



Nonlinear Partial Differential Equations for Scientists and Engineers

By Lokenath Debnath

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The revised and enlarged third edition of this successful book presents a comprehensive and systematic treatment of linear and nonlinear partial differential equations and their varied and updated applications. In an effort to make the book more useful for a diverse readership, updated modern examples of applications are chosen from areas of fluid dynamics, gas dynamics, plasma physics, nonlinear dynamics, quantum mechanics, nonlinear optics, acoustics, and wave propagation.

Nonlinear Partial Differential Equations for Scientists and Engineers, Third Edition, improves on an already highly complete and accessible resource for graduate students and professionals in mathematics, physics, science, and engineering. It may be used to great effect as a course textbook, research reference, or self-study guide.

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Editorial Review

Review

From the reviews:

"An exceptionally complete overview of the latest developments in the field of PDEs. There are numerous examples and the emphasis is on applications to almost all areas of science and engineering. There is truly something for everyone here."**?Applied Mechanics Review (Review of First Edition)**

From the reviews of the third edition:

"Overall, it is a useful book for teaching, a rich source of examples, and I am happy to have it on a shelf of my library."**?UK Nonlinear News (Review of Second Edition)**

"This book provides an introduction to nonlinear partial differential equations that arise throughout in science and engineering and to the basic methods for finding the solutions for these equations. The book contains thirteen chapters and three appendixes. At the end of the first twelve chapters there are exercises that help to understand the subject matter. ... This book is recommended for graduate students in science and engineering." (Valery V. Karachik, Zentralblatt MATH, Vol. 1242, 2012)

From the Back Cover

An exceptionally complete overview of the latest developments in the field of PDEs. There are numerous examples and the emphasis is on applications to almost all areas of science and engineering. There is truly something for everyone here. ?Applied Mechanics Review (Review of First Edition)

Overall, it is a useful book for teaching, a rich source of examples, and I am happy to have it on a shelf of my library. ?UK Nonlinear News (Review of Second Edition)

The revised and enlarged third edition of this successful book presents a comprehensive and systematic treatment of linear and nonlinear partial differential equations and their various current applications. In an effort to make the book more useful for a diverse readership, updated modern examples of applications have been chosen from areas of fluid dynamics, gas dynamics, plasma physics, nonlinear dynamics, quantum mechanics, nonlinear optics, acoustics, and wave propagation.

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- * Completely updated list of references and enlarged index.

Nonlinear Partial Differential Equations for Scientists and Engineers, Third Edition, improves on an already complete and accessible resource for senior undergraduate and graduate students and professionals in mathematics, physics, science, and engineering. It may be used to great effect as a course textbook, a research reference, or a self-study guide.

About the Author

Lokenath Debnath is author or co-author of seven graduate-level books and research monographs, including "Introduction to Hilbert Spaces with Applications," "Nonlinear Water Waves," and "Continuum Mechanics" published by Academic Press; "Nonlinear Partial Differential Equations for Scientists and Engineers" and "Wavelets Transforms and Their Applications," published by Birkhauser Boston; "Partial Differential Equations for Scientists and Engineers" published by Prentice Hall; and "Integral Transforms and Their Applications" by CRC Press/Chapman and Hall. He has also edited seven research monographs including "Nonlinear Waves" published by Cambridge University Press and "Wavelet Transforms and Time-Frequency Signal Analysis" published by Birkhauser Boston. He is an author and co-author of over 300 research papers in pure and applied mathematics, encompassing applied partial differential equations, integral transforms and special functions, inequalities, solid and fluid mechanics, linear and nonlinear waves, solitons, magnetohydrodynamics, unsteady boundary layers, dynamics of oceans, wavelet transforms, signal processing, and stability theory.

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