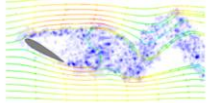


**NIM
2015**



Workshop on Non-Intrusive Measurements for unsteady flows and aerodynamics - Poitiers, FRANCE – October 27-29, 2015

NIM2015, Non-Intrusive Measurements

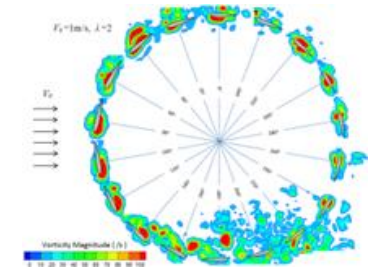
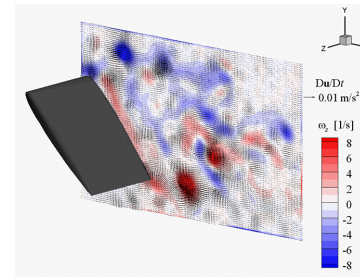
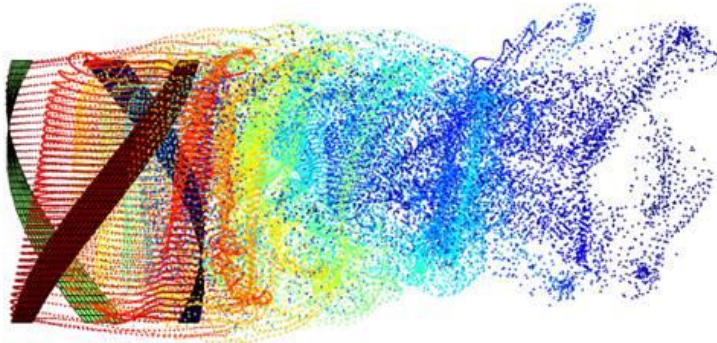
FINAL ANNOUNCEMENT

The Pprime Institut (CNRS, University of Poitiers and ENSMA) organizes the workshop **NIM2015** entirely dedicated to non-intrusive measurements applied to unsteady flows and aerodynamics. **NIM2015 will be held from October 27th (4 pm) to October 29th (3 pm), 2015 in the IFMI lecture hall (Futuroscope Chasseneuil, France).** This workshop is a dissemination activity in the European Framework NIOPLEX (FP7 Non-intrusive Optical Pressure and Loads Extraction for Aerodynamic Analysis, <http://nioplex.eu>)

NIM2015 gives an opportunity to meet the international community of fluid mechanics working on the optical diagnostics of loads and pressure evaluation with non-intrusive measurements. The fields of interest are unsteady aerodynamics and hydrodynamics, flapping wings, mobile energy recovery systems, animal locomotion and the flow control.

TOPICS

- Loads and pressure evaluations with non-intrusive measurements.
- Unsteady flows and aerodynamics.
- Fluid-structure interactions.
- Fluid mechanics applications as flapping wings or mobile energy recovery systems.
- PIV- CFD coupling.



THREE KEYNOTE LECTURES

Dr Protas, *From the Velocity and Vorticity Fields to Hydrodynamic Forces – A Survey of Mathematical and Computational Approaches*

Dr Suzuki, *Hybrid unsteady-flow simulation combining PIV/PTV and DNS: Introduction of data-assimilation algorithms and their capabilities*

