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Nonequilibrium Problems in Many-Particle Systems

Lectures given at the 3rd Session of the Centro
Internazionale Matematico Estivo (C.I.M.E.)
held in Montecatini, Italy, June 15-27, 1992

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Preface

This volume contains the text of four sets of lectures delivered by L. Arkeryd, P.-L. Lions, P. A. Markowich and S. R. S. Varadhan at the third session of the Summer School organized by C.I.M.E. (Centro Internazionale Matematico Estivo). These texts are preceded by an introduction written by us which summarizes the present status in the area of Nonequilibrium Problems in Many-Particle Systems (this was the title given to the session) and tries to put the contents of the different sets of lectures in the right perspective, in order to orient the reader.

The lectures presented in this volume deal with the global existence of weak solutions for kinetic models and related topics, the basic concepts of non-standard analysis and their application to gas kinetics, the kinetic equations for semiconductors and the entropy methods in the study of hydrodynamic limits. The lectures were of high level and the school was by all standards a success.

We feel that this volume gives a coherent picture of an important field of applied mathematics which has undergone many important developments in the last few years.

Carlo Cercignani
Mario Pulvirenti

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