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Large Eddy Simulation of a cooling impinging jet to a turbulent crossflow[1] MICHAIL GEORGIOU, MILTIADIS PAPALEXANDRIS, Universite catholique de Louvain — In this talk we report on Large Eddy Simulations of a cooling impinging jet to a turbulent channel flow. The impinging jet enters the turbulent stream in an oblique direction. This type of flow is relevant to the so-called "Pressurized Thermal Shock" phenomenon that can occur in pressurized water reactors. First we elaborate on issues related to the set-up of the simulations of the flow of interest such as, imposition of turbulent inflows, choice of subgrid-scale model and others. Also, the issue of the commutator error due to the anisotropy of the spatial cut-off filter induced by non-uniform grids is being discussed. In the second part of the talk we present results of our simulations. In particular, we focus on the high-shear and recirculation zones that are developed and on the characteristics of the temperature field. The budget for the mean kinetic energy of the resolved-scale turbulent velocity fluctuations is also discussed and analyzed.

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