

Large Eddy Simulation Reduced Order Modeling

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Abstract This talk develops a large eddy simulation reduced order model (LES-ROM) framework for the numerical simulation of convection-dominated flows. This new LES-ROM framework centers around two main ideas: (1) the proper orthogonal decomposition (POD) is used to define a low-dimensional ROM basis, and (2) an explicit spatial filter is used to define the large ROM structures. The LES-ROM framework is illustrated in the numerical simulation of a three-dimensional flow past a circular cylinder at a Reynolds number $Re=1000$.

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