

Abstract Submitted
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Experimental and Numerical Investigations of Two Typical Richtmyer-Meshkov instabilities¹ JINGSONG BAI, JINHONG LIU, LIYONG ZOU, TAO WANG — Two typical Richtmyer-Meshkov instabilities are investigated by experiments and simulations. One is the instability with double perturbation interface in nonuniform flows, and the other is the shock-accelerated elliptic heavy gas cylinder instability. The two experiments are conducted in the LSD's horizontal shock tube with 5 m long, 5×5 cm² square cross section and is numerical simulated by our LES code of MVFT. Good agreements have been obtained between simulations and experiment in which the visualizations of mixing interface is tracked by Schlieren photography and multiple dynamics images technology. The results illuminates that the initial nonuniform flow would have a significant effect on the RM instability, and the shape of cylinder also have a significant effect on the cylindrical RM instability. The model of shock-accelerating along the major axis has a stronger convergent effect than the one of shock-accelerating along the minor axis for elliptic gas cylinder instability.

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Tao Wang

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