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Abstract for talk 3rd International Workshop on Near-Wall Reactive Flows 2022

Current emission regulations and energy policies are shifting combustion technologies to operate with low-carbon fuels including sustainable fuels like hydrogen or other synthetic fuels produced from renewable electricity. In this transition, the use of numerical simulations can play a fundamental role to understand the performance of these fuels in practical applications. In this presentation, an overview of recent developments in methodologies and applications for the modelling and simulation of combustion systems using large eddy simulations and High-Performance Computing (HPC) with focus on pollutant formation and hydrogen combustion.