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Interaction of a Shock Wave with a Homogeneous Field of Acoustic Waves CHAO ZHANG, LIAN DUAN, Missouri Univ of Sci Tech, MISSOURI UNIV OF SCI TECH TEAM — Direct numerical simulations (DNS) and linear interaction analysis (LIA) are used to examine significant flow characteristics associated with a homogeneous field of acoustic waves passing through a nominally normal shock wave. The full-fledged nonlinear simulations and the linear analysis are enabled by a pre-cursor numerical database of boundary-layer acoustic radiation that provides incident acoustic fields with high degree of physical realism and applicability. The research contributes to the fundamental understanding of the interaction of a shock wave with a field of turbulence by characterizing its behaviors in the pure dilatational limit and complements existing studies of shock/turbulence interaction with a vorticity-dominated incident turbulent field.

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