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Nota di contenuto	A New Twist to Fourier Transforms; Table of Contents; Introduction; Conventions; Symbols; Acknowledgments; 1 The Fourier Transform and the Helix; 1.1 Fourier Transform Conventions; 1.1.1 Fourier Transforms in Physics; 1.1.2 Fourier Transform in Electrical Engineering; 1.1.3 Fourier Transform in Statistics; 1.2 The Fourier Transform and the Helical Functions; 1.3 Radar and Sonar Echo Signals; 1.4 Colour Television Signals; 1.5 Modulation and Demodulation; 1.6 Communications; 1.7 Circularly Polarised Waves; 1.8 Noise; 1.9 Other Forms of the Fourier Transform; 2 Spiral and Helical Functions 2.1 Complex Arithmetic2.1.1 Unary Operations; 2.1.2 Vector Addition and Subtraction; 2.1.3 Vector Multiplication; 2.1.4 Division; 2.1.5 Powers of Vectors; 2.2 Unbalanced Polyphase Voltages and Currents; 3 Fourier Transforms; 3.1 From Fourier Series to Fourier Transform; 3.1.1 Fourier Series; 3.1.2 Period of Integration for a Fourier Series; 3.1.3 Fourier Transform; 3.1.4 Inverse Transform; 3.2 Three of the Conventions for Fourier Transforms; 3.3 Fourier Transforms and Spatial Spirals; 3.4 Properties of Fourier Transforms; 3.4.1 Addition, Subtraction, and Scaling - Linearity 3.4.2 Multiplication of Transforms3.4.3 Division; 3.4.4 Differentiation; 3.4.5 Moments; 3.5 Special Functions used for Fourier Transforms; 3.6

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Sommario/riassunto

Making use of the inherent helix in the Fourier transform expression, this book illustrates both Fourier transforms and their properties in the round. The author draws on elementary complex algebra to manipulate the transforms, presenting the ideas in such a way as to avoid pages of complicated mathematics. Similarly, abbreviations are not used throughout and the language is kept deliberately clear so that the result is a text that is accessible to a much wider readership.The treatment is extended with the use of sampled data to finite and discrete transforms, the fast Fourier transform, o