Pr Dickinson, *How Insects Fly*

30 ORAL PRESENTATIONS

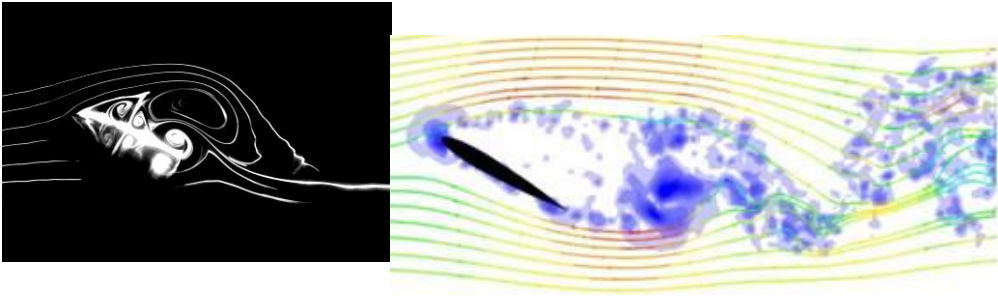
IMPORTANT DATES AND DEADLINES

Registration deadline: from May 1st to October 16th, 2015



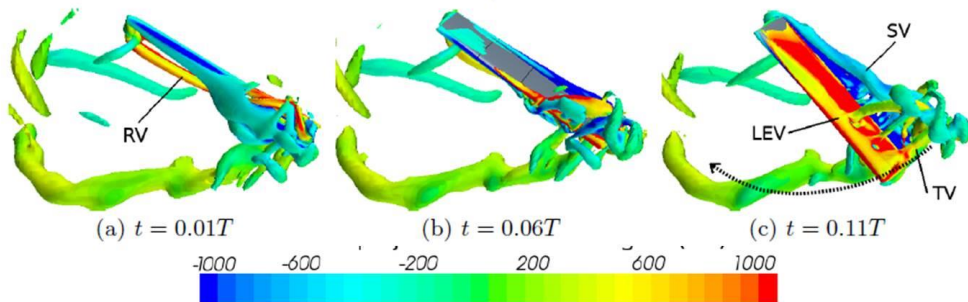
NIOPLEX





LOCAL ORGANIZING COMMITTEE

- Pr Laurent DAVID, University of Poitiers, Pprime.
- Dr Anthony BEAUDOIN, University of Poitiers, Pprime.
- Pr Jacques BOREE, ISAE Ensma, Pprime.
- Dr Ludovic CHATELLIER, University of Poitiers, Pprime.
- Dr Thomas EARL, ISAE Ensma, Pprime.
- Dr Thierry JARDIN, ISAE Supaero, DAEP.
- Dr Young Jin JEON, CNRS, Pprime.
- Dr Frederic PONS, ISAE Ensma, Pprime
- Dr Benoit TREMBLAIS, Université Poitiers, Xlim SIC.
- Dr Christophe SICOT, ISAE Ensma, Pprime.



SECRETARY

Catherine Ecale, University of Poitiers, Pprime
Jocelyne Bardeau, CNRS, Pprime

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ADDRESS

NIM2015
Institute of P', Bâtiment H2
SP2MI - Téléport 2, 11 Boulevard Marie et Pierre Curie,
BP 30179, 86962, Futuroscope Chasseneuil Cedex France

WEBSITE <http://nim2015.conference.univ-poitiers.fr/>

LOCATION

IFMI lecture hall , Futuroscope, France

REGISTRATION

To register, please fill and send the registration form.

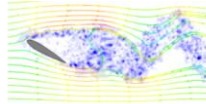
FEES

Members of NIOPLEX : free

Non members of NIOPLEX : 150 € (HT) or 180 € (TTC)



NIM
2015



Workshop on Non-Intrusive Measurements for unsteady flows
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FINAL PROGRAM

Tuesday October 27 th
10:00-14:00 – Registration
14:00 – Opening session
Keynote lecture - 14:15 to 15:00 Load evaluation
Protas B. From the Velocity and Vorticity Fields to Hydrodynamic Forces – A Survey of Mathematical and Computational Approaches
Session 1 - 15:10 to 16:30 - Load evaluation
Terra W., Sciacchitano A., Scarano F. On-site drag determination in speed sports by means of large scale tomographic particle image velocimetry – a study of concept.
Turam E., Fenercioglu I., Cetiner O. Identifying circulatory and noncirculatory forces of a flapping foil.
Jeon YJ., Chatellier L., Earl T., David L. Load evaluations from 3D velocity fields applied to the flapping flight.
Cetiner O. Loading on a manoeuvring Naca0012 airfoil under spanwise gust and estimation of loads using DPIV.
Session 2 - 16:50 to 18:10 - Unsteady flows
Mallat B., Germain G., Delacroix S., Druault P., Dussol D., Billard J-Y. PIV measurements around a bow ship.
Percin M., Vanierschot M., van Oudheusden B. W. Experimental investigation of three-dimensional flow structures in annular swirling jets.
Gomit G., de Kat R., Ganapathisubramani B. Interaction of rectangular synthetic jets with a turbulent boundary layer : influence of the actuation parameters.
Brouilliot D., Cazin S., Lo Jacono D. Dynamics and stability of confined impacting jets.

