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| Nota di contenuto | Contents: Introduction -- Historical Sketch on the Nature of Light -- The Correspondence Principle, the Wave Corpuscle Duality, the Complementarity Principle and the Slit Experiment -- The Spin Quantization Problem -- Localizability. The Photon Scandal. Quantization Helpless!- A Position Operator for the Photon. Giving up the Complementary Principle -- Departing from the Newton-Wigner- Wightman Axioms -- Is Minkowski Space-time Suitable for Particle Physics?- Appendix A. The Symplectic Structure of Coadjoint Orbits -- Appendix B. The Quantization of the Sphere S ² -- Appendix C. The Angular Momentum of an Electric Charge in the Monopole Field (an Application of the Noether Theorem) -- Appendix D. Non Localizability of the Classical Massless Particle with Helicity -- Appendix E. The Maxwell Equations and the Poincaré Group -- Appendix F. The Zitterbewegung. The Pryce-Foldy-Wouthuysen Transformation -- Quotations -- Index of Names. |
| Sommario/riassunto | This book discusses in detail the concept of light quanta (photons) and presents a historical survey of the ideas involved. It analyses critically the principles of complementarity and correspondence as well as the |

quantization procedure. The work of Wigner, Newton and Wightman on localized states is discussed. The author presents many new ideas and gives a new way of defining the position operator. He invites physicists to look in new directions and aims to convince the reader that light quanta are not compatible with our present concept of space in quantum physics. The book should be of interest to students as well as to researchers in modern physics and should revive the discussion of the foundations of modern physics.
