

3rd Colloquium on
Separation control in high-speed flows – mechanisms, methods, and application

Day 1: 3.9.2025	
8:00 – 9:00	Registration
9:00 – 9:15	Opening
9:15 – 10:30	Keynote 1: Stefan Hickel , <i>Technische Universiteit Delft, The Netherlands</i> On shock-wave/boundary-layer interactions
10:30 – 11:00	Coffee break
11:00 – 11:30	Session 1: Phenomena, structures, and mechanisms in high-speed flows with separation Session chair: Holger Babinsky, University of Cambridge, UK S. Vayala ¹ , K. Ramachandra ² , K. Abhishek ¹ , N. R. Vadlamani ¹ , R. Sriram ¹ <i>1Department of Aerospace Engineering, Indian Institute of Technology Madras, Chennai, India</i> <i>2Department of Engineering, University of Cambridge, Cambridge, United Kingdom</i> Unsteadiness in bow shock induced 3 dimensional separation
11:30 – 12:00	Vinicius Sepetauskas ^{1,2} , Sebastien Piponniau ² , Daniel Mazzoni ³ , Muriel Amielh ³ and Pierre Dupont ² <i>1CNES, Space Transportation Directorate - Paris, France,</i> <i>2Aix Marseille University, CNRS, IUSTI, Marseille, France,</i> <i>3Aix Marseille University, CNRS, ECM, IRPHE, Marseille, France</i> Free Shock Separation with Acoustic Downstream Excitation
12:00 – 12:30	Skander Kamoun , Thorsten Lutz <i>University of Stuttgart, Institute of Aerodynamics and Gas Dynamics, Stuttgart, Germany</i> Numerical Investigation of the Influence of Small-Scale Structural Vibration on the Transonic Buffet for a Generic Airplane Configuration
12:30 – 13:45	Lunch break
13:45 – 14:15	Christopher Schauerte ¹ , Anne-Marie Schreyer ² <i>1 Institute of Aerodynamics, RWTH Aachen University, Germany</i> <i>2 Hochschule München University of Applied Sciences, Munich, Germany</i> Turbulent wake interaction under the influence of transonic buffet
14:15 – 14:45	Plenary discussion 1
14:45 – 16:00	Keynote 2: Shashi Bhushan Verma , <i>National Aerospace Laboratories, Bangalore, India</i> Studies on Shock/Boundary-Layer Interaction Control in NAL
16:00 – 16:30	Coffee break
16:30 – 17:00	Session 2: Physics of control Session chair: Deepak Prem Ramaswamy, University of the Bundeswehr Munich, Germany Luis Laguarda , Kjeld Teunissen, Francisco Dores, Stefan Hickel <i>Department of Flow Physics and Technology, Faculty of Aerospace Engineering, TU Delft, The Netherlands</i> STBLI control with actuated jets and perforated walls
17:00 – 17:30	Lukasz Klotz <i>Institute of Aeronautics and Applied Mechanics (IAAM), Warsaw University of Technology, Warsaw, Poland</i> Experiments on a jet in a crossflow in the low-velocity-ratio regime

17:30 – 18:00	Kannan Ramachandra , Luke Waddell, Holger Babinsky <i>Department of Engineering, University of Cambridge, Cambridge, United Kingdom</i> Control Bump for a Ramp-induced SBLL – A Discussion of the Flow Physics
18:00 – 18:30	Plenary discussion 2
18:30 – 18:40	Concluding remarks

