# PROGRAM

ICEFM 2025 Niagara on the Lake

# 6th INTERNATIONAL CONFERENCE ON EXPERIMENTAL FLUID MECHANICS

**May 20 – 22, 2025**

Queen's Landing Hotel

**Niagara-on-the-Lake**

Ontario, Canada

# PROGRAM AT A GLANCE

| Monday, May 19th | |
|---|---|
| 16:00-20:00 | Registration |

| Tuesday, May 20th | | | |
|---|---|---|---|
| 7:30-8:30 | Registration | | |
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| 8:30-9:00 | Opening ceremony | | |
| 9:00-10:00 | Keynote: Kähler | | |
| 10:00-10:30 | Coffee break | | |
| 10:30-11:50 | Flow Meas. Tech. I | Env. Fluid Mech. | Fluid-Struct. Int. |
| 11:50-13:30 | Lunch | | |
| 13:30-14:30 | Keynote: Mulleners | | |
| 14:30-15:30 | Aerodynamics I | Flow Cont. & Drag Red. I | Aeroacoustics |
| 15:30-16:00 | Coffee break | | |
| 16:00-18:00 | City walking tour | | |
| 18:30-21:00 | Welcome reception and poster session | | |

| Wednesday, May 21st | | | |
|---|---|---|---|
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| 9:00-10:00 | Keynote: Kotsonis | | |
| 10:00-10:30 | Coffee break | | |
| 10:30-11:50 | Aerodynamics II | Turbulent Flows I | Flow Meas. Tech. II |
| 11:50-13:30 | Lunch | | |
| 13:30-14:30 | Keynote: Cattafesta | | |
| 14:30-15:30 | Flow Cont. & Drag Red. II | Turbulent Flows II | Aerodynamics III |
| 15:30-16:00 | Coffee break | | |
| 16:00-17:00 | Instability & Transition | Turbulent Flows III | Micro & Nano Fluidics |
| 18:30- 21:00 | Gala dinner | | |

| Thursday, May 22nd | | | |
|---|---|---|---|
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| 9:00-10:00 | Keynote: Kim | | |
| 10:00-10:30 | Coffee break | | |
| 10:30-12:10 | Flow Meas. Tech. III | Multiphase Flows | Heat & Mass Transfer |
| 12:10-12:30 | Closing ceremony | | |
| 12:30-13:30 | Lunch | | |

# Welcome

On behalf of the Organizing Committee, it is our distinct pleasure to welcome you to the 6th International Conference on Experimental Fluid Mechanics (ICEFM 2025), held in the picturesque town of Niagara-on-the-Lake, Canada.

ICEFM is a leading international forum dedicated to showcasing the latest advances in experimental fluid mechanics and cutting-edge experimental techniques. Following successful editions in Chengdu (1991), Torino (1994), Moscow (1997), Beijing (2014), and Munich (2018), we are delighted to host the conference's long-awaited North American debut—a milestone delayed by the global COVID-19 pandemic.

This year's program features a dynamic lineup of 66 oral presentations and 12 posters, reflecting the depth and diversity of ongoing research in our field. We are also honored to present five invited lectures from internationally recognized leaders in experimental fluid mechanics which will be delivered by Christian Kähler (University of Bundeswehr Munich, Germany), Karen Mulleners (EPFL, Switzerland), Marios Kotsonis (TU Delft, Netherlands), Louis Cattafesta (Illinois Institute of Technology, USA), and Hyoungsoo Kim (KAIST, South Korea)

The technical sessions span a wide range of topics, including Flow measurement techniques, aerodynamics, environmental fluid mechanics, fluid-structure interactions, flow control, aeroacoustics, instability and transition, turbulence, micro- and nanofluidics, compressible flows, data-driven modeling, multiphase flows, and heat and mass transfer.

We warmly welcome you to ICEFM 2025 and hope you find the conference intellectually stimulating and professionally rewarding. May your time here be enriched by fruitful discussions, new collaborations, and the charm of the Niagara Region.

# Organizing Committee

| | | |
|---|---|---|
| **Chairs** | Serhiy Yarusevych | *University of Waterloo* |
| | Christopher Morton | *McMaster University* |
| **Members** | Jovan Nedić | *McGill University* |
| | Sina Ghaemi | *University of Alberta* |
| | John Kurelek | *Queen's University* |
| | Sean Peterson | *University of Waterloo* |
| | Philippe Lavoie | *University of Toronto* |

# Steering Committee

| | |
|---|---|
| Jinjun Wang | *Beihang University* |
| Christian Kähler | *University of Bundeswehr Munich* |
| Ivan Marusic | *University of Melbourne* |
| Michael Plesniak | *George Washington University* |
| Serhiy Yarusevych | *University of Waterloo* |

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# INFORMATION

## WiFi

**SSID:** Queen's Landing **Password:** conference

## Speakers

- Regular talks are 15 minutes long, followed by 4 minutes for questions and 1 minute for speaker transition. Keynote presentations are 40 min long, preceded by an introduction and followed by 10 min for questions and discussion.
- Speakers should arrive early at their session and introduce themselves to the session chair.
- Speakers are to use their own computer for the presentation. All rooms will be equipped with a full-size HDMI connection to the projector.
- It is advisable to test your presentation in your session room ahead of time.

