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Hybrid RANS/LES equations MASSIMO GERMANO, Politecnico di Torino, MARTIN SANCHEZ-ROCHA, Dassault Systemes SIMULIA Corporation, SURESH MENON, Georgia Institute of Technology — The incompressible and compressible governing equations for the hybrid RANS/LES simulations have been recently formally derived by applying a hybrid filtering operator which linearly combines a LES average with the RANS statistical mean. These exact hybrid equations contain many additional terms that represent the interactions between RANS and LES formulations, and some preliminary simulations have shown their relevance in the correct representation of turbulence. Unfortunately the numerical implementation of these terms is not so easy, and a joint theoretical and numerical study is currently under work in order to overcome these difficulties and to develop simplified models for the hybrid contributions. New different procedures are explored and a new RANS-assisted LES that couples the additive hybrid procedure with an independent RANS computation is examined.

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