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6.4 The harmonic oscillator according to Caputo7. Wave Equations and Parity; 7.1 Fractional wave equations; 7.2 Parity and time-reversal; 7.3 Solutions of the free regularized fractional wave equation; 8. Nonlocality and Memory Effects; 8.1 A short history of nonlocal concepts; 8.2 From local to nonlocal operators; 8.3 Memory effects; 9. Fractional Calculus in Multidimensional Space - 2D-Image Processing; 9.1 The generalized fractional derivative; 9.2 Shape recovery - the local approach; 9.3 Shape recovery - the nonlocal approach
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11.5 Radial solutions of the fractional Schrodinger equation

Sommario/riassunto

The book presents a concise introduction to the basic methods and strategies in fractional calculus and enables the reader to catch up with the state of the art in this field as well as to participate and contribute in the development of this exciting research area. The contents are devoted to the application of fractional calculus to physical problems. The fractional concept is applied to subjects in classical mechanics, group theory, quantum mechanics, nuclear physics, hadron spectroscopy and quantum field theory and it will surprise the reader with new intriguing insights. This new, extende