## Sessions Chairs

- Chairs should arrive early to their sessions, identify the speakers and explain how the session will be run.
- Chairs are responsible for introducing the speakers, facilitating the question period, and ensuring the session proceeds on time.
- If a speaker is absent or a talk is withdrawn, the chair is to suspend the session until the next scheduled presentation
- Above all, chairs are to ensure the session adheres to the schedule so that attendees may move between the parallel sessions as expected.

## Poster Presentations

- Posters can be mounted on Tuesday May 20th any time between 16:00 and 18:00 in the Exhibitor Hall, in advance of the poster session that begins at 18:30.
- The conference staff will provide supplies required for mounting posters and will be onsite to assist.

# EXHIBITORS

# Keynote Speakers

## Christian Kähler

Universität der Bundeswehr München, Germany

**Near-Wall Flow Measurements – Challenges and Solutions**

Tues. May 20th 9:00 – 10:00 Grand Georgian

## Karen Mulleners

École Polytechnique Fédérale de Lausanne, Switzerland

**Getting in shape overnight with self-exploring automated experiments**

Tues. May 20th 13:30 – 14:30 Grand Georgian

## Marios Kotsonis

Delft University of Technology, the Netherlands

**Smooth surface modifications for passive laminar flow control: recent results and future steps**

Wed. May 21st 9:00 – 10:00 Grand Georgian

## Louis Cattafesta

Illinois Institute of Technology, USA

**Kinematic Decomposition of Three-Dimensional Particle Tracking Velocimetry Data**

Wed. May 21st 13:30 – 14:30 Grand Georgian

## Hyoungsoo Kim

Korea Advanced Institute of Science & Technology, South Korea

**The Marangoni Effect: From Macroscopic to Microscopic Perspective**

Thurs. May 22nd 9:00 – 10:00 Grand Georgian

# PROGRAM

| Tuesday, May 20th | | | |
|---|---|---|---|
| 7:30 – 8:30 | Registration | | |
| | **Grand Georgian** | | |
| 8:30 – 9:30 | Opening Ceremony | | |
| 9:00 – 10:00 | **Keynote** **Christian Kähler** *Universität der Bundeswehr München*<br>Chair: Michael Plesniak Near-Wall Flow Measurements - Challenges and Solutions | | |
| 10:00 – 10:30 | Coffee break | | |
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| | **Flow Measurement Techniques I**<br>Chair: David Nobles | **Environmental Fluid Mechanics**<br>Chair: Jason Hearst | **Fluid-Structure Interaction**<br>Chair: Melissa Green |
| 10:30 – 10:50 | Comparison of Focusing Schlieren Variants and Conventional Schlieren<br>*P. Lax, S. Leonov* | A Novel Gust Generator Embedded in a Synchronized Measurement Scheme Based on Optical and Standard Methods<br>*J. Wood, M. Breuer* | Parametric Study on Gust-Forced Stall Flutter<br>*X. Zhang, D. Poirel, W. Yuan* |
| 10:50 – 11:10 | AI-Assisted 3D Defocusing Particle Tracking for Particle Classification in an Acoustofluidic Microchannel<br>*C. Cierpka, S. Sachs, M. Ratz, J. König* | Turbulent Vertical Mixing at a Density Interface<br>*G. Garibaldi, A. Di Bernardino, G. Leuzzi, G. Querzoli* | Successive Impact of Two Vortex Rings on a Flat Wall<br>*T. Ahmed, S. Peterson, B. Erath* |
| 11:10 – 11:30 | Volumetric Spectral POD Modes of Jets Using Low Sampling Rate Planar Particle Image Velocimetry<br>*Y. Zhang, L. Cattafesta* | Coherent Structure Development in Density-Stratified Mixing Layers<br>*M. Vocke, R. Kapulla, C. Morton* | Hysteretic Transition in Vortex-Induced Vibrations: Insights from PIV And Synchronised Force Data<br>*S. Rangarajan, N. Ramesh, S. Yarusevych, C. Morton* |
| 11:30 – 11:50 | On the Modified (N+1)D Laplacian for Smooth Pressure Reconstruction Based on Time-Resolved Velocimetry: Theoretical and Experimental Analysis on Lavision's 4D Pressure Solver<br>*J. Zhang, Z. Pan, N. Sakib, B. Smith* | Measurements of Total Eclipse Impact on the Atmospheric Boundary Layer<br>*S. Bailey, R. Nolin, S. Smith, C. Vezzi* | Force Decomposition in Experimental Turbulent Flow Fields Using POD<br>*H. Bamboowala, C. Morton* |