Wednesday October 28th

Keynote lecture - 9:00 to 9:45

Suzuki T. Hybrid unsteady-flow simulation combining PIV/PTV and DNS: Introduction of data-assimilation algorithms and their capabilities

Session 3 - 9:55 to 11:15 - Assimilation

Lemke M., Westphal C. and Sesterhenn J. Adjoint based data assimilation in compressible flows with application to pressure determination from PIV data

Tissot G., Cordier L. and Noack B. R. 4D-Var identification of DMD Reduced-Order Models.

Beaudoin A., Huberson S. Coupled SPH and PIV for pressure estimation

Leroux R., Chatellier L., David L. Time-resolved flow reconstruction using Kalman filtered and PLSR

Session 4 - 11:35 to 12:35 - Fluid-Structure Interactions

Bleischwitz R., de Kat R., Ganapathisubramani B. Fluid-structure Interaction of Membrane Wings in Ground Effect

Scheller J., Rizzo K.J., Jodina G., Cazin S., Marchal M., Duhayon E., Rouchon J.F., Braza M. PIV measurements of a high-frequency vibrating trailing edge morphing NACA4412 airfoil

Barbu A., de Kat R., Ganapathisubramani B. Aero-electro-mechanical Coupling of Electro-Active Membrane Wings

Session 5 - 14:00 to 15:40 – Pressure evaluation

Auteri F., Carini M., Droandi G., Gibertini G., Zagaglia D., Zanotti A. Pressure field around a helicopter rotor blade from PIV surveys

McPhaden C.J., Rival D.E. Pressure extraction from Lagrangian flow measurements of a vanishing wing

Blinde P.L., Gentile V., van Oudheusden B.W., Schrijer F.F.J. Determination of instantaneous pressure fields in a low-speed axisymmetric base flow based on time-resolved tomographic PIV

Van Der Kindere J., De Kat R. Pressure around forward-backward facing steps of various length

Huhn F., Schanz D., Gesemann S., Schröder A. Pressure fields from high-resolution time-resolved particle tracking velocimetry in 3D turbulent flows

Session 6 - 16:00 to 17:00 - Unsteady flows

Simonini A., Regert T., Vetrano M.R. PIV applied to lateral sinusoidal sloshing: comparison with OpenFoam simulations.

Widmann A., Tropea C. 3D Using flow topology and finite time Lyapunov exponent to characterize two forms of leading edge vortex detachment

Cao Y., Kaiser K., Borée J., Noack B.R., Thomas L., Guilain S. Cluster-based analysis of Cycle-to-Cycle Variations. Application to internal combustion engines

Keynote lecture - 18:00 to 19:00 City town: Espace Mendès France (open to the public)

Dickinson M. How Insects Fly

Thursday October 29th

Session 7 - 9:00 to 10:20 – Pressure evaluation

Schneiders JFG., Alp Caridi GC., Sciacchitano A., Scarano F. Large-Volume Instantaneous Pressure from Tomographic PTV using HFSB Tracers

Günaydinoglu E., Kurtulus D.F. Two dimensional pressure field determination on flapping flat plate from PIV measurements

Tagliabue A., Bitter M., Kähler CJ. Planar pressure field reconstruction from ensemble PIV using PSP surface pressure boundary conditions

Nguyen V.T., Tremblais B., Pons F., David L. Pressure evaluation by polynomial basis

Session 8 - 10:40 to 12:10 - Unsteady flows

Senol M.G., Comez F. Y., Kurtulus D. F., Arikan K. B. Testing of Flapping Wing Four-Bar Mechanism

Jardin T., Jeon YJ., David L. Flow analysis of a flapping wing for symmetrical and assymetrical kinematics

Comez YF., Senol MG., Kurtulus DF., Arikan KB. Unsteady Aerodynamic Analysis of a Flapping Wing Actuated with PZT Material.

Gorle J.M.R., Chatellier L., Pons F., Ba M. PIV investigation of the flow across a Darrius water turbine

End of the Workshop