

WEHSFF 2007 Final Program

November 18, Sunday			
18:00-20:00	Registration		
November 19, Monday			
7:30-9:00	Registration		
9:00-13:00	Morning Session		
9:00-9:30	Opening Ceremony		
9:30-10:00	Plenary Lecture Towards a Higher-Order, Adaptive Method for High Speed Flows David Darmofal, <i>Massachusetts Institute of Technology (MIT), USA</i>		
10:00-10:30	Plenary Lecture Grid-Free Kinetic Upwind Solver on CHIMERA Cloud of Points K.A. Anandhanarayanan, <i>Defence Research and Development Laboratory, Hyderabad, India</i>		
10:30-11:00	Coffee-Break		
11:00-13:00	Parallel Session S1	Parallel Session S7-1	Parallel Session S4
13:00-14:00	Lunch		
14:00-18:20	Afternoon Session		
14:00-14:30	Plenary Lecture Intensive Shock Waves and Extreme State of Matter Vladimir Eu.Fortov, <i>Russian Academy of Sciences, Russia</i>		
14:30-14:50	Keynote Lecture Constructing Progress in the Low Speed Pressured Wind Tunnel in China Zhoufu LI, <i>CARIA/AVICI, China</i>		
14:50-15:10	Keynote Lecture Molecular Dynamics Method and Its Application to Solving Problems of Mechanics of Continuous Media Vasily M. Fomin, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>		
15:10-15:30	Keynote Lecture Europe's Research Response to the Challenges for Aeronautics Dietrich Knoerzer, <i>European Commission, Belgium</i>		
15:30-16:00	Coffee-Break		
16:00-18:20	Minisymposium M5	Parallel Session S7-2	Parallel Session S6
	Special Presentation ANSYS for High Speed Aerodynamics Applications <i>Process Flow, Russia</i>		
19:00-21:00	Welcome Reception		

November 20, Tuesday			
9:00-13:00		Morning Session	
9:00-9:30	Plenary Lecture Simulation of the Sound Radiation of Turbulent Flows with DES <u>Ulf Michel</u> , D.Eschrict, B.Greschner, T.Knacke, C.Mockett, L.Panek, F.Thiele, and J.Yan, <i>Institute of Fluid Mechanics and Engineering Acoustics, Berin University of Technology, Germany;</i> <u>Ulf Michel</u> , with DLR, Institute of Propulsion Technology, Engine Acoustics, Berlin, Germany; J.Yan, with Voith Siemens Hydro Power Generation GmbH & Co KG, Germany		
9:30-9:50	Keynote Lecture A Boltzmann / Navier-Stokes Coupling Simulation for High Speed Rarefied Gas Flows Koji Morinishi, <i>Kyoto Institute of Technology, Japan</i>		
9:50-10:10	Keynote Lecture Can Supersonic Transport Be Ultra-Quiet? Gerard Fournier, <i>GFIC, France</i>		
10:10-10:40	Coffee-Break		
10:40-13:00	Minisymposium M1-1	Parallel Session S7-3	Parallel Session S3-1
13:00-14:00	Lunch		
14:00-18:20		Afternoon Session	
14:00-14:30	Plenary Lecture Validation of Aerodynamic Design Technology of Supersonic Experimental Airplane(NEXT-1) by Flight Test Dong-Youn Kwak, <i>Japan</i>		
14:30-14:50	Keynote Lecture Turbulent Hypersonic Flows: Physics and Simulation M. Pino Martin, <i>MAE Departmentt, Princeton University, USA</i>		
14:50-15:10	Keynote Lecture High-Order Adaptive Method Applied to High Speed Flows Alain Dervieux, <i>INRIA, France</i>		
15:10-15:40	Coffee-Break		
15:40-18:20	Minisymposium M1-2	Parallel Session S5	Parallel Session S3-2

November 21, Wednesday			
9:00-13:00	Morning Session		
9:00-9:30	Plenary Lecture Demand and Research of Aerodynamics in Developing Large Aircraft FAI/AVIC1 Changhong TANG, <i>China</i>		
9:30-9:50	Keynote Lecture LES and Hybrid RANS/LES Simulation of Complex Flows on Unstructured Grids Maria-Vittoria Salvetti, <i>Dipartimento di Ingegneria Aerospaziale, Italy</i>		
9:50-10:10	Keynote Lecture A Formation of Turbulence Spectrum in Free Shear Flow Oleg Belotserkovsky, Valery Chechetkin, Alexey Oparin, <i>Istitute for Computer Design, Russia</i>		
10:10-10:40	Coffee-Break		
10:40-13:00	Minisymposium M1-3	Minisymposium M3	Parallel Session S2
		Minisymposium M2-1	
13:00-14:00	Lunch		
14:00-18:00	Afternoon Session		
14:00-14:30	Plenary Lecture Summary of the Third AIAA CFD Drag Prediction Workshop John C.Vassberg, Edward N.Tinico, Mori Mani, <i>The Boeing Company, USA</i> Olaf P.Brodersen, Bernhard Eisfel, <i>DLR Istitute of Aerodynamics and Flow Technology, Germany</i> Richard A. Walhs, Joseph H. Morrison, <i>NASA Langley Research Center, USA</i> Tom Zickuhr, Kelly R.Laflin, <i>Cessna Aircraft Company, USA</i> Dmitri J.Mavriplis, <i>University of Wyoming, USA</i>		
14:30-14:50	Keynote Lecture Technology Demand of Future Civil Aircraft in China Jianhong DONG, <i>FAI/AVIC1, China</i>		
14:50-15:10	Keynote Lecture Aerothermodynamics Problems at Hypersonic Vehicles Development Ivan Egorov, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>		
15:10-15:40	Coffee-Break		
15:40-18:20	Parallel Session S8	Minisymposium M2-2	Special Meetings
19:00-23:00	Conference Banquet		

