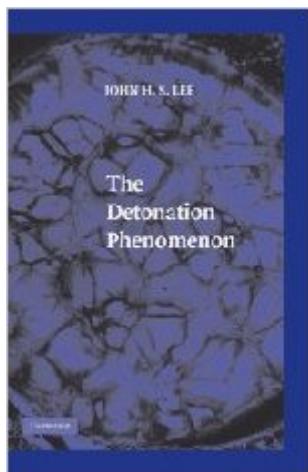


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# The Detonation Phenomenon



## Synopsis

This book introduces the detonation phenomenon in explosives. It is ideal for engineers and graduate students with a background in thermodynamics and fluid mechanics. The material is mostly qualitative, aiming to illustrate the physical aspects of the phenomenon. Classical idealized theories of detonation waves are presented first. These permit detonation speed, gas properties ahead and behind the detonation wave, and the distribution of fluid properties within the detonation wave itself to be determined. Subsequent chapters describe in detail the real unstable structure of a detonation wave. One-, two-, and three-dimensional computer simulations are presented along with experimental results using various experimental techniques. The important effects of confinement and boundary conditions and their influence on the propagation of a detonation are also discussed. The final chapters cover the various ways detonation waves can be formed and provide a review of the outstanding problems and future directions in detonation research.

## Book Information

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## Customer Reviews

"The book is self-contained, providing the necessary historical and technical material appropriate for a reader that has an undergraduate background in thermodynamics and compressible fluid mechanics but no knowledge of detonation...Lee's treatment is extensive but deliberately not encyclopedic...In meeting this goal, I think he has admirably succeeded."Joseph E. Shepherd, Paul Thibault, AIAA Journal"Any researcher or student with even a passing interest in detonation will want to own Lee's book." -Joseph E. Shepherd, Paul Thibault, AIAA Journal

This book introduces the detonation phenomenon to engineers and graduate students with a background in thermodynamics and fluid mechanics. It is mostly qualitative, to illustrate the physical aspects of detonation. Classical theories of detonation waves are presented, followed by chapters on the unstable structure. The final chapters cover wave formation, problems, and future directions.

This is literally the bible on everything related to detonations and deflagrations. John Lee is one of the top researchers in shock waves and detonations, and his book reflects that. Although it is a bit hardcore at times, you can tell the author wants the reader to learn as much as possible about the detonation phenomenon.

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