1. Record Nr. UNINA9910254638503321

| | |
|---|---|
| Titolo | The Strongest Magnetic Fields in the Universe / / edited by Vasily S. Beskin, A. Balogh, Maurizio Falanga, Maxim Lyutikov, Sandro Mereghetti, Tsvi Piran, R.A. Treumann |
| Pubbl/distr/stampa | New York, NY : , : Springer New York : , : Imprint : Springer, , 2016 |
| ISBN | 1-4939-3550-X |
| Edizione | [1st ed. 2016.] |
| Descrizione fisica | 1 online resource (579 p.) |
| Collana | Space Sciences Series of ISSI, , 1385-7525 ; ; 54 |
| Disciplina | 523.0188 |
| Soggetti | Space sciences<br>Cosmology<br>Magnetism<br>Magnetic materials<br>Space Sciences (including Extraterrestrial Physics, Space Exploration and Astronautics)<br>Magnetism, Magnetic Materials |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | "Previously published in Space Science Reviews Volume 191, Issues 1-4, 2015." |
| Nota di bibliografia | Includes bibliographical references. |
| Nota di contenuto | Foreword -- Part I: Introduction -- Magnetic Fields at Largest Universal Strengths: Overview -- Physics in Very Strong Magnetic Fields: An Introduction -- Part II: Magnetic Fields in Stars -- Observations of Strong Magnetic Fields in Nondegenerate Stars -- Magnetic Field Generation in Stars -- Magnetic White Dwarfs -- Part III: Neutron Stars -- Neutron Stars: Thermal Emitters -- Radio Pulsars -- Neutron Stars: Cooling and Transport -- Magnetic Fields of Neutron Stars in X-ray Binaries -- Magnetars: Properties, Origin and Evolution -- Part IV: Accretion, Winds, Jets -- Accretion and Outflows from Magnetized Stars -- Pulsar Wind Nebulae -- Disks and Jets: Gravity, Rotation and Magnetic Fields -- Part V: Physical Processes -- Gamma Ray Bursts As Sources of Strong Magnetic Fields -- Relativistic Shocks Particle Acceleration and Magnetization -- Relativistic Magnetic Reconnection and Its Astrophysical Applications. |
| Sommario/riassunto | This volume extends the ISSI series on magnetic fields in the Universe |

into the domain of what are by far the strongest fields in the Universe, and stronger than any field that could be produced on Earth. The chapters describe the magnetic fields in non-degenerate strongly magnetized stars, degenerate stars (such as white dwarfs and neutron stars), exotic members called magnetars, and in their environments, as well as magnetic fields in the environments of black holes. These strong fields have a profound effect on the behavior of matter, visible in particular in highly variable processes like radiation in all known wavelengths, including Gamma-Ray bursts. The generation and structure of such strong magnetic fields and effects on the environment are also described.