November 22, Thursday			
9:00-12:00		Morning Session	
9:00-9:30	Plenary Lecture Multidisciplinary Design Optimisation of Joint-UCAV Using HAPMOEA with Uncertainty <i>Karkenahalli Srinivas, D.S.Lee, School of AMME, University of Sydney, Australia;</i> <i>L.F.Gonzalez, Queensland University of Technology, Australia;</i> <i>J.Periaux, CIMNE/UPC, Barcelona, Spain</i>		
9:30-9:50	Keynote Lecture The First USV Flight Test <i>Gennaro Russo, Centro Italiano Ricerche Aerospaziali (CIRA), Italy, presented by Marco Marini</i>		
9:50-10:10	Keynote Lecture A Vector Hamilton-Jacobi Formulation for the Numerical Simulation of Euler Flows <i>Olivier Pironneau, UPMC & Acad. of Sciences, France</i>		
10:10-10:40	Coffee-Break		
10:40-12:00	Parallel Session S9	Minisymposium M4	Parallel Session S10
12:00-13:00	Lunch		
13:00	Around Moscow Bus Tour		

Parallel Session S1 Experiments in High Speed Flows, Wind Tunnel Nozzles

Chaired by: Alexander V. Vaganov, Valery I. Zapryagaev

Time	Talk
11:00-11:20	Modelling of Turbulent Wall Flows under High-Free-Stream Turbulence Intensity and Pressure Gradient <u>N.V.Semionov</u> , Yu.G.Yermolaev, A.D.Kosinov, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
11:20-11:40	Three-Dimensional Interference of Oblique Shock with Boundary and High-Entropy Layers and Technique Intended for Investigation of Such Flows <u>V.Borovoy</u> , V.Mosharov, V.Radchenko, A.Noev, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
11:40-12:00	Gas Dynamic Design of Profiled Nozzles for the Supersonic Wind Tunnels Taking into Account Viscosity Effects <u>A.P.Byrkin</u> , V.P.Verhovskiy, V.I.Plyashechnik, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
12:00-12:20	Experimental Study of an Unsteady Flowfield in Wing Wake / Shock Interactions A.M.Shevchenko, A.S.Shmakov, <u>V.I.Zapryagaev</u> , <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
12:20-12:40	Lessons Learned from Study of MHD Flow/Flight Control in High Speed Airflows <u>V.A.Bityurin</u> , A.N.Bocharov, D.S.Baranov, S.S.Bychkov, <i>Joint Institute of High Temperatures RAS, Russia</i> ; V.I.Alferov, A.V.Podmazov, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i> ; A.V.Krasilnikov, <i>Central Research Institute for Machine Building (TsNIMASH), Russia</i>
12:40-13:00	The Simulation in the Wind Tunnels of Flows in Supersonic Chamber of Scramjet <u>V.I.Alferov</u> , A.S.Bushmin, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>

Parallel Session S7-1Computational Fluid Dynamics, Validation in High Speed Flows, Multidisciplinary Optimization

Chaired by: Alexey N.Kudryavtsev , Tatiana G. Elizarova

Time	Talk
11:00-11:20	About Bounds of Applicability of Continuum Approach to the problems of Hypersonic Rarefied Flow over Bodies <u>I.G.Brykina</u> , M.V.Perunov, G.A.Tirskiy, <i>Institute of Mechanics, MSU, Russia</i> ; B.V.Rogov, <i>Institute of Mathematical Modeling RAS, Russia</i> ; I.L.Semenov, <i>Moscow Institute of Physics & Technology, Russia</i>
11:20-11:40	On the Form of the Hydrodynamics Equations P.N.Vabishchevich, <i>Institute for Mathematical Modelling RAS, Russia</i>
11:40-12:00	Numerical Simulations of Nonstationary Viscous Flows Basing on Quasi-Gasdynamic Equations T.G.Elizarova, <i>Institute for Mathematical Modelling RAS, Russia</i>
12:00-12:20	Numerical Simulation of Sub-, Trans- and Supersonic Flow around Bodies with Vortex Cells in the Framework of Multibank Computational Technologies S.A.Isaev, P.A.Baranov, <i>Saint-Petersburg State University of Civil Aviation, Russia</i> ; A.G.Sudakov, <i>Battery Company "Rigel", Russia</i> ; <u>A.E.Usachov</u> , <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
12:20-12:40	Application of the Multigrid Method for Calculations of Diffusion Processes <u>V.F.Tishkin</u> , M.A.Ladonkina, and O.Yu.Milyukova, <i>Institute for Mathematical Modelling RAS, Russia</i>
12:40-13:00	Infinite Rarefied Channel - Cylinder Shock Layer Interaction: Simulation of Pulsation Flow with Contact Discontinuity Instabilities O.A.Azarova, <i>Computing Center of RAS Yu. F. Kolesnichenko, Institute of High Temperatures RAS, Russia</i>