| Tuesday, May 20th | | | |
|---|---|---|---|
| | **Tiara Restaurant** | | |
| 11:50 – 13:30 | Lunch | | |
| | **Grand Georgian** | | |
| 13:30 – 14:30 | **Keynote** **Karen Mulleners** *École Polytechnique Fédérale de Lausanne*<br>Chair: Ramis Örlü Getting in shape overnight with self-exploring automated experiments | | |
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| | **Aerodynamics I**<br>Chair: Sean Bailey | **Flow Control and Drag Reduction I**<br>Chair: Christian Kähler | **Aeroacoustics**<br>Chair: Jovan Nedić |
| 14:30 – 14:50 | Force Measurements on Decelerating and Pitching Bird Wings<br>*T. Rottier, B. Parslew, P. Lavoie* | Bursting of a Laminar Separation Bubble on a Dynamically Pitching Airfoil with Periodic Forcing<br>*C. Toppings, T. Michelis, M. Kotsonis, S. Yarusevych* | Noise Signatures of a Controlled-Diffusion Airfoil<br>*C. Morency, J. Rendon-Arredondo, S. Moreau* |
| 14:50 – 15:10 | Aerodynamic Loading on Rotor Sails: Reynolds Number, Velocity Ratio, and Tip Effects<br>*S. Pieris, A. Rius-Vidales, A. Rijkens, J. Kurelek, M. Hultmark* | Adaptive Control of Turbulent Wall-Bounded Flows<br>*G. Dacome, M. Kotsonis, W. Baars* | Tonal Noise of a Controlled-Diffusion Airfoil<br>*C. Morency, J. Rendon-Arredondo, S. Moreau* |
| 15:10 – 15:30 | Periodic Impulse Forcing of a Laminar Separation Bubble on a NACA0018 Airfoil<br>*N. Papanikolatos, T. Michelis, M. Kotsonis, S. Yarusevych* | AI-Driven Open and Closed-Loop Control of a Circular Cylinder Wake via Synthetic Jets<br>*A. Scala, G. Paolillo, C. Greco, T. Astarita, G. Cardone* | Disruption of Flow-Induced Noise from a Bluff Body<br>*R. Noufal, H. Kishawy, A. Mohany* |
| 15:30 – 16:00 | Coffee break | | |
| 16:00 – 18:00 | City walking tour | | |
| | **Exhibitor Hall** | | |
| 18:30 – 21:00 | Welcome reception and poster session | | |

| Tuesday, May 20th | |
|---|---|
| 18:30 – 21:00 | **Poster Session – Exhibitor Hall** |
| P1 | On The Falling and Impact Dynamics of Soap Bubbles<br>*H. Kou, C. Fowler, S. Jung* |
| P2 | High-Power Tests on a Gyrotron Cavity Mock-up Equipped with Minichannels for Validation of the Thermal Simulation Model<br>*R. Bertazzoni, S. Illy, J. Jelonnek, S. Ruck, S. Stanculovic, M. Thumm, C. Wu* |
| P3 | Fringe Around a Beet Slice: Wetting-Induced Dimple in a Thin Liquid Film<br>*J. Chen, Z. Liu, S. Jung* |
| P4 | Study of Density and Velocity Distribution of Plasma Jets Based on Nomarski Polarization Interference Method<br>*Z. Qu, Y. Deng, S. Tang, X. Yu, S. Zhang, H. Wang* |
| P5 | Study on the Femtosecond Laser Ablation Characteristics of GAP-Coated Nano-Aluminum<br>*Y. Deng, Z. Qu, S. Tang, X. Yu, S. Zhang, X. Lin* |
| P6 | Design And Construction of a Water Loop Facility for the Investigation of Rib-Roughened Circular Pipes<br>*I. Mercado, S. Ruck* |
| P7 | Inferring The Size of Droplets from Impact Force Measurement<br>A. Offner |
| P8 | Horizontal Drift and Rotation of Complex-Shaped Rods Settling at Low Reynolds Numbers in a Quiescent Fluid<br>*A. Hamidi, R. Hanson, L. Jantunen, M. Gordon* |
| P9 | Source Control Efficiency of Child Masking<br>*H. Khayri, S. Yarusevych, S. Peterson* |
| P10 | Aerodynamics of a Finite-Span Flat Plate in Ground Effect During a Sudden Wind Direction Change<br>*S. Pieris, S. Yarusevych, S. Peterson* |
| P11 | Experimental Design for PIV Characterization of Rod-Bundle Cross-Flow in a Transparent Immersion Heat Exchanger<br>*H. Bamboowala, R. Chen, C. Morton* |
| P12 | Exploring Impulse Enhancement of a Train of Vortex Rings via the Vortex Nozzle Effect<br>*E. Liu, S. Peterson* |

