A self-contained introduction to the methods and techniques of symmetry analysis used to solve ODEs and PDEs

Symmetry Analysis of Differential Equations: An Introduction presents an accessible approach to the uses of symmetry methods in solving both ordinary differential equations (ODEs) and partial differential equations (PDEs). Providing comprehensive coverage, the book fills a gap in the literature by discussing elementary symmetry concepts and invariance, including methods for reducing the complexity of ODEs and PDEs in an effort to solve the associated problems.

Thoroughly class-tested, the author presents classical methods in a systematic, logical, and well-balanced manner. As the book progresses, the chapters graduate from elementary symmetries and the invariance of algebraic equations, to ODEs and PDEs, followed by coverage of the nonclassical method and compatibility. Symmetry Analysis of Differential Equations: An Introduction also features:

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Symmetry Analysis of Differential Equations: An Introduction is an ideal textbook for upper-undergraduate and graduate-level courses in symmetry methods and applied mathematics. The book is also a useful reference for professionals in science, physics, and engineering, as well as anyone wishing to learn about the use of symmetry methods in solving differential equations.

ABOUT THE AUTHOR

DANIEL J. ARRIGO, PhD, is Professor in the Department of Mathematics at the University of Central Arkansas. The author of over 30 journal articles, his research interests include the construction of exact solutions of PDEs; symmetry analysis of nonlinear PDEs; and solutions to physically important equations, such as nonlinear heat equations and governing equations modeling of granular materials and nonlinear elasticity. In 2008, Dr. Arrigo received the Oklahoma-Arkansas Section of the Mathematical Association of America's Award for Distinguished Teaching of College or University Mathematics.

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