Experiments in Fluid Mechanics 2015

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Title of presentation: Influence of Surface Roughness on the Intensity of Heat Transfer under a Single Impinging Jet

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Abstract:

The presentation focuses on experiments concerning the influence of the surface roughness on the intensity of heat transfer between a flat metal plate and a single impinging jet of air.

The experimental results have been obtained for two flat plates; one smooth and one with roughness of Rz=20μm. Both plates have been manufactured of 2mm steel and are 95mm of diameter. The measurements cover a range of Reynolds number from 6000 to 10000. Temperature field evolutions have been measured with thermochromic liquid crystals technique and the results are analysed in terms of transient phenomenon.

The analysis of heat transfer intensity as a function of surface roughness and Reynolds number value will be presented. Uncertainty analysis and some remarks on numerical implementation will also be given in the presentation.