

عنوان مقاله:

An Extension of the SSG Model on Compressible Turbulent Flow

محل انتشار:

دوماهنامه مکانیک سیالات کاربردی, دوره 5, شماره 4 (سال: 1392)

تعداد صفحات اصل مقاله: 11

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خلاصه مقاله:

This work focuses on the performance and validation of some recent Reynolds stress models in compressible homogeneous shear flow. The SSG model developed by Speziale Sarkar and Gatski has shown a great success in simulating a variety of incompressible complex turbulent flows. On the other hand, it has not predicted correctly the compressible turbulence at high speed shear flow. Thus, a compressibility correction for this model is the major aim of this study. In the present work, two recent compressible models for the pressure strain-strain correlation have been used to modify the linear term of the SSG model. These modifications make the linear term dependent on a turbulent Mach number. In addition, compressibility correction model for the slow part of the pressure strain is proposed. The obtained results are compared with DNS results of Sarkar. The results show that important parameters characteristic of compressibility in homogeneous turbulent shear flow are well captured by the extended SSG model.

کلمات کلیدی:

Compressible, Shear flow, Turbulence, Pressure, strain, Models of turbulence

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