

Preface to the Russian Edition

In the present volume, the third in the series "Generalized Functions," the apparatus of generalized functions is applied to the investigation of the following problems of the theory of partial differential equations: the problems of determining uniqueness and correctness classes for solutions of the Cauchy problem for systems with constant (or only time-dependent) coefficients and the problem of eigenfunction expansions for self-adjoint differential operators.

In subsequent volumes, the authors intend to discuss boundary value problems for elliptic equations and the Cauchy problem for equations with variable coefficients and for quasilinear equations, as well as problems related to complex extensions of all independent variables.

The authors use this occasion to thank the participants of the Seminar on Generalized Functions and Partial Differential Equations at Moscow State University, where various sections of this volume were repeatedly discussed. In particular, they are grateful to V. M. Borok, A. G. Kostyuchenko, Ya. I. Zhitomirskii and G. N. Zolotarev. The authors would also like to thank I. I. Shulishova for setting up detailed indexes for the first three volumes and to M. S. Agranovich, who has carefully edited the whole text and whose criticism has contributed considerable improvements.

Moscow, 1958

I. M. GEL'FAND
G. E. SHILOV