Parallel Session S4 Heat Transfer, Aerothermal Flows

Chaired by: Pedro Roncioni, Stalii A. Losev, A. Skuratov

Time	Talk
11:00-11:20	Investigation of Heat Transfer Over the Generic Model of Martian Descent Vehicle V.Borovoy, I.Egorov, <u>A.Skuratov</u> , <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i> ; P.Omaly, <i>CNES, France</i> ; O.Rouzaud, <i>ONERA, Italy</i>
11:20-11:40	Aerodynamic and Aerothermodynamic Data Base of EXPERT capsule Schettino, R.Votta, <u>P.Roncioni</u> , M.Di Clemente, <i>Centro Italiano Ricerche Aerospaziali (CIRA), Italy</i> ; M.Gerritsma, <i>University of Delft, The Nietherlands</i> ; C.Chiarelli, D.Ferrarella, <i>Sofiter System Engineering, Italy</i>
11:40-12:00	Three-Dimensional Heta Source in Supersonic Flow <u>M.N.Kogan</u> , and A.N.Kuchеров, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
12:00-12:20	Calculation of Real Meteoric Luminescence <u>M.I.Gritsevich</u> , and V.P.Stulov, <i>Institute of Mechanics, M.V.Lomonosov Moscow State University, Russia</i>
12:20-12:40	Hypersonic CFD Characterization of IXV vehicle <u>P.Roncioni</u> , G.Ranuzzi, and M.Marini, <i>Centro Italiano Ricerche Aerospaziali (CIRA), Italy</i> , E.Cosson, <i>Astrium Space Transportation, France</i>
12:40-13:00	Temperature Factor Role in the Physical and Computational Modelling of High Speed Flows I.I.Lipatov, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>

Minisymposium M5 Research in Fluid-dynamics and Aircraft Design within the EU Framework Programme

Chaired by: Dietrich Knoerzer, Jacques Periaux

Time	Talk
16:00-16:20	NODESIM CFD: Non-Deterministic Simulation for CFD Based Design Methodologies Charles Hirsch, <i>NUMECA Int., Belgium</i>
16:20-16:40	VORTEXCELL2050: Actively Controlled Flows with Trapped Vortices Sergei Chernyshenko, <i>Imperial College, London, The United Kingdom</i>
16:40-17:00	Europe in the Post-Concorde Era. Key Technologies to Fly Far Beyond Transonic <u>Jose M.A.Longo</u> , <i>German Aerospace Center, DLR, Institute of Aerodynamics and Flow Technology, Germany</i> J.Steelant, <i>European Space Agency, ESA-ESTEC, Propulsion & Aerothermodynamics Division, The Netherlands</i>
17:00-17:20	DESIDER – Detached Eddy Simulation for Industrial Aerodynamics Werner Haase, <i>EADS Military Air Systems, Germany</i> ; <u>Mikhail Strelets</u> , <i>St.-Petersburg State Polytechnic University, Russia</i>
17:20-17:40	Innovative Supersonic Design within the European Project HISAC F.Dagrau, Heron, A.Merlet, G.Roge, <u>Sébastien Vigneron</u> , <i>Dassault Aviation, France</i>

Special Presentation

17:40-18:20	ANSYS for High Speed Aerodynamics Applications Ilya Skryabin, <i>Process Flow, Russia</i>
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Parallel Session S7-2Computational Fluid Dynamics, Validation in High Speed Flows, Multidisciplinary Optimization

Chaired by: Alain Dervieux , Yuri V.Vassilevski

Time	Talk <i>An order of talks is to be regulated by IMM (see the complete list below)</i>
16:00-16:20	Computational Fluid Dynamics (CFD) and Computer Aided Design (CAD). Last Achievements and Some Trends Yu.D.Shevelev, <i>Institute of Computer Aided Design RAS, Russia</i>
16:20-16:40	Grid Convergence Study for High-Lift Devices: Three-Element Airfoil ZHOU Lei, <i>ACTRI/AVIC1, China</i>
16:40-17:00	Metric-Based Control of Mesh Adaptation in Arbitrary Lagrangian Eulerian Simulation K.Lipnikov, <i>Los-Alamos National Laboratory, USA</i> ; <u>Yu.V.Vassilevski</u> , <i>Institute of Numerical Mathematics RAS, Russia</i>
17:00-17:20	Transition Features in Transonic Flow around a NACA0012 Airfoil by Navier-Stokes Simulation and Low-Order Modelling R.Bourguet, M.Braza, and G.Harran, <i>Institut de Mécanique des Fluides de Toulouse, France</i> ; <u>A.Dervieux</u> , <i>INRIA Sophia-Antipolis, France</i>
17:20-17:40	Unstructured Meshes in Unsteady CFD Applications D.A. Lysenko, <i>GE Energy, Russia</i>
17:40-18:00	Fast Aerodynamic Model for Design Technology A.V.Bernstein, <i>International Research Institute for Advanced Systems, Russia</i> ; A.P.Kuleshov, <i>Institute for Information Transmission Problems RAS, Russia</i> ; <u>Yu.N.Sviridenko</u> and V.V.Vyshinsky, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
18:00-18:20	Control of Streamline of the Transonic Wind Airfoils by Periodic Pulse Local Energy Supply <u>V.P.Zamuraev</u> , S.M.Aulchenko, and A.P.Kalinina, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>

