

1. Record Nr.	UNINA9910257435403321
Autore	Odenbach Stefan
Titolo	Magnetoviscous Effects in Ferrofluids // by Stefan Odenbach
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2002
ISBN	3-540-45544-2
Edizione	[1st ed. 2002.]
Descrizione fisica	1 online resource (X, 154 p.)
Collana	Lecture Notes in Physics Monographs, , 0940-7677 ; ; 71
Disciplina	530.4/2
Soggetti	Field theory (Physics) Thermodynamics Statistical physics Dynamics Physical measurements Measurement Fluid mechanics Heat engineering Heat - Transmission Mass transfer Classical and Continuum Physics Complex Systems Measurement Science and Instrumentation Engineering Fluid Dynamics Engineering Thermodynamics, Heat and Mass Transfer
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Magnetic fluids -- The magnetoviscous effect in highly diluted ferrofluids -- Magnetoviscosity in concentrated ferrofluids -- Magnetorheological Fluids -- Conclusion and outlook.
Sommario/riassunto	Suspensions of magnetic nanoparticles or ferrofluids can be effectively controlled by magnetic fields, which opens up a fascinating field for basic research into fluid dynamics as well as a host of applications in engineering and medicine. The introductory chapter provides the

reader with basic information on the structure, and magnetic and viscous properties of ferrofluids. The bulk of this monograph is based on the author's own research activity and deals with ferrohydrodynamics, especially with the magnetoviscous effects. In particular, the author studies in detail the interparticle interactions so far often neglected but of great importance in concentrated ferrofluids. The basic theory and the most recent experimental findings are presented, making the book interesting reading for physicists or engineers interested in smart materials.
