

Abstract Submitted
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Large Eddy Simulation and Measurements of Turbulent Rotor-Stator Flows ERIC SERRE, MSNM-GP-CNRS, ERIC SEVERAC, MSNM-GP, SÉBASTIEN PONCET, MSNM-GP Université Paul Cézanne, MARIE-PIERRE CHAUVE, IRPHE-CNRS, MSNM-GP CNRS UNIVERSITE AIX-MARSEILLE TEAM, IRPHE CNRS UNIVERSITE AIX-MARSEILLE TEAM — Comparisons between large eddy simulation (LES) and velocity measurements have been performed for the turbulent flow in a real shrouded rotor-stator configuration. To investigate turbulent flow regimes, LES numerical results (Spectral Vanishing Viscosity technique) and experimental data have been favourably compared for a large range of rotational Reynolds number $10^5 \leq \text{Re} = \Omega b^2 / \nu \leq 10^6$ in an annular cavity of curvature parameter $\text{Rm} = (b + a)/(b - a) = 1.8$ and of aspect ratio $G = (b - a)/h = 5$, where a and b are respectively the inner and outer radii of the rotating disk and h is the interdisk spacing. All the characteristics of 3D turbulent boundary layers have been found and coherent structures have been shown under the form of annuli or spiral arms.

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