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Numerical simulation of an experiment to study turbulent mixing on multiple shock wave passage through interface

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The paper summarizes results of the direct numerical simulation of the turbulence generated at gas interface in a shock tube in interaction with shock waves. The computations have been performed with parallel 3D gas-dynamic code TREK using $3*10^6$ cells.

The computed data was processed (averaged) in order to estimate evolution of the mixing zone width and mean-square velocity component fluctuations.

The computed data is compared to the predictions by phenomenological turbulence models (Nikiforov's and k-e models) as well as to well-known experimental data [1-2].

A good agreement between the computed data and with the experimental data is observed.

References

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