Parallel Session S6**Propulsion Physics, Airbreathing Propulsion**

Chaired by:

Volf Ya. Borovoy, V.I. Stulov

Time	Talk
16:00-16:20	The Problems of Combustion at Supersonic Flow <u>P.K.Tretyakov</u> , <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
16:20-16:40	Optimization Problem of External Combustion for the Plane Body Moving in Supersonic Flow <u>Vladimir L.Zimont</u> , Eugeny Muhin, <i>CRS4 Research Center POLARIS</i>
16:40-17:00	Numerical Simulation of a Scramjet with Pulsed Periodic Energy Supply V.P.Zamuraev, A.P.Kalinina, and A.F.Latypov, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
17:00-17:20	Numerical Simulation of the Continuous Rotating Hydrogen-Oxygen Detonation with a Detailed Chemical Mechanism D.M.Davidenko, and I.Gökalp ¹ , <i>Institut de Combustion, Aérothermique, Réactivité et Environnement, France ;</i> <u>A.N.Kudryavtsev</u> , <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
17:20-17:40	Unsteadiness Effects at a Pulsed-periodic Energy Supply to Supersonic Flow <u>V.N.Zudov</u> , P.K.Tretyakov, and A.V.Tupikin, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
17:40-18:00	
18:00-18:20	

Minisymposium M1-1 Aeroacoustics. From Physics to Numerics and Back

Chaired by: Jerome Anthoine, Charles Hirsch, Tatiana Kozubskaya, Victor Kopiev

Time	Talk
10:40-11:00	The Problem of Active Noise Shielding in Composite Domains V.S.Ryaben'kii, <i>M.V.Keldysh Institute of Applied Mathematics RAS, Russia</i>
11:00-11:20	Sound Generation by Rigid Cylinder Inserted in Flow as a New Benchmark Problem for Airframe Noise V.F.Kopiev, N.N.Ostrikov, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i> ; Eric Manoha, and Marc Terracol, <i>ONERA, France</i>
11:20-11:40	Prediction of Incoming Turbulent Noise Using a Combined Numerical / Semi-Empirical Method and Experimental Validation J. Christophe, <u>Jerome Anthoine</u> , P.Rambaud, <i>Von Karman Institute, Belgium</i> ; Christophe Schram, <i>LMS, Belgium</i> ; F. Mathey, <i>ANSYS/Fluent, France</i> ; S. Moreau, <i>Valeo Motors and Actuators, France</i>
11:40-12:00	Sources of Noise, Generation and Propagation of Powerplant of New Generation Airplanes V.S.Baklanov, <i>Tupolev Design Bureau, Moscow, Russia</i>
12:00-12:20	Experimental Study of Propagation of Acoustic Waves Using the Hot-Wire Method V.A.Lebiga, A.Yu.Pak, V.N.Zinoviev, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
12:20-12:40	Sound and Pseudosound Generation in Turbulent Boundary Layers S.A.Rybak, <i>State Research Center "Andreyev Acoustics Institute", Russia</i>
12:40-13:00	To the Resonant Sound-Absorbing Structures Calculation Based on Impedance Method V.S.Baklanov, <u>S.S.Postnov</u> , E.A.Postnova, <i>Tupolev Design Bureau, Moscow, Russia</i>

Parallel Session S7-3Computational Fluid Dynamics, Validation in High Speed Flows, Multidisciplinary Optimization

