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| 1. Record Nr.           | UNINA9910337870103321  |
| Autore                  | Melzer Andre   |
| Titolo                  | Physics of Dusty Plasmas : An Introduction / / by André Melzer   |
| Pubbl/distr/stampa      | Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019  |
| ISBN                    | 3-030-20260-7  |
| Edizione                | [1st ed. 2019.]  |
| Descrizione fisica      | 1 online resource (X, 235 p. 127 illus., 108 illus. in color.)   |
| Collana                 | Lecture Notes in Physics, , 0075-8450 ; ; 962  |
| Disciplina              | 530.446<br>530.44  |
| Soggetti                | Plasma (Ionized gases)<br>Physics<br>Solar system<br>Plasma Physics<br>Applied and Technical Physics<br>Solar and Heliospheric Physics   |
| Lingua di pubblicazione | Inglese  |
| Formato                 | Materiale a stampa   |
| Livello bibliografico   | Monografia   |
| Note generali           | Includes index.  |
| Nota di contenuto       | Introduction -- Charging of Dust Particles -- Forces and Trapping of Dust Particles -- Dust Particle Interaction -- Plasma Crystallization and Phase Transitions -- Waves in Weakly Coupled Dusty Plasmas -- Waves in Strongly Coupled Dusty Plasmas -- Finite Dust Clusters -- Dusty Plasmas and Magnetic Fields -- Diagnostic Methods in Dusty Plasmas -- Particle Growth in Dusty Plasmas and Applications -- Astrophysical Dusty Plasmas -- Summary.   |
| Sommario/riassunto      | Colloidal plasmas - a still emerging field of plasma physics - enable the study of basic plasma properties on a microscopic kinetic level and allow the visualization of collective plasma phenomena, like oscillations and waves. Moreover, a vast number of novel phenomena are found in these systems, ranging from Coulomb crystallization to new types of forces and waves. Last but not least, they shed a new light on various traditional aspects of plasma physics such as shielding or the mechanism of acoustic waves in plasmas, thus providing new insight into the basic foundations of plasma physics. These course-based and self-contained lecture notes provide a general introduction to this |

active and growing field to students and nonspecialists, requiring only basic prior knowledge in plasma physics. .

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