

Lie symmetries for analyzing interaction of a characteristic shock with a singular surface in a non-ideal reacting gas with dust particles

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Abstract

Using the invariance group properties of the system describing one-dimensional unsteady flow of a non-ideal dusty reacting gas, the evolutions of characteristic shock and singular surface are obtained. The influence of non-idealness, reaction mechanism and dusty gas parameters on the characteristic shock and singular surface are analyzed. Further, the amplitude of reflected wave and (or) transmitted wave, which generated from the interaction of a characteristic shock with a singular surface, and bounce in the acceleration of shock are shown.

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