| Wednesday, May 21st | | | |
|---|---|---|---|
| | **Grand Georgian** | | |
| 9:00 – 10:00 | **Keynote** **Marios Kotsonis** *Delft University of Technology*<br>Chair: Hui Hu Smooth surface modifications for passive laminar flow control: recent results and future steps | | |
| 10:00 – 10:30 | Coffee break | | |
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| | **Aerodynamics II**<br>Chair: Philippe Lavoie | **Turbulent Flows I**<br>Chair: Stéphane Moreau | **Flow Measurement Techniques II**<br>Chair: Byron Erath |
| 10:30 – 10:50 | Wings That Sing: Laminar Separation Suppression via Acoustic Forcing on a Wall-Bounded Wing<br>*C. Klewicki, A. Schenkman, G. Spedding* | 3D Reconstruction of a Stepped Cylinder Wake through Scanning Stereo-PIV<br>*C. Meglio, G. Perez, V. Pulletikurthi, G. Paolillo, R. Örlü, P. Schlatter, C. Greco* | Towards Simultaneous Spray Sizing, 3D Positioning, and Velocimetry Using Astigmatic Interferometric Droplet Imaging<br>*A. Rostami, R. Li, S. Kheirkhah* |
| 10:50 – 11:10 | The Effect of Localized Roughness on Laminar Separation Bubbles<br>*N. Liu, S. Yarusevych* | Analysis of a Cylinder Wake Immersed in a Turbulent Boundary Layer<br>*M. Green, R. Ribeiro, J. Nichols, E. Longmire* | Visualization of 3D Acoustic Streaming Flow Induced by Longitudinal Metal Spine-Shaped Fin Using Digital Defocus Particle Streak Velocimetry with Gradient Illumination<br>*T. Yang, W. Li, W. Tien* |
| 11:10 – 11:30 | Dynamic Response of a Free-Flying Airfoil to Prescribed Vortex Gusts<br>*E. Handy-Cardenas, K. Breuer* | Water-Tunnel Investigation of Geometry-Induced Separation of a Turbulent Boundary Layer<br>*M. Costantini, C. Klein, A. De Vincenzo, R. Geisler, J. Lemarechal, D. Schanz, A. Schröder, T. Knopp, C. Grabe, M. Miozzi* | An Open Source Solver for Background-Oriented Schlieren-Based Density and Temperature Field Reconstruction by Low-Mode Error Modeling<br>*C. Pryce, Z. Pan* |
| 11:30 – 11:50 | Effect of End-Wall Gap on Low Reynolds Number Airfoil Performance<br>*J. John, C. Toppings, S. Yarusevych* | Scaling Turbulence Intensity and Length-Scale with Grid Characteristic<br>*L. Lavoie, J. Nedić* | Robust Planar and Stereo PIV with Neural Optical Flow<br>*A. Masker, K. Zhou, J. Molnar, S. Grauer* |

| Wednesday, May 21st | | | |
|---|---|---|---|
| | **Tiara Restaurant** | | |
| 11:50 – 13:30 | Lunch | | |
| | **Grand Georgian** | | |
| 13:30 – 14:30 | **Keynote** **Louis Cattafesta** *Illinois Institute of Technology*<br>Chair: Christian Cierpka Kinematic Decomposition of Three-Dimensional Particle Tracking Velocimetry Data | | |
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| | **Flow Control and Drag Reduction II** Chair: Marios Kotsonis | **Turbulent Flows II** Chair: Matt Bross | **Aerodynamics III** Chair: Marco Constantini |
| 14:30 – 14:50 | Control of Turbulent Separation in a Forward Facing Step<br>*C. Manisankar, D. Ramaswamy, A. Schreyer* | The Wake Structure Behind a Three-Dimensional Hill Geometry<br>*D. MacGregor, P. Lavoie* | Testing of a Lab-Scale Tidal Turbine: Blade Misalignment Effects on Rotor Performance<br>*S. Brinkmann, R. Willden, C. Vogel* |
| 14:50 – 15:10 | Gradient-Enriched Machine Learning Control of Wingtip Vortices via Synthetic Jets<br>*A. Scala, V. Panico, G. Paolillo, C. Greco, T. Astarita, G. Cardone* | Experimental Investigation of Turbulent Flow Separation on the Beverli Hill<br>*N. Sa'adeh, D. MacGregor, P. Lavoie* | Experimental Analysis of Wake Dynamics: Detailed Versus Simplified Geometry of a Mine Fleet Heavy Hauler Truck<br>*H. Khanjari, A. Hamidi, R. Hanson, P. Makar, S. Fathi, S. Miller, R. Staebler* |
| 15:10 – 15:30 | Heavy-Duty Aerodynamics Control with DBD Plasma Actuation<br>*L. Schneeberger, S. Discetti, A. Ianiro* | Experimental Investigation on Jets Released from an Orifice in the Wall of a Pressurized Pipe<br>*S. Ferrari, A. Santus, R. Gaudio, D. Ferraro* | Full Scale Experiments on Snow Impact on a Moving Vehicle<br>*M. Ghareghani, K. Keshavan, H. Hangan* |
| 15:30 – 16:00 | Coffee break | | |