Day 2: 4.9.2025	
08:30 – 09:45	Keynote 3: Marlyn Y. Andino , NASA Langley Research Center, Hampton, VI, USA Aerodynamic Performance Improvement: Active Flow Control Application on the NASA CRM-HL Aileron
09:45 – 10:15	Session 3: Active and passive control methods and potential of current control approaches to technical applications Session chair: Datta Gaitonde, The Ohio State University, Columbus, OH, USA Stefan Hayböck , Christian Breitsamter <i>Chair of Aerodynamics and Fluid Mechanics, Technical University of Munich, Garching, Germany</i> Implementation of an Active Flow Control System on a Short-Inlet Ultra-High Bypass Ratio Engine Nacelle
10:15 – 10:45	Farrukh Alvi ¹ , Rajan Kumar ¹ , Datta Gaitonde ² <i>1 Department of Mechanical Engineering, Florida Center for Advanced Aeropropulsion, FAMU-FSU College of Engineering, Florida State University, USA</i> <i>2 Department of Mechanical and Aerospace Engineering, Ohio State University, USA</i> Active Control in Supersonic Flows – Actuators and Applications
10:45 – 11:15	Coffee break
11:15 – 11:45	Joachim Klinner , Edwin Munoz Lopez, Alexander Hergt, Christian Willert <i>Institute of Propulsion Technology German Aerospace Center (DLR), Köln, Germany</i> High-Speed Schlieren and PIV in a Transonic Compressor Cascade with Shock Control Bumps
11:45 – 12:15	Ahmed H. Hanfy ¹ , Paweł Flaszynski ² , Piotr Doerffer ³ , Piotr Kaczynski ⁴ <i>Institute of Fluid-Flow Machinery, Polish Academy of Sciences (IMP PAN), Gdansk, Poland</i> Investigation of surface texture effect on shock wave boundary layer interaction on transonic fan profile
12:15 – 12:45	Plenary discussion 3
12:45 – 13:45	Lunch
13:45 – 15:00	Keynote 4: Paweł Flaszynski <i>Institute of Fluid Flow Machinery, Polish Academy of Sciences, Gdansk, Poland</i> Passive flow control to mitigate the effects of boundary layer separation
15:00 – 15:30	Session 4: Successful collaborations between experimental and numerical approaches Session chair: Farrukh Alvi, Florida State University, Tallahassee, FL, USA Gazi Hasanuzzaman and Christoph Egbers <i>Department of Aerodynamics and Fluid Mechanics, Brandenburg University of Technology Cottbus-Senftenberg, Cottbus, Germany</i> Data-Driven Reconstruction of Coherent Structures in Complex Shear Flows with Wall-Normal Uniform Blowing

15:30 – 16:00	Vanessa Rubien¹, Christopher Schauerte², Anne-Marie Schreyer³, Iván Bermejo-Moreno¹ <i>1 University of Southern California, Los Angeles, USA</i> <i>2 Institute of Aerodynamics, RWTH Aachen University, Germany</i> <i>3 Hochschule München University of Applied Sciences, Munich, Germany</i> From wind tunnel to large-eddy simulation: A collaborative study of transonic buffet dynamics over a supercritical airfoil
16:00 – 16:30	Plenary discussion 4
16:30 – 16:45	High-speed coffee break
16:45 – 19:00	City tour
19:00 – 23:00	Conference dinner

Day 3: 5.9.2025	
09:00 – 10:15	Keynote 5: Neil Sandham, <i>University of Southampton, UK</i> Numerical simulations of transitional separation bubbles in transonic, supersonic and hypersonic flows: identification of mechanisms relevant to flow control
10:15 – 10:45	Coffee break
10:45 – 11:15	Session 5: Methods and approaches for the analysis of SWBLI and separation control Session chair: Luis Laguarda, TU Delft, The Netherlands Joshua Langfield, Kshitij Sabnis <i>School of Engineering and Materials Science, Queen Mary University of London, UK</i> Enhancing the Effective Temporal Resolution of Schlieren Imaging for Studies of Separation Control Concepts
11:15 – 11:45	Tim Rödiger <i>Chair of Fluid Mechanics, Heat Transfer, and Energy, UAS Landshut, Germany</i> Atomic Layer Thermopiles - Fast response heat-flux and temperature sensors for the investigation of high-speed flow phenomena
11:45 – 12:15	Edwin J. Munoz Lopez, Alexander Hergt, Christian Voss <i>German Aerospace Center (DLR), Institute of Propulsion Technology, Cologne, Germany</i> Advanced optimization techniques for the mitigation of shock-boundary layer interactions via flow control methods
12:15 – 12:45	Plenary discussion 5 Concluding remarks
12:45 – 15:00	Lunch & Further discussion