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**Wall-resolved Large Eddy Simulations of turbulent heat transfer in a T-junction** MICHAÏL GEORGIU, MILTIADIS V. PAPALEXANDRIS, Universite catholique de Louvain — In this talk we report on wall-resolved Large Eddy Simulations of turbulent heat transfer between a cold crossflow and a hot incoming jet in a T-junction. Due to their high efficiency in mixing and heat transfer, T-junctions are encountered in numerous industrial applications. Our study is motivated by the need to assess phenomena related to thermal fatigue that are often encountered at their walls. We first describe the important features of the flow with emphasis on the shear layers that are formed at the entry of the jet and the recirculation regions. We also show results for first- and second-order statistics of the flow and compare our predictions with previous experimental data. Lastly, we present results from the spectral analysis of the temperature signal that we performed in order to assess the oscillating mechanisms that dominate the flow and the risk of thermal fatigue at the walls of the T-junction.

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