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Nota di contenuto	A Century of Quantum Mechanics by D. Gross -- Realism and the Physical World by A.J. Legget -- Each Instant of Time a New Universe by Y. Aharonov et al -- The Brout-Englert-Higgs Mechanism and Its Scalar Boson by F. Englert -- NET = T.O.E.? by S. Nussinov -- The Limits of Black Hole Complementarity by L. Susskind -- Quantum Weak Measurements and Cosmology by P.C.W. Davies -- The Quantum Mechanical Arrows of Time by J.B. Hartle -- Collpase Miscellany by P. Pearle -- Many Words, the Born Rule and the Self-Locating Uncertainty by S.M. Carroll et al -- Physics and Narrative by D. Albert -- Quantum Correlations in Newtonian Space and Time: Arbitrarily Fast Communication or Nonlocality by N. Gisin -- PR-Box Correlations Have No Classical Limit by D. Rohrlich -- A Gravitational Aharonov-Bohm Effect and Its Connection to Parametric Oscillators and Gravitational Radiation by R.Y. Chiao et al -- Paradoxes of the Aharonov-Bohm and the Aharonov-Casher Effects by L. Vaidman -- Weak Values: The Progression from Quantum Foundations to Tool by A.N. Jordan and J. Tollaksen -- Entanglement and Weak Values: A Quantum Miracle

Cookbook by A. Botero -- Weak Energy: Form and Function by A.D. Parks -- Weak Values beyond Post-selection by L.M. Johansen -- On Superoscillators Longevity: A Windowed Fourier Transform Approach by Y. Aharonov et al -- Superoscillations, Endfire and Supergain by M.V. Berry -- Relating Local Time Evolution with Bipartite States: An Exact Map Manifested by Weak Measurements by S. Marcovitch and B. Reznik -- Relating Local Time Evolutions with Bipartite States: an Exact Map Manifested by Weak Measurements by S. Marcovitch, B. Reznik -- Anatomy of Quantum Tunneling by N. Turok -- Experimental Implementations of Quantum Paradoxes by G.A.D. Briggs -- Standard and Null Weak Values by O. Zilberberg et al -- Increase of Signal-to-Noise Ratio in Weak Value Measurements by C. Byard -- Yakir Aharonov: from A to B by A. Pines.

Sommario/riassunto

Yakir Aharonov is one of the leading figures in the foundations of quantum physics. His contributions range from the celebrated Aharonov-Bohm effect (1959), to the more recent theory of weak measurements (whose experimental confirmations were recently ranked as the two most important results of physics in 2011). This volume will contain 27 original articles, contributed by the most important names in quantum physics, in honor of Aharonov's 80-th birthday. Sections include "Quantum mechanics and reality," with contributions from Nobel Laureates David Gross and Sir Anthony Leggett and Yakir Aharonov, S. Popescu and J. Tollaksen; "Building blocks of Nature" with contributions from Francois Englert (co-proposer of the scalar boson along with Peter Higgs); "Time and Cosmology" with contributions from Leonard Susskind, P.C.W. Davies and James Hartle; "Universe as a Wavefunction," with contributions from Phil Pearle, Sean Carroll and David Albert; "Nonlocality," with contributions from Nicolas Gisin, Daniel Rohrlich, Ray Chiao and Lev Vaidman; and finishing with multiple sections on weak values with contributions from A. Jordan, A. Botero, A.D. Parks, L. Johansen, F. Colombo, I. Sabadini, D.C. Struppa, M.V. Berry, B. Reznik, N. Turok, G.A.D. Briggs, Y. Gefen, P. Kwiat, and A. Pines, among others.