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Numerical investigation of the shock wave - dense particles layer interaction

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The mathematical modeling of shock wave interaction with dense particles bed is carried out. The investigation is performed by means of specially developed computer code which solves Baer-Nunziato equations with the use of Godunov method. Method realization is verified on a series of Riemann problems. The important feature of the Godunov approach is the possibility of correct treatment of the special cases when the dispersed phase on one side of the initial discontinuity vanishes. The main features of the shock wave – particles bed interaction process are obtained in the calculations including reflected and transmitted waves as well as the motion of the particles cloud. The calculated quantitative characteristics of the process – waves amplitudes and velocities – are in good agreement with the natural experiment.

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