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**Experimental investigation of the rotating flow in a low speed axial compressor** LICHAO JIA, YIDING ZHU, HUIJING YUAN, CUNBIAO LEE<sup>1</sup>, Peking Univ — This paper presents detailed experimental data on the flow and turbulence within the boundary layer of an axial compressor rotor blade. The velocity distribution of the entrance of the rotor has also been detected, which will be useful to determine the boundary condition in simulation. The experiments are performed in a low speed wind tunnel at different flow fluxes. During the experiments, high-resolution 2D Particle Image Velocimetry (PIV) measurements are conducted at different axial and radial positions. Phase-locking, boundary detection and virtual particle images methods are used to improve the performance of the PIV. Both the mean and instantaneous internal flow fields of the axial compressor are presented here. The experiments enrich the understanding of the rotating flow phenomenon in the low speed axial compressor.

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