

1. Record Nr.	UNINA9910132444803321
Autore	Buttà Paolo
Titolo	Mathematical Models of Viscous Friction / / by Paolo Buttà, Guido Cavallaro, Carlo Marchioro
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-14759-5
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (XIV, 134 p. 5 illus.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 2135
Disciplina	532.0533
Soggetti	Mathematical physics Differential equations Differential equations, Partial Mechanics Fluids Mathematical Physics Ordinary Differential Equations Partial Differential Equations Classical Mechanics Fluid- and Aerodynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	1. Introduction -- 2. Gas of point particles -- 3. Vlasov approximation -- 4. Motion of a body immersed in a Vlasov system -- 5. Motion of a body immersed in a Stokes uid -- A Innite Dynamics.
Sommario/riassunto	In this monograph we present a review of a number of 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 investigate this topic in the framework of mathematical physics by focusing mainly on the class of purely Hamiltonian systems, for which very few results are available. We discuss two cases: when the medium is a gas and when it is a fluid. In the first case, the aim is to obtain microscopic models of viscous friction. In the second, we seek to underline some non-trivial features of the motion. Far from giving a general survey on the subject, which is very rich and complex from

both a phenomenological and theoretical point of view, we focus on some fairly simple models that can be studied rigorously, thus providing a first step towards a mathematical description of viscous friction. In some cases, we restrict ourselves to studying the problem at a heuristic level, or we present the main ideas, discussing only some aspects of the proof if it is prohibitively technical. This book is principally addressed to researchers or PhD students who are interested in this or related fields of mathematical physics.
