negative Phase of Spherical Explosions Revisited	<i>J. Falcovitz, Y. Kivity</i>
30542	12.15-12.35	An experimental simulation of Tornado-terminator by vortex-center explosion	<i>L. H. Wang, F. Wu, T. Long, J. M. Yang and X. Luo</i>
30478	12.35-12.55	Study of "green" explosion using phase transformation model and revolutionary laser experiment	<i>J. J. Yoh, K. H. Kim, H. H. Lee, A. B. Gojani</i>

12.55-14.00 LUNCH *ATRIUM RESTAURANT*

14.00-14.45 Plenary lecture: *Congress hall; chair I.Krassovskaya*

Shock Tube Investigations of the Instability of a Two-Gas Interface Accelerated by a Shock Wave

*E.E. Meshkov*

14.50-16.10 ORAL sessions

**Hypersonic Flows — 4** *Congress hall; chair: F.Seiler*

31021	14.50-15.10	Structure and Oscillation Phenomena of the Pseudo-Shock Waves in Supersonic Rectangular Ducts at Mach 4	<i>H. Sugiyama, T. Honma, T. Bunya</i>
30471	15.10-15.30	Nonequilibrium gas discharge plasma supersonic flow around body	<i>A.V.Erofeev, T.A.Lapushkina, S.A.Ponyaev, S.V.Bobashev</i>
30678	15.30-15.50	CFD modeling of high speed re-entry flows including gas radiation	<i>S. Karl, K. Hannemann</i>
30278	15.50-16-10	Study of the Effect of Telescopic Aerospikes on Drag and Heat Transfer Rates for a Large Angle Blunt Cone Flying at Hypersonic Mach Numbers	<i>S. Srinath and K.P.J. Reddy</i>

**Facilities, Diagnostics and Flow Visualisation — 3** *Red Hall C; chair: N.Apazidis*

30575	14.50-15.10	Computed tomographic density measurement in supersonic wind tunnel by colored grid background oriented schlieren (CGBOS) technique	<i>M. Ota, K. Maeno, K. Hamada, N. H. B. Zulkifli</i>
30258	15.10-15.30	A high-explosive device for isentropic compression experiments	<i>A. Sollier, J-B. Maillet, C. Voltz, V. Bouyer</i>
30560	15.30-15.50	CARS rotational/vibrational temperature diagnostics behind hypervelocity shock wave at Mach number range from 12 to	<i>T. Osada, Y. Endo, C. Kanazawa, M. Ota and K. Maeno</i>



		over 15	
14.50-16.10 Round Table discussion on weak Mach Reflection problem <i>Red Hall D</i> (chair I.Krassovskaya)			
16.15-16.45 Closing ceremony			

ISSW-27 Companions Program

date	time	Program A (together with all participants)	Program B
Sun. 19 July	18-19	Welcome cocktail	
	19-22	Bus sightseeing tour around the city center (White Night twilights)	
Mon. 20 July	10-18		Bus tour to the suburban palaces: Tsarskoe Selo (Pushkin; Amber room) and Pavlovsk. Lunch included.
	19-21	Cultural evening	
Tue. 21 July	9:30-18		Excursion to the Hermitage fine art museum and the Savior on Blood church (guided tours, bus transfer). Lunch included.
Wed. 22 July	12-19	Extended excursion program in the suburbs with lunch and walking tour through the beautiful fountain park of Peterhof	
Thu. 23 July	10-17		Excursion to the Yussupov palace (with Rasputin room), river boat excursion (guided tours, bus transfer). Lunch included.
	19:30-22:30	Award ceremony and Symposium banquet	
Fri. 24 July	10-14		Imperial Porcelain factory museum and shop (guided tours, bus transfer).

*Program A includes the events attended by all Symposium participants.*

*Program B includes social and cultural events for accompanying persons only.*