Direct numerical simulation of canonical shock/turbulence interaction[1] JOHAN LARSSON, SANJIVA LELE, PARVIZ MOIN, Stanford University — The problem of isotropic turbulence passing through a nominally normal shock wave is studied by direct numerical simulation. Special attention is paid to the nonlinear regime of strong turbulence interacting with a relatively weak shock, in which the turbulence-induced shock movement is considerable. Instantaneous profiles through the shock show a wide variation, including single strong compressions, double compressions, and essentially smooth and continuous compressions. The second- order statistics are compared to linear analysis, and the effect of interaction-nonlinearity is discussed.

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