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Title of presentation:
CTA and LDA study of the evolution of near flow field for low Reynolds number jet.
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Abstract:
The goal of our investigation is the experimental verification of the coherent structures appearance by both CTA and LDA measuring techniques in the test rigs characterized by high level of area contraction ratio and very low level of turbulence at the jet exit . The mean velocity and turbulence intensity along the jet axis were measured and calculated for low Reynolds number range from 5 000 to 10 000 and for variable ratio of exit shear layer thicknesses to the jet radius. The sensitivity of coherent structures evolving naturally in the free jet to external disturbances required the analysis of the possible disturbances introduced by the CTA probe and that is why the additional nonintrusive LDA measurements were performed and their results compared with CTA results. Spectral analysis was also performed for both CTA and LDA .signals. the results obtained confirm the sensitivity of low turbulence free jet to external disturbances and to initial conditions. The analysis concerning the possible appearance of self – excited organized motion in the free jet was also performed.

