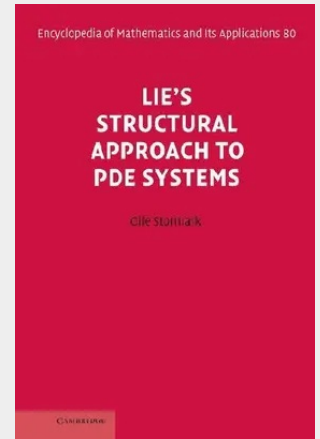


Lie's Structural Approach to Pde Systems

First published in 2000, this book provides a lucid and comprehensive introduction to the differential geometric study of partial differential equations. It was the first book to present substantial results on local solvability of general and, in particular, nonlinear PDE systems without using power series techniques. The book describes a general approach to systems of partial differential equations based on ideas developed by Lie, Cartan and Vessiot. The most basic question is that of local solvability, but the methods used also yield classifications of various families of PDE systems. The central idea is the exploitation of singular vector field systems and their first integrals. These considerations naturally lead to local Lie groups, Lie pseudogroups and the equivalence problem, all of which are covered in detail. This book will be a valuable resource for graduate students and researchers in partial differential equations, Lie groups and related fields.

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