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Invited lecture

HIGH-ORDER ACCURATE SCHEMES AND LES WITH APPLICATIONS IN AERO-ACOUSTICS

Prof. Dr. Chris Lacor

Chairman Research Group Fluid Mechanics and Thermodynamics, Dept. Mechanical Engineering, Vrije University in Brussels, Belgium.

Abstract

High-order schemes and Large Eddy Simulation (LES) are essential ingredients of Aero-acoustics solvers. In this presentation high-order spectral difference methods are introduced coupled to an efficient Lower-upper symmetric Gauss-Seidel (LU-SGS) solver for time integration. The extension of the methodology to LES is discussed and several LES test cases are presented. The use of LES, Linearized Euler and acoustic analogies within a hybrid Aero-acoustics methodology is explained. Several applications illustrating the method, such as noise generation of a 3D muffler, are discussed.