1. Record Nr. UNINA9910427690503321

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| Autore | Greensite Jeff |
| Titolo | An Introduction to the Confinement Problem / / by Jeff Greensite |
| Pubbl/distr/stampa | Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020 |
| ISBN | 3-030-51563-X |
| Edizione | [2nd ed. 2020.] |
| Descrizione fisica | 1 online resource (273 pages) |
| Collana | Lecture Notes in Physics, , 0075-8450 ; ; 972 |
| Disciplina | 530.1435 |
| Soggetti | Nuclear physics<br>Heavy ions<br>Physics<br>Elementary particles (Physics)<br>Quantum field theory<br>String theory<br>Nuclear Physics, Heavy Ions, Hadrons<br>Mathematical Methods in Physics<br>Elementary Particles, Quantum Field Theory<br>Quantum Field Theories, String Theory |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di contenuto | Introduction -- Global Symmetry, Local Symmetry, and the Lattice -- What is Confinement? -- Order Parameters for Confinement -- Properties of the Confining Force -- Confinement From Center Vortices I -- Confinement from Center Vortices II -- Confinement from Center Vortices III -- Monopoles, Calorons, and Dual Superconductivity -- Coulomb Confinement -- Ghosts, Gluons, and Dyson-Schwinger Equations -- Large-N, Planar Diagrams, and the Gluon-Chain Model -- The Vacuum Wavefunctional -- Anti-de Sitter Space and Confinement -- Symmetry, Confinement, and the Higgs Phase -- Concluding Remarks. |
| Sommario/riassunto | This book addresses the confinement problem, which concerns the behavior of non-abelian gauge theories, and the force which is mediated by gauge fields, at large distances. The word “confinement” |

in the context of hadronic physics originally referred to the fact that quarks and gluons appear to be trapped inside mesons and baryons, from which they cannot escape. There are other, and possibly deeper meanings that can be attached to the term, and these will be explored in this book. Although the confinement problem is far from solved, much is now known about the general features of the confining force, and there are a number of very well motivated theories of confinement which are under active investigation. This volume gives a both pedagogical and concise introduction and overview of the main ideas in this field, their attractive features, and, as appropriate, their shortcomings. This second edition summarizes some of the developments in this area which have occurred since the first edition of this book appeared in 2011. These include new results in the caloron/dyon picture of confinement, in functional approaches, and in studies of the Yang-Mills vacuum wave functional. Special attention, in two new chapters, is given to recent numerical investigations of the center vortex theory, and to the varieties of confinement which may exist in gauge-Higgs theories. Reviews of the first edition: “This is indeed a very good book. I enjoyed reading it and … I learned a lot from it …. It is definitely a research book that provides readers with a guide to the most updated confinement models.” (Giuseppe Nardelli, Mathematical Reviews, Issue 2012 d) “The book is beautifully produced with special emphasis on the relevance of center symmetry and lattice formulation as well as an introduction to current research on confinement.” (Paninjukunnath Achuthan, Zentralblatt MATH, Vol. 1217, 2011).