Chaired by: Yury D.Shevelev, Alexander N. Kraiko

Time	Talk
10:40-11:00	Soft X-Rays Sources of X-pinch Type Based on the Supersonic Gas Jets <u>A.S.Boldarev</u> , S.V.D'yachenko, V.A.Gasilov, E.L.Kartasheva, A.Yu.Krukovskii, O.G.Olkhovskaya, <i>Institute for Mathematical Modelling RAS, Russia</i> V.I.Zaitsev, and G.S.Volkov, <i>Troitsk Institute for Innovation & Fusion Research, Russia</i>
11:00-11:20	Numerical Simulating 2D Plasma Dynamic Problems on the Base of Implicit Free Lagrange Method <u>N.V.Ardelyan</u> , V.L.Bychkov, K.V.Kosmachevskii, and M.N.Sablin, <i>M.V.Lomonosov Moscow State University, Russia</i>
11:20-11:40	Numerical Analysis of High-Altitude Aerodynamics the EXPERT Capsule P.Vashchenkov, A.Kashkovsky, <u>M.S.Ivanov</u> , <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
11:40-12:00	Strategies for Computing Second-Order Derivatives in CFD Design Problems Massimiliano Martinelli, <u>Alain Dervieux</u> , <i>INRIA Sophia Antipolis, France</i>
12:00-12:20	Optimal Design for Supersonic and Transonic Velocities A.N.Kraiko, <i>P. I. Baranov Central Institute of Aviation Motors (CIAM), Russia</i>
12:20-12:40	Absolutely Optimal Configurations with Maximum Lift-to-Drag Ratio at High Supersonic Flow Velocity <u>V.I.Lapygin</u> , and D.M.Fofonov, <i>Central Research Institute for Machine Building (TsNIIMASH), Russia, Russia</i>
12:40-13:00	Accelerated Method of Aerodynamic Shape Optimization for Supersonic Aircraft Design S.A.Takovitsky, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>

Parallel Session S3-1 Turbulent and Transient Flows, Boundary Layers, Shock-Boundary Layer Interactions

Chaired by: Igor I. Lipatov, Marco Marini

Time	Talk
10:40-11:00	CFD Analysis of the EXPERT Winglet in Plasma Wind Tunnel Conditions <u>Marco Marini</u> , and Sara Di Benedetto, <i>Centro Italiano Ricerche Aerospaziali (CIRA), Italy</i>
11:20-11:40	Investigation of Boundary Layer Laminar-Turbulent Transition on a Surface of Delta Wing in Hypersonic Flow V.N.Brazhko, A.V.Vaganov, N.A.Kovaleva, I.I.Lipatov, and A.S.Skuratov, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
11:40-12:00	Numerical and Experimental Investigation of Receptivity of Hypersonic Viscous Shock Layer to Natural and Artificial Disturbances T.V.Poplavskaya, A.A.Maslov, S.G.Mironov, I.S.Tsyryulnikov, <u>A.N.Kudryavtsev</u> <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia;</i> T.V.Poplavskaya, <i>with Novosibirsk State University, Russia</i>
12:00-12:20	The Structure of the Sound Field for a Round Cylinder Placed into a High-Speed Flow: Comparison of LES and DNS Approaches in the 2D Case Marc Terracol, <i>ONERA, France ;</i> <u>M.A.Sumbatyan</u> , <i>South Federal University, Russia</i>
12:20-12:40	CFD-Analysis of 3D Structure and Endwall Heat Transfer in a Transonic Blade Cascade: Effects of Grid Refinement A.M.Levchenya, and <u>E.M.Smirmov</u> , <i>St.-Peterburg State Polytechnical University, Russia</i>
12:40-13:00	

Minisymposium M1-2 Aeroacoustics. From Physics to Numerics and Back

Chaired by: Jerome Anthoine, Charles Hirsch, Tatiana Kozubskaya, Victor Kopiev

Time	Talk
15:40-16:00	Efficient Time Integration Algorithm for High-Order Spectral Volume Method on Unstructured Tetrahedral Grids M. Parsani, K. Van den Abeley, and <u>Chris Lacor</u> , <i>Vrije Universiteit Brussels, Belgium</i>
16:00-16:20	Computationally effective Discontinuous Galerkin scheme for Linearized Euler Equations Charles Hirsch, <i>NUMECA, Belgium</i> ; <u>V.Vlasenko</u> , A.Wolkov, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
16:20-16:40	On One Higher-Accuracy Vertax-Centered FV-Based Scheme for Computational Aeroacoustics I.V.Abalakin, A.P.Duben, A.M.Gorobets, <u>T.K.Kozubskaya</u> , S.A.Sukov, <i>Institute for Mathematical Modelling RAS, Russia</i>
16:40-17:00	Use of High Performance Computing for Simulations of Aerodynamically Generated Noise in Turbulent Separated Flows <u>A.Yu.Snegirev</u> , B.S.Grigoriev, S.V.Lupulyak, Yu.K.Shinder, K.Yu.Zamotin, <i>St.-Petersburg State Politechnical University, Russia</i>
17:00-17:20	CABARET Scheme for Non-Linear Aeroacoustic Problems <u>S. A. Karabasov</u> , <i>University of Cambridge, The Unired Kingdom</i> ; V.M.Goloviznin, <i>Nuclear Safety Institute (IBRAE) RAS, Russia</i>
17:20-17:40	Synthetic Models of Random Signals and Fields in Computational Aeroacoustics Problems <u>I.V.Borovskaya</u> , T.K.Kozubskaya, <i>Institute for Mathematical Modelling RAS, Russia</i> ; O.Kurbanmuradov, <i>Research Center for Physics and Mathematics (RCPM), Turkmen Universit, Ashgabad, Turkmenistan</i> ; K.K.Sabelfeld, <i>Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, Germany</i>
17:40-18:00	Transparent Boundary Conditions for Aeroacoustic Problems <u>I.L.Sofronov</u> , N.A.Zaitsev, O.V.Podgornova, <i>M.V.Keldysh Institute of Applied Mathematics RAS, Russia</i>
18:00-18:20	