| Wednesday, May 21st | | | |
|---|---|---|---|
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| | **Instability and Transition**<br>Chair: John Kurelek | **Turbulent Flows III**<br>Chair: Louis Cattafesta | **Micro and Nano Fluidics**<br>Chair: Hyoungsoo Kim |
| 16:00 – 16:20 | Shear Layer Instabilities in the Wake of an Impulsively Started Airfoil<br>A. Goyal, *J. Nedić* | What We Learned About Hot-Wires While Studying Adverse Pressure Gradient Turbulent Boundary Layers<br>*R. Örlü, P. Schlatter* | Bubble Dynamics and Instabilities in Flow Boiling in Microchannels<br>*V. Andrade, P. Pontes, A. Moita* |
| 16:20 – 16:40 | Study of Laminar-to-Turbulent Transition of Swept-Wing Boundary Layer with Temperature-Sensitive Paint<br>*M. Barahona, M. Costantini, A. Rius-Vidales, C. Klein, M. Kotsonis* | TNTI-Conditioned Statistics of Entrained and Detrained Regions of a Turbulent Boundary Layer<br>*A. Parikh, C. Kähler* | Exploring Passive Flow Structure Manipulation in Micro-Hydrocyclones Through Particle Image Velocimetry<br>*Y. Saffar, D. Nobes, R. Sabbagh* |
| 16:40 – 17:00 | Using a Fast Response Temperature-Sensitive Paint to Spatially and Temporally Resolve Transitional Phenomena<br>*B. Dimond, M. Costantini, C. Klein* | Influence of Indoor Turbulence on the Efficiency of Room Air Cleaners<br>*A. George, B. Schumm, R. Hain, C. Kähler* | Acoustic-Induced Mixing Enhancement in Y-Junction Micro Mixer with Triangular Spine for Various Mixing Fluids<br>*A. Ali, W. Tien* |
| 17:00 – 18:30 | Break | | |
| | **Grand Georgian** | | |
| 18:30 – 21:00 | Gala Dinner | | |

| Thursday, May 22nd | | | |
|---|---|---|---|
| | **Grand Georgian** | | |
| 9:00 – 10:00 | **Keynote**<br>Chair: Ana Moita | **Hyoungsoo Kim** *Korea Advanced Institute of Science & Technology*<br>The Marangoni Effect: From Macroscopic to Microscopic Perspective | |
| 10:00 – 10:30 | Coffee break | | |
| | **Grand Georgian** | **Loyalist** | **Somerset** |
| | **Flow Measurement Techniques III**<br>Chair: Karen Mulleners | **Multiphase Flows**<br>Chair: Sean Peterson | **Heat and Mass Transfer**<br>Chair: Tommaso Astarita |
| 10:30 – 10:50 | Gas Permeation Through Nanopores in Multilayer Graphene Membranes<br>*E. Geranfar, M. Boutilier* | Characteristics of Two-Phase Structures and Interphase Amplitude Modulation in High-Reynolds-Number Particle-Laden Atmospheric Surface Layer<br>*X. He, H. Liu* | Effect of Large-Scale Circulation on Heat Transfer of Poiseuille–Rayleigh–Bénard Convection<br>*S. Kashanj, D. Nobes* |
| 10:50 – 11:10 | Shadowgraph Defocusing µPTV Measurement of Drop Impact on a Wetted Surface<br>*T. Fuchs, P. Vogelsang, G. Lamanna* | An Experimental Study on Wind-Driven Runback Characteristics of Surface Water Droplets/Rivulets Using DIP and PIV Techniques<br>*Y. Zhao, J. Wang, H. Hu* | Influence of Breathing Conditions on the Three-Dimensional Flow Field in the Conducting Airways<br>*L. Mayolle, B. Johanning-Meiners, M. Klaas* |
| 11:10 – 11:30 | Particle Image Velocimetry of Rayleigh-Bénard Convection in Molten Salt at Elevated Temperatures<br>*C. Naumann, T. Käufer, P. Li, C. Resagk, C. Cierpka, C. Karcher* | On the Ventilation of Surface-Piercing Hydrofoils Under Steady-State Conditions<br>*M. Ferreira, A. Greidanus, J. Westerweel* | Experimental Transient Analysis in a Multi-Parallel-Connected Natural Circulation Loops Employing Water-Glycerine Mixture<br>*M. Misale, A. Marchitto* |
| 11:30 – 11:50 | Gas Transport at an Air-Water Interface Measured by Simultaneous PIV and LIF<br>*R. Hearst, A. Shankaran* | Experimental Studies of Capillary Rise and Moisture Distribution in Paper Towels<br>*S. Sahaf, A. Phani, S. Green* | Flow Measurements in a Square Duct Structured by Detached Divergent Ribs<br>*S. Ruck, I. Mercado* |
| 11:50 – 12:10 | A Preliminary Study on Numerical Calculation Method Based on Measured Deformation Data of Zebrafish During Movement<br>*M. Gao, Y. Yu* | Particle Image Velocimetry Study of the Flow in the Cavity of a Splashing Drop<br>*J. Liow, D. Cole* | Wall Heat Transfer Measurements in Turbulent Boundary Layers: Insights from Water and Air Experiments<br>*F. Foroozan, W. Baars, S. Discetti, A. Ianiro* |

| Thursday, May 22nd | |
|---|---|
| | **Grand Georgian** |
| 12:10 – 12:30 | Closing ceremony |
| | **Tiara Restaurant** |
| 12:30 – 13:30 | Lunch |

