

An Introduction to Nonlinear Partial Differential Equations

J. David Logan



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A practical introduction to nonlinear PDEs and their real-world applications

Now in a Second Edition, this popular book on nonlinear partial differential equations (PDEs) contains expanded coverage on the central topics of applied mathematics in an elementary, highly readable format and is accessible to students and researchers in the field of pure and applied mathematics. This book provides a new focus on the increasing use of mathematical applications in the life sciences, while also addressing key topics such as linear PDEs, first-order nonlinear PDEs, classical and weak solutions, shocks, hyperbolic systems, nonlinear diffusion, and elliptic equations. Unlike comparable books that typically only use formal proofs and theory to demonstrate results, An Introduction to Nonlinear Partial Differential Equations, Second Edition takes a more practical approach to nonlinear PDEs by emphasizing how the results are used, why they are important, and how they are applied to real problems.

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- Additional intermediate-level exercises that facilitate the development of advanced problem-solving skills
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