

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Record Nr.           | UNINA9910741156803321                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Autore                  | Lüst Dieter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Titolo                  | Black Hole Information and Thermodynamics / / by Dieter Lüst, Ward Vleeshouwers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Pubbl/distr/stampa      | Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ISBN                    | 3-030-10919-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Edizione                | [1st ed. 2019.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Descrizione fisica      | 1 online resource (115 pages)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Collana                 | SpringerBriefs in Physics, , 2191-5423                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Disciplina              | 523.8875                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Soggetti                | Forats negres (Astronomia)<br>Cosmologia<br>Termodinàmica<br>Gravitation<br>Cosmology<br>Quantum field theory<br>String models<br>Thermodynamics<br>Classical and Quantum Gravitation, Relativity Theory<br>Quantum Field Theories, String Theory<br>Llibres electrònics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Lingua di pubblicazione | Inglese                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Formato                 | Materiale a stampa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Livello bibliografico   | Monografia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Nota di contenuto       | Special relativity -- Riemannian geometry -- Introduction to general relativity -- General relativity -- Einstein's equations -- Black holes -- Kruskal-Szekeres coordinates and geodesics of the Schwarzschild black hole -- Conformal compactifications and Penrose diagrams -- Penrose diagrams of charged & rotating black holes -- Rotating black holes and black hole mechanics -- Black hole mechanics and thermodynamics -- Black hole thermodynamics -- Black holes and entropy -- Hawking and Unruh radiation -- Quantum field theory in curved space-time backgrounds -- Unruh und Hawking effect -- Information loss paradox -- Solitons in String Theory -- Brane solutions -- Dimensional reduction and black holes -- Black holes in string theory from p/D-branes -- Black hole microstate counting -- Asymptotic symmetries in |

general relativity and black hole hair -- Asymptotic symmetries of 4D space-time geometries -- BMS charges -- The gravitational memory effect -- Current research on BMS-like transformations and charges of black holes -- Quantum hair and quantum black hole vacua.

---

## Sommario/riassunto

Based on Prof. Lüst's Masters course at the University of Munich, this book begins with a short introduction to general relativity. It then presents black hole solutions, and discusses Penrose diagrams, black hole thermodynamics and entropy, the Unruh effect, Hawking radiation, the black hole information problem, black holes in supergravity and string theory, the black hole microstate counting in string theory, asymptotic symmetries in general relativity, and a particular quantum model for black holes. The book offers an up-to-date summary of all the pertinent questions in this highly active field of physics, and is ideal reading for graduate students and young researchers.

---