NUMERICAL INVESTIGATIONS ON THE NOISE CHARACTERISTICS OF A RADIAL FAN WITH FORWARD CURVED BLADES

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Abstract:

The current study investigates the noise characteristics of a Radial Fan with Forward Curved Blades by performing CFD simulations with the emphasis on employing different Turbulence Models and Unstructured Grids. The predicted noise spectra obtained from CFD results (Star-CCM+), and also hybrid CAA method (coupling of Star-CCM+ and ACTRAN) are in good agreement with the experimental results. Especially the overall trend of the experimental curves as well as the Blade Passing Frequency (BPF) is correctly predicted. Additionally, using transient surface & volume data helped to gain insight into the noise radiated from different parts of the system.

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