Mathematics

SHOCK WAVES AND EXPLOSIONS

While offering an introductory review of historic research, ***Shock Waves and Explosions*** brings analytic and computational methods to a wide audience in a clear and thorough way. Beginning with an overview of the research on combustion and gas dynamics by Korobeinikov and Zeldovich in the 1970s and 1980s, the author brings you up to date on modeling techniques and asymptotic and perturbative methods, ending with a chapter on computational methods.

Most of the book deals with the mathematical analysis of explosions, but computational results also are included wherever available. Historical perspectives are provided on the advent of nonlinear science, as well as the mathematical study of the blast wave phenomenon, both when visualized as a point explosion and when simulated as the expansion of a high-pressure gas.

Features

- Offers an introductory review of historic research in the field
- Presents a clear treatment of perturbation and asymptotic methods
- Includes new methods not included in other texts

This volume clearly reveals the ideas and techniques in conceptualizing, modeling, and mathematically analyzing highly complicated nonlinear phenomena involved in shock waves and explosions.

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