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Special Issue Book

Lie and non-Lie Symmetries: Theory and Applications for Solving Nonlinear Models

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ISBN 978-3-03842-526-7 (print) • ISBN 978-3-03842-5267-4 (electronic)

Since the end of the 19th century when the prominent Norwegian mathematician Sophus Lie created the theory of Lie algebras and Lie groups and developed the method of their applications for solving differential equations, his theory and method have continuously been the research focus of many well-known mathematicians and physicists. This book is devoted to recent development in Lie theory and its applications for solving physically and biologically motivated equations and models. The book contains the articles published in two Special Issue of the journal *Symmetry*, which are devoted to analysis and classification of Lie algebras, which are invariance algebras of real-world models; Lie and conditional symmetry classification problems of nonlinear PDEs; the application of symmetry-based methods for finding new exact solutions of nonlinear PDEs (especially reaction-diffusion equations) arising in applications; the application of the Lie method for solving nonlinear initial and boundary-value problems (especially those for modelling processes with diffusion, heat transfer, and chemotaxis).



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