



Pab3d: Its History in the Use of Turbulence Models in the Simulation of Jet and Nozzle Flows (Paperback)

By Khaled S Abdol-Hamid

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.This is a review paper for PAB3D s history in the implementation of turbulence models for simulating jet and nozzle flows. We describe different turbulence models used in the simulation of subsonic and supersonic jet and nozzle flows. The time-averaged simulations use modified linear or nonlinear two-equation models to account for supersonic flow as well as high temperature mixing. Two multiscale-type turbulence models are used for unsteady flow simulations. These models require modifications to the Reynolds Averaged Navier-Stokes (RANS) equations. The first scheme is a hybrid RANS/LES model utilizing the two-equation (k-epsilon) model with a RANS/LES transition function, dependent on grid spacing and the computed turbulence length scale. The second scheme is a modified version of the partially averaged Navier-Stokes (PANS) formulation. All of these models are implemented in the three-dimensional Navier-Stokes code PAB3D. This paper discusses computational methods, code implementation, computed results for a wide range of nozzle configurations at various operating conditions, and comparisons with available experimental data. Very good agreement is shown between the numerical solutions and available experimental data over a wide range of...



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