Parallel Session S5 Shocks, Shock-Shock Interactions

Chaired by: Mikhail S. Ivanov, Herve Guillard

Time	Talk
15:40-16:00	Viscosity Effects on Steady Irregular Reflection of Shock Waves D. Khotyanovsky, Ye. Bondar, <u>A. Kudryavtsev</u> , G. Shoen, and M. Ivanov, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
16:00-16:20	Shock Wave Bifurcations and Self-Sustained-Waves in Vibrationally Nonequilibrium Gas R.N.Galimov, and <u>N.E.Molevich</u> , <i>P.N. Lebedev Physical Institute, Samara Branch, RAS, Samara State Aerospace University, Russia</i>
16:20-16:40	On the Structure of Shock Waves in a Two-Phase Isothermal System Herve Guillard, <i>INRIA Sophia-Antipolis, France</i>
16:40-17:00	Modelling of Shocks Propagation and Their Interactions on Dynamically Adapting Grids <u>P.V.Breslavskii</u> , and V.I.Mazhukin, <i>Institute for Mathematical Modelling RAS, Russia</i> ; M.M.Chuiko, <i>Institute of Mathematics NASB, Minsk, Belarus</i>
17:00-17:20	Low Velocities Analogues of Basic Components of High-Speed Flows <u>Yu.D.Chashechkin</u> , and R.N.Bardakov, <i>Institute for Problems in Mechanics RAS, Russia</i>
17:20-17:40	Flow Structure in the Forward Separation Zone on a Spiked Body for Pulsation Regime <u>V.I.Zapryagaev</u> , and I.N.Kavun, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
17:40-18:00	

Parallel Session S3-2 Turbulent and Transient Flows, Boundary Layers, Shock-Boundary Layer Interactions

Chaired by: Vladimir Zimont, Vladimir A. Aleksin

Time	Talk
15:40-16:00	Computation of Complex Unsteady Flows around Bluff-Bodies through VMS-LES Modeling Hilde Ouvrard, Bruno Koobus, <i>Universite de Montpellier II</i> ; Stephen Wornom, <i>Societe Lemma, France</i> ; <u>Alain Dervieux</u> , <i>INRIA Sophia-Antipolis, France</i> ; Simone Camarri, and Maria-Vittoria Salvetti, <i>Dipartimento di Ingegneria Aerospaziale, Italy</i>
16:00-16:20	Quasi-Hydrodynamic Model and Small Scale Turbulence B.N.Chetverushkin, S.V.Polyakov, and <u>I.A.Ivakhnenko</u> , <i>Institute for Mathematical Modelling RAS, Russia</i>
16:20-16:40	Singularities in 3D Laminar Boundary Layer and Flow Structure near a Sink Plane on Conical Surfaces V.Shalaev, <i>Moscow Institute of Physics and Technology (FizTeh), Russia</i>
16:40-17:00	Modelling of Turbulent Wall Flows under High-Free-Stream Turbulence Intensity and Pressure Gradient V.A.Aleksin, <i>Institute for Problems in Mechanics RAS, Russia</i>
17:00-17:20	Weakly Nonlinear Pulsation Models in Laminar and Turbulent Boundary Layers V.A.Zharov, <i>Moscow Institute of Physics and Technology (FizTeh), Russia</i>
17:20-17:40	Exactly Solvable Models of Nonstationary Turbulence in Superfluid Liquid P.Kuzmin, <i>M.V.Lomonosov Moscow State University, Russia</i>
17:40-18:00	Bifurcation and Buffet of Transonic Flow Past Airfoils and Projectiles A. Kuz'min, <i>M.V.Lomonosov Moscow State University, Russia</i>

Minisymposium M1-3 Aeroacoustics. From Physics to Numerics and Back

Chaired by: Jerome Anthoine, Charles Hirsch, Tatiana Kozubskaya, Victor Kopiev

Time	Talk
10:40-11:00	3D Structure and Noise of Supersonic Jets V.I.Zapryagaev, A.A.Maslov, S.Mironov, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
11:00-11:20	Velocity Dependence of the Near Field Pressure of a Subsonic Jet A. Guitton, P. Jordan and J. Delville, <i>Universite de Poitiers, France</i>
11:20-11:40	Numerical System for LES-based Jet-Noise Prediction: Validation and Application to Evaluation of Noise-Reduction Concepts M.L.Shur, M.Kh.Strelets, <i>St.-Petersburg State Polytechnical University, NTS, Russia;</i> P.R.Spalart, <i>Boeing, USA</i>
11:40-12:00	Jet Noise Modelling Using an Acoustic Analogy M.Z.Afsar, S.A.Karabasov, T.P.Hynes, A.P.Dowling, and E.de la Rosa Blanco, <i>University of Cambridge, The United Kingdom</i>
12:00-12:20	Noise at Supersonic Jet Interaction with a Deflector V.V.Koudriavtsev, A.V.Safronov, <i>Central Research Institute for Machine Building (TsNIIMASH), Russia</i>
12:20-12:40	Self-Oscillatory Regimes of the Sonic Jet/Flat Plate Interaction: Theoretical Predictions vs. Experimental Data O.Bocharova, M.G.Lebedev, <i>M.V.Lomonosov Moscow State University, Russia</i>
12:40-13:00	

