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CORRIGENDUM

Direct numerical simulation of isotropic turbulence interacting with a weak shock wave

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Figures 4(*a*) and 4(*b*) presented in the paper were found to be incorrect and should be replaced by the following figures C1(*a*) and C1(*b*). Just behind the shock wave the solenoidal and dilatational velocity fluctuations are negatively correlated over a range

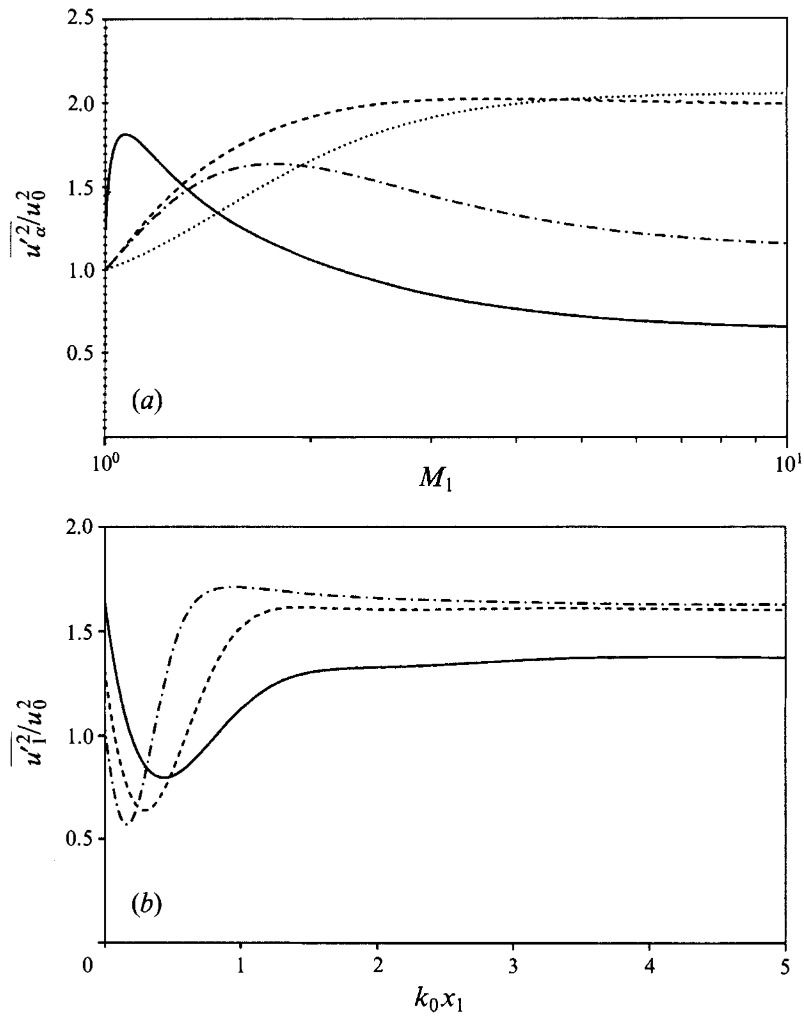

FIGURE C1. (*a*) LIA predictions of velocity component amplifications in the near and far field: ——, u_1' (near); – – – –, u_2' and u_3' (near); —·—, u_1' (far); ·····, u_2' and u_3' (far). (*b*) Evolution of streamwise velocity fluctuation behind the shock wave: ——, $M_1 = 1.2$; – – – –, $M_1 = 1.5$; —·—, $M_1 = 2.0$.

of angles for the incident vorticity wave. This correlation was erroneously overlooked in figure 4(a, b). The acoustic (dilatational) velocity fluctuation and hence the correlation between the solenoidal and dilatational velocity fluctuations decay exponentially downstream of the shock. The main feature of rapid downstream evolution of velocity fluctuations observed in DNS can be reproduced by the linear analysis of Ribner, when correctly evaluated. Consequently the rapid downstream evolution can be understood in terms of an acoustic energy balance, i.e. conversion of potential energy into kinetic energy, and nonlinear effects are not required. DNS results confirm these notions and are more thoroughly discussed by the present authors in a conference paper (Lee, Lele & Moin 1994).

REFERENCE

LEE, S., LELE, S. K. & MOIN, P. 1994 Interaction of isotropic turbulence with a strong shock wave. *AIAA Paper* 94-0311.