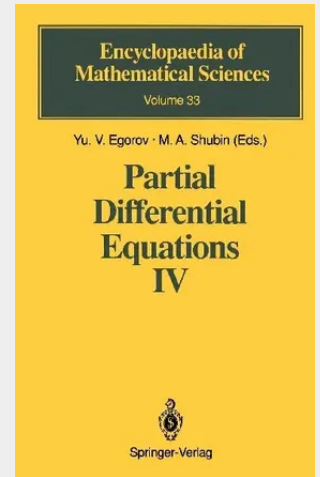


Partial Differential Equations IV

Microlocal Analysis and Hyperbolic Equations

In the first part of this EMS volume Yu.V. Egorov gives an account of microlocal analysis as a tool for investigating partial differential equations. This method has become increasingly important in the theory of Hamiltonian systems. Egorov discusses the evolution of singularities of a partial differential equation and covers topics like integral curves of Hamiltonian systems, pseudodifferential equations and canonical transformations, subelliptic operators and Poisson brackets. The second survey written by V.Ya. Ivrii treats linear hyperbolic equations and systems. The author states necessary and sufficient conditions for C^∞ - and L^2 -well-posedness and he studies the analogous problem in the context of Gevrey classes. He also gives the latest results in the theory of mixed problems for hyperbolic operators and a list of unsolved problems. Both parts cover recent research in an important field, which before was scattered in numerous journals. The book will hence be of immense value to graduate students and researchers in partial differential equations and theoretical physics.

This EMS volume contains two surveys in the field of partial differential equations. Microlocal analysis is an important method, which many results in the theory of Hamiltonian systems are based on. Another important field is the theory of hyperbolic operators and the Cauchy problem. Egorov and Ivrii give an account of research in these fields and they state unsolved problems. The book is a valuable source of information for graduate students and researchers in the field of partial differential equations and theoretical physics.



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