Minisymposium M3Multiphysics Modeling, simulating and optimizing: from theory to aerospace engineering applications

Chaired by: Jacques Periaux, David Zeitoun

Time	Talk
12:20-12:40	Test Design Methodologies for Flight Relevant Plasma Wind Tunnel Experiments Marco Marini, S.Di Benedetto, G.C.Rufolo, M.Di Clemente, and S.Borrelli, <i>Centro Italiano Ricerche Aerospaziali (CIRA), Italy</i>
12:40-13:00	

Minisymposium M2-1 Meso, Micro and Nanotechnology in aerospace applications

Chaired by: Alexey N. Kudryavtsev, Irina A.Graur, David Zeitoun

Time	Talk
10:40-11:00	Flow and Heat Transfer Research in Micro- and Nano-Channels V.L.Kovalev, and A.N.Yakunchikov, <i>M.V.Lomonosov Moscow State University, Russia</i>
11:00-11:20	Shock Waves at Microscales D.E.Zeitoun, Y.Burtschell, I.A.Graur, M.S.Ivanov, E.A.Bondar, and A. N.Kudryavtsev, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>
11:20-11:40	An Expression That is Valid from Continuum to Free Molecular Regime for the Flow-Rate in a Long Channel J.-Cl.Lengrand, <i>Labaratoire d'Aerothermique du CNRS, France;</i> T.Elizarova, <i>Institute for Mathematical Modelling RAS, Russia</i>
11:40-12:00	Informal Segregated Algorithm for Simulation of Fluid Flows in Micro Liquid-Propellant Engine S.I.Martynenko, and L.S.Yanovskiy, <i>P. I. Baranov Central Institute of Aviation Motors (CIAM), Russia</i>
12:00-12:20	

Parallel Session S2 Real and Chemically Reacting Gases

Chaired by: V.A. Sabel'nikov, V.L. Kovalev

Time	Talk
10:40-11:00	Self-Ignition of Ethylene/Hydrogen Mixtures in Unsteady Thermal Choking Conditions: Numerical Unsteady RANS Investigation E.George, <u>V.Sabel'nikov</u> , and P.Magre, <i>ONERA-Palaiseau, France</i>
11:00-11:20	Modelling Results on Physical and Chemical Processes in Thermally Nonequilibrium High-Temperature Gas S.A.Losev, <i>Institute of Mechanics, MSU, Russia</i>
11:20-11:40	Determination of the Vibrational Temperature of Molecular Oxygen behind the Shock Wave Front Using Absorption Characteristics in the Schumann-Runge System <u>L.B.Ibraguimova</u> , N.G.Bykova, I.E.Zabelinskii, L.A.Kuznetsova, and O.P.Shatalov, <i>Institute of Mechanics, MSU, Russia</i>
11:40-12:00	Investigation of Heterogeneous Recombination of Oxygen Atoms on the Si-based Surfaces V.L.Kovalev, <i>M.V.Lomonosov Moscow State University, Russia</i> ; <u>M.Ju.Pogosbekian</u> , <i>Institute of Mechanics, MSU, Russia</i>
12:20-12:40	Electric Discharge in Supersonic Flow <u>V.A.Biturin</u> , A.N.Bocharov, <i>Joint Institute of High Temperatures RAS, Russia</i> ; N.A.Popov, <i>M.V.Lomonosov Moscow State University, Russia</i>
12:40-13:00	3-D Structure of Hydrogen Flame in Supersonic High-Enthalpy Flow <u>V.A.Zabaykin</u> , and A.A. Smogolev, <i>Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Russia</i>

Parallel Session S8 High Performance Parallel Computing

Chaired by: Alexey V. Zabrodin, Toan Nguyen

Time	Talk
15:40-16:00	Parallel Iterative Methods for Solving Elliptic Equations on Triangular and Tetrahedral Grids <u>O.Yu.Milyukova</u> , and I.V.Popov, <i>Institute for Mathematical Modelling RAS, Russia</i>
16:00-16:20	Numerical Investigation of Flying Vehicles Aerodynamics on Multiprocessor Computing Systems A.E.Lutskiy, <u>I.Menshov</u> , and A.V.Zabrodin, <i>M.V.Keldysh Institute of Applied Mathematics RAS, Russia</i>
16:20-16:40	Parallel Mesh Generation S.V.Polyakov, I.V.Popov, and <u>I.V.Sedykh</u> , <i>Institute for Mathematical Modelling RAS, Russia</i>
16:40-17:00	Virtual Collaborative Platforms for Large Scale Multiphysics Problems <u>Toan Nguyen</u> , <i>INRIA, France</i> Jacques Periaux, <i>CIMNE/UPC, Barcelona, Spain</i>
17:00-17:20	Parallel Computation of Radiation Transport Around Reentry Vehicle S.V.Polyakov, <u>T.A.Kudryashova</u> , A.Kononov, and A.Sverdlin, <i>Institute for Mathematical Modelling RAS, Russia</i>
17:20-17:40	Parallel Program Complex for Unsteady Flow Simulation <u>Eu.V.Shilnikov</u> , <i>Institute for Mathematical Modelling RAS, Russia</i>
17:40-18:20	Using of Dynamic Meshes in FLUENT CFD Software <u>I.Skryabin</u> , <i>Process Flow Ltd., Finland</i>