# NOTES

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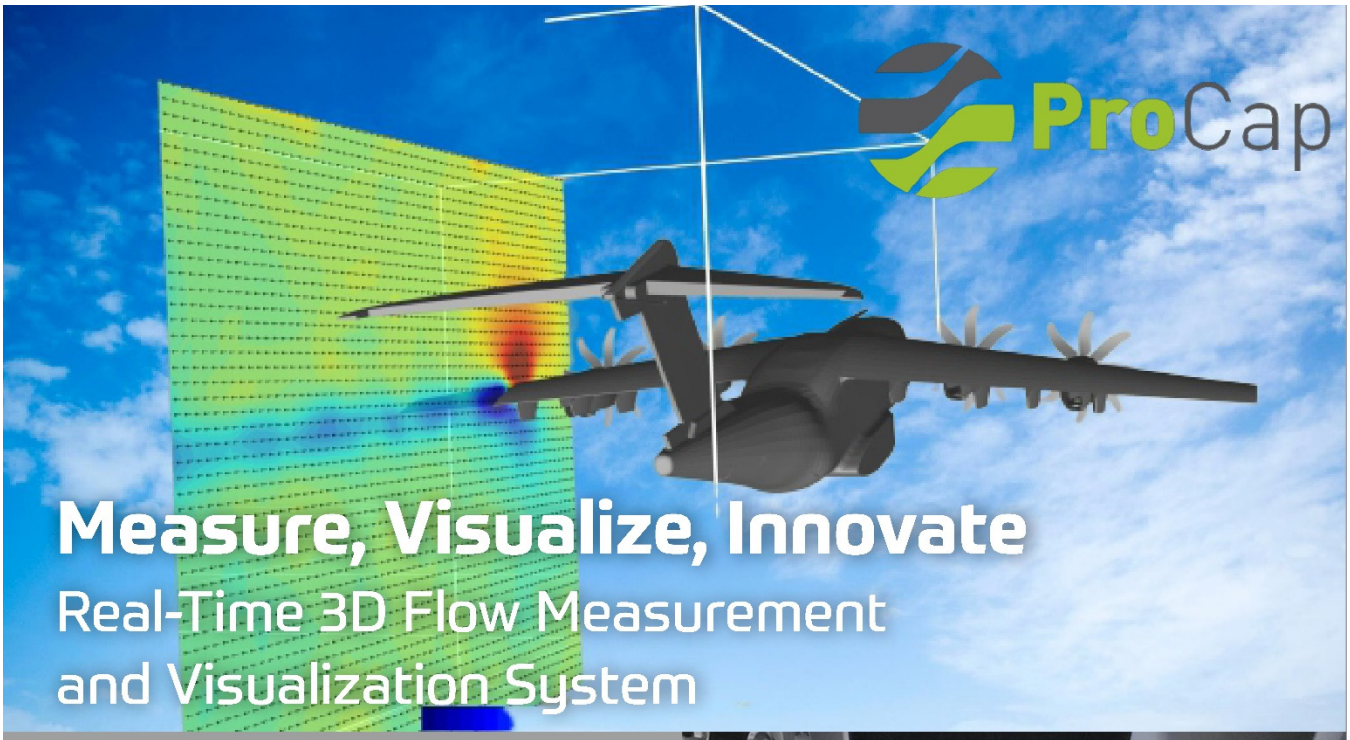


# Measure, Visualize, Innovate

## Real-Time 3D Flow Measurement and Visualization System

ProCap is the first commercially available real-time Sensor Tracking Velocimetry (STV) system.

The real-time GPU rendered visualization of the complete 3D flow and pressure field provides instantaneous understanding of the aerodynamics and the data quality.

### Key Features

- GPU powered processing and rendering for analysis and visualization of the flow field during acquisition
- Real-time processing of probe data and tracking position including spatial interpolation, correction for probe movement, data storage and import/export
- Fully quantitative 3D data output compatible with CFD post processors for validation
- Interactive user interface for intuitive operation
- CAD geometry import for model visualization
- Transportable, fast and easy to install

**For more details or to request a demonstration:**

EVOLUTION MEASUREMENT

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**UK +44 (0)1264 316470**
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# THE IDT DIFFERENCE

## *Accelerate Your Research with Streaming from IDT*

**Record for Longer with No Downloads**
Capture at high speed and **CONTINUOUSLY RECORD** up to 5K resolution @ 2,000 fps for over an hour

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Review **INSTANT REPLAY** of captured images while continuously recording to adjust experiments on-the-fly

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Record sequences with 2 different exposures in succession with IDT's **DUAL EXPOSURE**

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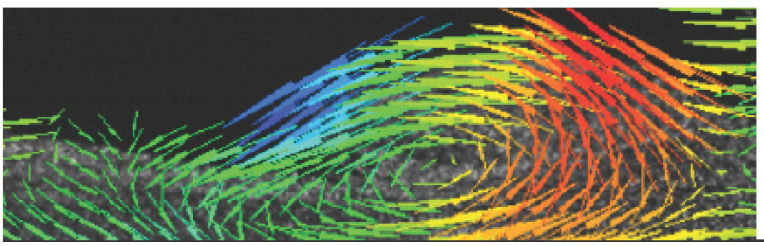

