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Nota di contenuto	Cover; Half-title; Title; Copyright; Contents; Preface to the first edition; Preface to the second edition; Preface to the third edition; 1 Physics and Fourier transforms; 2 Useful properties and theorems; 3 Applications 1: Fraunhofer diffraction; 4 Applications 2: signal analysis and communication theory; 5 Applications 3: interference spectroscopy and spectral line shapes; 6 Two-dimensional Fourier transforms; 7 Multi-dimensional Fourier transforms; 8 The formal complex Fourier transform; 9 Discrete and digital Fourier transforms; Appendix; Bibliography; Index
Sommario/riassunto	Fourier transform theory is of central importance in a vast range of applications in physical science, engineering and applied mathematics.

Providing a concise introduction to the theory and practice of Fourier transforms, this book is invaluable to students of physics, electrical and electronic engineering, and computer science. After a brief description of the basic ideas and theorems, the power of the technique is illustrated through applications in optics, spectroscopy, electronics and telecommunications. The rarely discussed but important field of multi-dimensional Fourier theory is covered, including a description of Computer Axial Tomography (CAT scanning). The book concludes by discussing digital methods, with particular attention to the Fast Fourier Transform and its implementation. This new edition has been revised to include new and interesting material, such as convolution with a sinusoid, coherence, the Michelson stellar interferometer and the van Cittert-Zernike theorem, Babinet's principle and dipole arrays.
