

Preface

We present a review of some recent results on the motion of a classical body immersed in an infinitely extended medium and subjected to the action of an external force.

We discuss two cases: when the medium is a gas and when the medium is a fluid. In the first case, the aim is to obtain microscopic models of viscous friction. In the second case, we want to underline some nontrivial features of the motion.

We do not pretend to give a general survey on the subject, but only to discuss some particular results to emphasize the steps done and the open problems. The review is written into the framework of mathematical physics, i.e., it must conjugate the mathematical rigor of the proofs with an explanation of the physical meaning of the results. Sometimes, we study the problem only at a heuristic level, and in this case we emphasize this fact. We give the main ideas and discuss only some aspects of the proofs, while we address to the original papers for the entire technical details and numerical evidences.

A large part of the results presented in this book are the products of fruitful collaborations with several coworkers: K. Aoki, E. Caglioti, S. Caprino, G. Ferrari, F. Manzo, M. Pulvirenti, and T. Tsuji.

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