Mercredi 21 octobre à 10h30
INSTITUT DE MECANIQUE DES FLUIDES - Amphithéâtre Nougaro
allée du Professeur Camille Soula, Toulouse

QUANTITATIVE 4D VISUALIZATION BY TIME-RESOLVED TOMOGRAPHIC PIV

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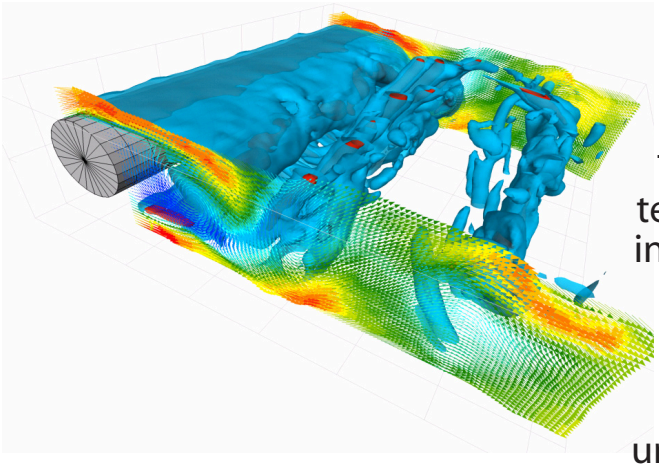
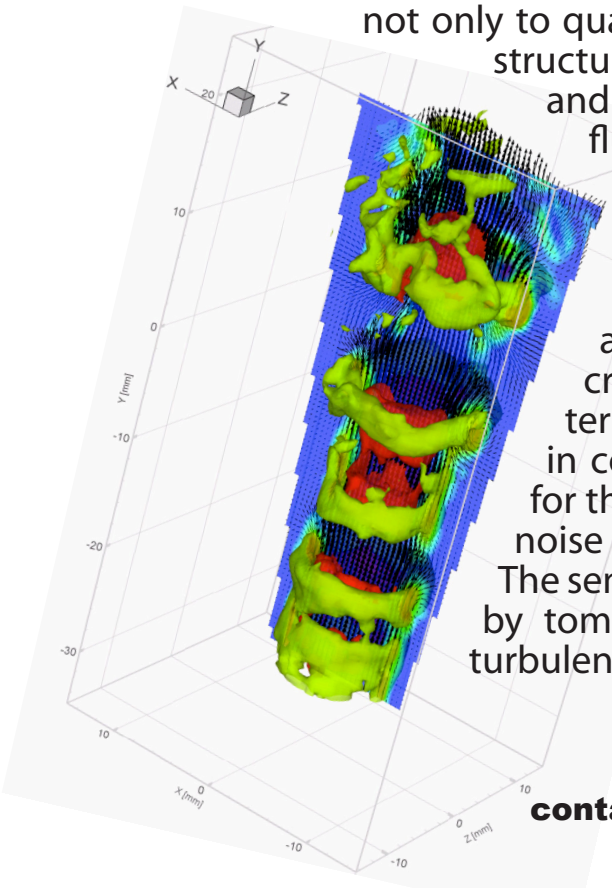


The recent developments of the Tomographic Particle Image Velocimetry technique allows nowadays its application in time-resolved mode for moderate values of the Reynolds number. Moreover, data reduction techniques for non-intrusive pressure field characterization method open unforeseen perspectives in the area of unsteady flow diagnostics and experimental aero-acoustics. As a result it is now possible not only to quantify complex flows in their three-dimensional structure, but also to follow their dynamical evolution and extract quantities such as the instantaneous fluid flow pressure field.



Recent efforts are directed towards an innovative approach to experimental aero-acoustics making use of time-resolved Tomographic-PIV experiments to fully describe and quantify the flow pattern around aircraft critical components and the related acoustic source term at its origin. The use of aeroacoustic analogies in conjunction with PIV data will provide the basis for the estimation of sound source identification and noise emissions.

The seminar will include fundamental aspects of 4D-PIV by tomography and applications to transitional and turbulent wakes and jet flows.

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