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Part III New and Emerging Methods19 3D X-ray Diffraction Microscope; 20 3D Micron-Resolution Laue Diffraction; 21 Quantitative Analysis of Three-Dimensional Plastic Strain Fields Using Markers and X-ray Absorption Tomography; 22 Combined Diffraction and Tomography; Part IV Industrial Applications; 23 Diffraction-Based Residual Stress Analysis Applied to Problems in the Aircraft Industry; 24 Optimization of Residual Stresses in Crankshafts; Index

Sommario/riassunto

Besides its coverage of the four important aspects of synchrotron sources, materials and material processes, measuring techniques, and applications, this ready reference presents both important method types: diffraction and tomography. Following an introduction, a general section leads on to methods, while further sections are devoted to emerging methods and industrial applications. In this way, the text provides new users of large-scale facilities with easy access to an understanding of both the methods and opportunities offered by different sources and instruments.