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Nota di contenuto	Title Page; Copyright; Contents; List of Figures; List of Tables ; About the Author ; Preface; Chapter 1 Equilibrium Thermodynamic Degradation Science ; 1.1 Introduction to a New Science; 1.2 Categorizing Physics of Failure Mechanisms; 1.3 Entropy Damage Concept; 1.3.1 The System (Device) and its Environment; 1.3.2 Irreversible Thermodynamic Processes Cause Damage; 1.4 Thermodynamic Work; 1.5 Thermodynamic State Variables and their Characteristics; 1.6 Thermodynamic Second Law in Terms of System Entropy Damage; 1.6.1 Thermodynamic Entropy Damage Axiom; 1.6.2 Entropy and Free Energy 1.7 Work, Resistance, Generated Entropy, and the Second Law1.8 Thermodynamic Catastrophic and Parametric Failure; 1.8.1 Equilibrium and Non-Equilibrium Aging States in Terms of the Free Energy or Entropy Change; 1.9 Repair Entropy; 1.9.1 Example 1.1: Repair Entropy: Relating Non-Damage Entropy Flow to Entropy Damage; Summary ; References; Chapter 2 Applications of Equilibrium Thermodynamic Degradation to Complex and Simple Systems: Entropy Damage,

Vibration, Temperature, Noise Analysis, and Thermodynamic Potentials ; 2.1 Cumulative Entropy Damage Approach in Physics of Failure 2.1.1 Example 2.1: Miners Rule Derivation 2.1.2 Example 2.2: Miners Rule Example; 2.1.3 Non-Cyclic Applications of Cumulative Damage; 2.2 Measuring Entropy Damage Processes; 2.3 Intermediate Thermodynamic Aging States and Sampling; 2.4 Measures for System-Level Entropy Damage; 2.4.1 Measuring System Entropy Damage with Temperature; 2.4.2 Example 2.3: Resistor Aging; 2.4.3 Example 2.4: Complex Resistor Bank; 2.4.4 System Entropy Damage with Temperature Observations; 2.4.5 Example 2.5: Temperature Aging of an Operating System 2.4.6 Comment on High-Temperature Aging for Operating and Non-Operating Systems 2.5 Measuring Randomness due to System Entropy Damage with Mesoscopic Noise Analysis in an Operating System; 2.5.1 Example 2.6: Gaussian Noise Vibration Damage; 2.5.2 Example 2.7: System Vibration Damage Observed with Noise Analysis; 2.6 How System Entropy Damage Leads to Random Processes; 2.6.1 Stationary versus Non-Stationary Entropy Process; 2.7 Example 2.8: Human Heart Rate Noise Degradation; 2.8 Entropy Damage Noise Assessment Using Autocorrelation and the Power Spectral Density 2.8.1 Noise Measurements Rules of Thumb for the PSD and R 2.8.2 Literature Review of Traditional Noise Measurement; 2.8.3 Literature Review for Resistor Noise; 2.9 Noise Detection Measurement System; 2.9.1 System Noise Temperature; 2.9.2 Environmental Noise Due to Pollution; 2.9.3 Measuring System Entropy Damage using Failure Rate; 2.10 Entropy Maximize Principle: Combined First and Second Law; 2.10.1 Example 2.9: Thermal Equilibrium; 2.10.2 Example 2.10: Equilibrium with Charge Exchange; 2.10.3 Example 2.11: Diffusion Equilibrium; 2.10.4 Example 2.12: Available Work 2.11 Thermodynamic Potentials and Energy States

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Descrizione fisica	1 online resource
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Soggetti	Identification Periodicals.
Lingua di pubblicazione	Inglese
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