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| Titolo | Non-newtonian fluid mechanics and complex flows [e-book] : Levico Terme, Italy 2016 / Angiolo Farina, Andro Mikeli, Giuseppe Saccomandi, Adélia Sequeira, Eleuterio F. Toro ; Angiolo Farina, Andro Mikeli, Fabio Rosso, editors |
| ISBN | 9783319747965<br>3319747967<br>9783319747958<br>3319747959 |
| Descrizione fisica | 1 online resource (ix, 300 pages) : illustrations (some color) |
| Collana | Lecture notes in mathematics, 0075-8434 ; 2212 |
| Classificazione | AMS 76-06<br>AMS 76A05<br>AMS 92-XX<br>AMS 35-XX |
| Altri autori (Persone) | Farina, Angioloauthor<br>Mikeli, Androauthor<br>Saccomandi, Giuseppeauthor<br>Sequeira, Adélia<br>Toro, E. F.<br>Rosso, Fabio |
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| Soggetti | Non-Newtonian fluids<br>Fluid dynamics |
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| Nota di contenuto | 1. Viscoplastic Fluids: Mathematical Modeling and Applications ; 2. An Introduction to the Homogenization Modeling of Non-Newtonian and Electrokinetic Flows in Porous Media ; 3. Old Problems Revisited From New Perspectives in Implicit Theories of Fluids ; 4. Hemorheology: Non-Newtonian Constitutive Models for Blood Flow Simulations ; 5. Lectures on Hyperbolic Equations and their Numerical Approximation |
| Sommario/riassunto | This book presents a series of challenging mathematical problems which arise in the modeling of Non-Newtonian fluid dynamics. It |

focuses in particular on the mathematical and physical modeling of a variety of contemporary problems, and provides some results. The flow properties of Non-Newtonian fluids differ in many ways from those of Newtonian fluids. Many biological fluids (blood, for instance) exhibit a non-Newtonian behavior, as do many naturally occurring or technologically relevant fluids such as molten polymers, oil, mud, lava, salt solutions, paint, and so on. The term "complex flows" usually refers to those fluids presenting an "internal structure" (fluid mixtures, solutions, multiphase flows, and so on). Modern research on complex flows has increased considerably in recent years due to the many biological and industrial applications