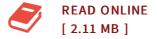


Supersonic Flow and Shock Waves

By Courant, Richard / Friedrichs, K. O.

Book Condition: New. Publisher/Verlag: Springer, Berlin Courant and Friedrich's classical treatise was first published in 1948 and tThe basic research for it took place during World War II. However, many aspects make the book just as interesting as a text and a reference today. It treats the dynamics of compressible fluids in mathematical form, and attempts to present a systematic theory of nonlinear wave propagation, particularly in relation to gas dynamics. Written in the form of an advanced textbook, it should appeal to engineers, physicists and mathematicians alike. | I. Compressible Fluids.- 1. Qualitative differences between linear and nonlinear waves.- A. General Equations of Flow. Thermodynamic Notions.- 2. The medium.- 3. Ideal gases, polytropic gases, and media with separable energy.- 4. Mathematical comments on ideal gases.- 5. Solids which do not satisfy Hooke's law.- 6. Discrete media.- 7. Differential equations of motion.- 8. Conservation of energy.- 9. Enthalpy.- 10. Isentropic flow. Steady flow. Subsonic and supersonic flow.- 11. Acoustic approximation.- 12. Vector form of the flow equations.- 13. Conservation of circulation. Irrotational flow. Potential.- 14. Bernoulli's law.- 15. Limit speed and critical speed.- B. Differential Equations for Specific Types of Flow.- 16. Steady flows.- 17. Non-steady flows.- 18. Lagrange's...



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