Laboratory of Optical and Visualisation Methods

Principal goals and activities

- Analysis of flow fields (velocity and temperature, including their fluctuation).
- Research in non-stationary turbulent processes and supersonic mixing flows in the ejector, research of synthetic jets, etc.
- Research of internal and external hydrodynamics.

General focus of laboratory

The laboratory is currently being used for research in coherent turbulent structures and slippage areas (thermally controlled Coanda effect, Strouhal effects, synthetic jet, etc.), of non-stationary turbulent processes and supersonic mixing flows in the ejector. The laboratory is equipped with StremLine anemometers in the CTA mode (for velocity measurement) and CCA (temperature field measurement) and a DANTEC calibrator.
It also uses an experimental device – laser anemometer – that uses an opto-electronic principle. They are the methods of LDA (laser Doppler anemometry for velocity measurement), PIV (particle image velocimetry for measurement of velocity flow fields), 3D-PIV, PLIF (Planar laser-induced fluorescence for measurement of velocities, concentrations and temperature fields).

Specific instruments and outcomes

- ZEISS interferometry analyser
- Supersonic aerodynamic tunnel
- Laser anemometry (PIV, LDA, etc.)
- DANTEC (Stream Line) thermoanemometer (CTA and CCA modes) for analysis fluctuation of velocity and temperature in fluids and gases