Minisymposium M2-2 Meso, Micro and Nanotechnology in aerospace applications

Chaired by: Svetlana Smotrova, E.V.Yurtov

Time	Talk
15:40-16:00	Chemical Technology of Nanomaterials and Nanoeducation in the Mendeleev University V.Yurtov, <i>Mendeleev University of Chemical Technologu, Russia</i>
16:00-16:20	Investigation of the Strength Characteristics of the Nanocrystal material Based on the Dioxide Zirconium Monocrystalline Partly Stabilized by Yttrium Oxide A.Mel'shanov, G.Moskvitin, M.Pugachev, <i>MERI RAS, Russia</i>
16:20-16:40	Implementing Plymer Composite Materials with Embeded Nanoinclusions for Manufacturing Dynamically Similar Models V.Osipchik, <i>Mendeleev University of Chemical Technologu, Russia</i> ; I.Odintsev, <i>Blagonravov Mechanical Engineering Research Institute RAS, Russia</i> ; <u>S.Smotrova</u> , <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i>
16:40-17:00	Implementing Optical Interferometric Techniques to Residual Stresses Characterisation in Surface Coatings V.Pisarev, A.Chernov, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI), Russia</i> ; I.Odintsev, <i>Blagonravov Mechanical Engineering Research Institute RAS, Russia</i> ;
17:00-17:20	The Nanotechnology Use for Conception Development of Durability Increase of Aviation Structural Components A.Dotsenko, L.Teperin, <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI),</i>
17:20-17:40	
17:40-18:00	
18:00-18:20	

Parallel Session S9 Fluid-Structure Interaction

Chaired by: A. Aksenov, CAO Pingkuan

Time	Talk
10:40-11:00	Modeling Fluid Structure Interaction for Aerospace Applications <u>A.Aksenov</u> , <i>TESIS, Russia</i> ; A.Garipov, <i>Kazan helicopter plant, Russia</i> ; V.Shmelev, <i>CAPVIDIA, Russia</i>
11:00-11:20	Dynamic Response Analysis of Wing Based on Modal Coupling Scheme <u>CAO Pingkuan</u> , CHENG Shuiyan, YAN Hong, and LI Zhongwu, <i>ACTRI/AVICI, China</i>
11:20-11:40	Vortex Structure Generation on the Frontal Surface of the Cylinder in the Transversal Hypersonic Flow <u>S.Drozдов</u> , <i>N.E.Zhukovsky Central Institute of Aerohydrodynamic Research (TsAGI),, Russia</i>
11:40-12:00	

Minisymposium M4 Investigation of Civil Aircraft Technology in China

Chaired by: ZHOU Lei

Time	Talk
10:40-11:00	Aerodynamic Optimization of Multi-element Airfoils by Genetic Algorithms <u>DENG Yiju</u> , DUAN Zhuo-Yi, ZHAN Hao, <i>FAI/AVICI, China</i>
11:00-11:20	The Investigation of Fluid and Structure Data Exchange Methods in Aeroelasticity <u>GUO Chengpeng</u> , DONG Jun, YANG Qinghua, LI Junpu, ZHANG Tiejun, <i>CARIA/AVICI, China</i>
11:20-11:40	Computation and Wind Tunnel Testing Validation of Whole Complex Configuration Aircraft in High-speed Flow <u>WANG Junhong</u> , CHEN Yingchun, FENG Lijuan, LIU Tiejun, ZHOU Tao, <i>FAI/AVICI, China</i>
11:40-12:00	A New Apparatus of Dynamic Stability Derivatives Measurement in 1.2m High-Speed Wind Tunnel <u>PAN Jinzhu</u> , <i>CARIA/AV, China</i>

Parallel Session S10 System Design and Manned/Unmanned Vehicle Concepts

Chaired by: Jean-Pierre Taran, V.I. Lapygin

Time	Talk
10:40-11:00	Hypersonic Aerothermal Environment Preliminary Definition of the CIRA FTB-X Reentry Vehicle G. Pezzella, F. Battista, A. Schettino, <u>M. Marini</u> , and P. De Matteis, <i>Centro Italiano Ricerche Aerospaziali (CIRA), Italy</i>
11:00-11:20	A New Flush Air Data System for Hypersonic Vehicle, Design, Wind Tunnel Test, and Flight Test <u>GUO Yi</u> , and TING Wan, <i>CADI/AVICI, China</i>
11:20-11:40	Stabilization of Disturbed Motion's Trajectories in Symmetrization of Phase Limitations <u>V.N.Pilishkin</u> , <i>Bauman Moscow State University, Russia</i>