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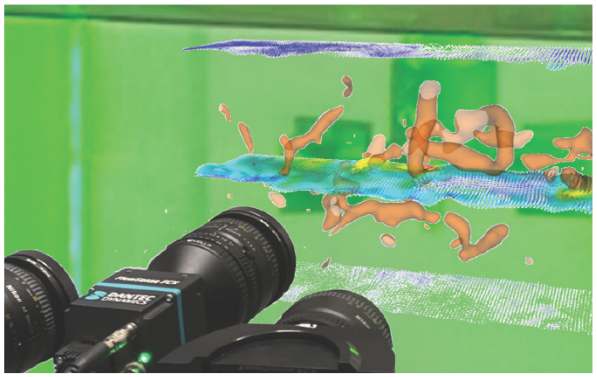
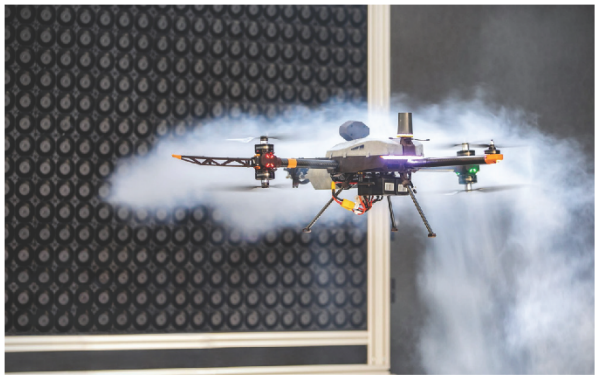
## Volumetric Velocimetry with Physics Informed Interpolation



*TR PTV in a stirred tank mixer (In collaboration with University of Bologna)*

- Lagrangian tracks to a Eulerian grid
- Use physics criteria
- Enhance spatial resolution
- Compute smooth vorticity, Lambda-2, and Q-criteria using analytical differentiation
- Compute pressure fields from your TR PTV data

## Windshaper Fan Array

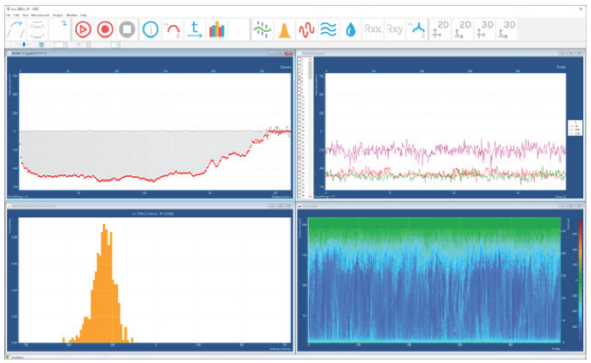


*Drone testing with large Windshaper*

### Ideal for Drone testing

- Wind farm model testing
- Replicate complex atmospheric flows that vary both in time and space
- Open test volume
- Wind tunnel configurations possible

## Ultrasonic Velocity Profiler

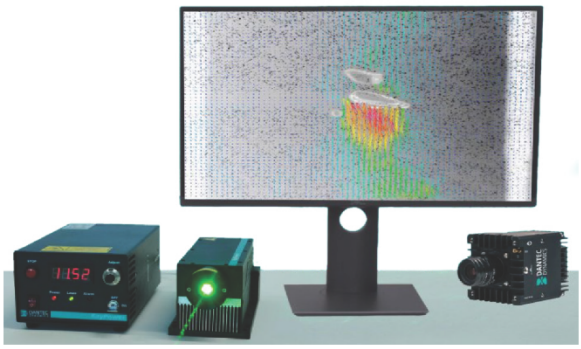


*Top left: Real time velocity profile. Top right: Velocity time series of selected channels. Bottom left: velocity histogram of a selected channel. Bottom right: color-coded velocity as a function of time and distance.*

Ideal for real-time velocity profiles in opaque or transparent liquids

- Velocity range up to 52 m/s or ±26 m/s
- Velocity profiles over distances from 2 mm to 3m
- Large set of analysis tools available
- UVP ActiveX library: UVP acquisition software functions can be implemented in an integrative acquisition system compatible with ActiveX (Matlab®, Labview®, etc.)

## New Preconfigured FlexPIV system



*A complete high speed PIV system with TR laser and a 2MP 1400+ fps camera*

### Ideal for water flows

- 1920x1080 px SpeedSense MC321 camera with up to 1480 fps
- 5000 mW cw RayPower laser, including light sheet optics
- Max. velocity ~2 m/s
- Field of view 50 x 28 mm to 400 x 225 mm

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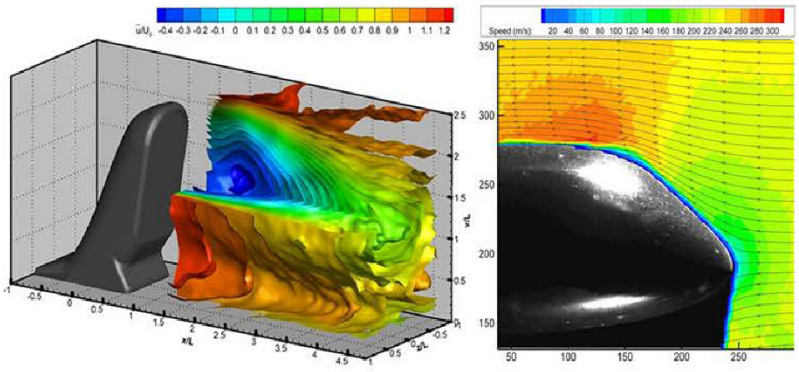
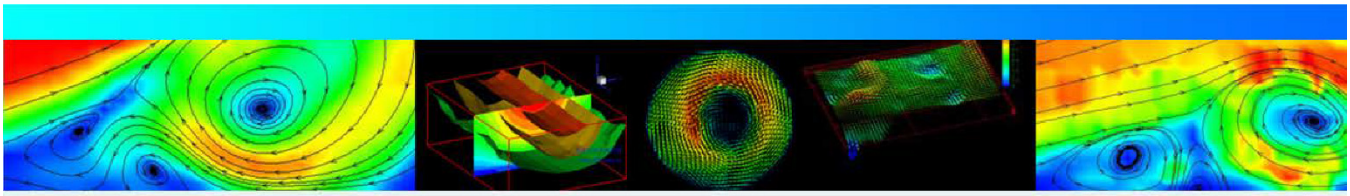
# Affordable Particle Image Velocimetry Systems



