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**A numerical and experimental study of anisotropic turbulence in a converging annular duct** JUNWOO LIM, JAMES KOPRIVA, GREGORY LASKOWSKI, GE Aviation, SARA ROSTAMI, JONATHON SLEPSKI, GE Global Research Center, JOSHUA SZCZUDLAK, ARMAN MIRHASHEMI, SCOTT MORRIS, Department of aerospace and mechanical engineering, University of Notre Dame — Large Eddy Simulations of turbulent flow in a converging annular duct has been conducted in support of turbomachinery applications. The experimental rig at University of Notre Dame utilizes wall slot flows to generate temperature profiles representative of a combustor exit upstream of the contraction inlet. A passive turbulence grid is placed just downstream of the profile generator and upstream of the contraction to generate high levels of anisotropic turbulence which is characterized by measurements. The LES runs include both the profile generator and turbulence screen in the analysis to better understand the impact of flow acceleration on vortex stretching for this high level of anisotropic turbulence. An evaluation of the evolution of the anisotropy tensor based on resolved scale will be discussed and comparisons with data will be provided.

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