- 2D PIV & PTV
- Stereo PIV
- Tomographic PIV
- AI PIV
- Pressure PIV
- TR PIV
- MicroPIV
- PIV Cameras

2D PIV Systems
Starting at USD 49,950


Double Pulse PIV Lasers
Starting at USD 19,950



Microvec

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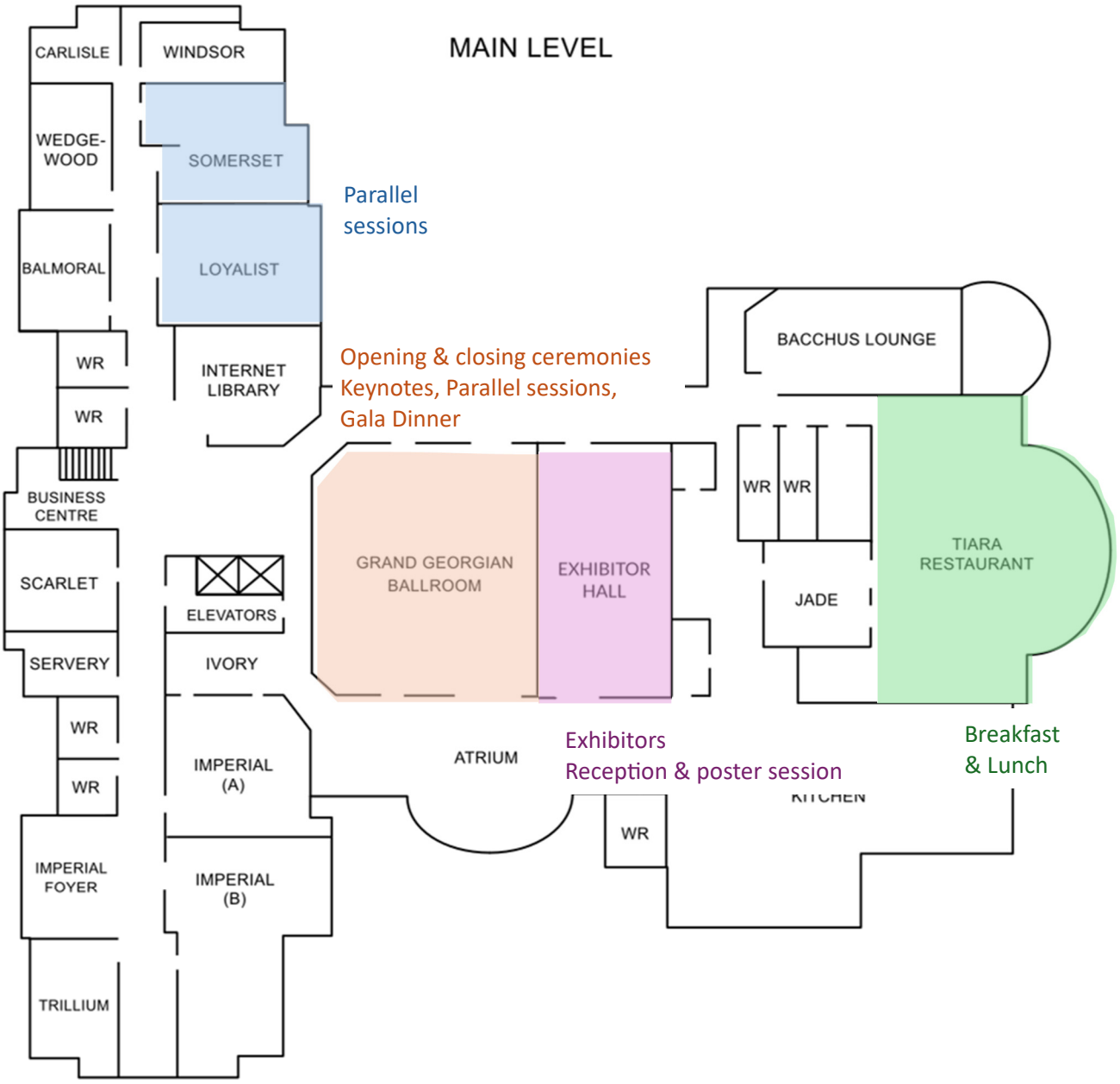
# MAP




On the lower level

- Health club
- Hot tub and sauna
- Pool