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Titolo	Combined analysis [[electronic resource] /] / Daniel Chateigner
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Collana	ISTE
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Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Combined Analysis; Title Page; Copyright Page; Table of Contents; Introduction; Acknowledgements; Chapter 1. Some Basic Notions About Powder Diffraction; 1.1. Crystallite, grain, polycrystal and powder; 1.2. Bragg's law and harmonic reflections; 1.2.1. Bragg's law; 1.2.2. Monochromator; 1.2.3. Harmonic radiation components; 1.3. Geometric conditions of diffraction, Ewald sphere; 1.4. Imperfect powders; 1.5. Main diffraction line profile components; 1.5.1. Origin of g(x); 1.5.2. Origin of f(x); 1.5.3. Deconvolution-extraction of f(x) and g (x); 1.6. Peak profile parameters 1.7. Modeling of the diffraction peaks1.7.1. Why do we need modeling?; 1.7.2. Modeling of a powder diffraction pattern; 1.8. Experimental geometry; 1.8.1. Curved Position Sensitive detector, asymmetric reflection geometry; 1.8.2. CCD or image plate detector, transmission geometry; 1.8.3. Curved-Area Position-Sensitive detector, transmission geometry; 1.9. Intensity calibration (flat-field); 1.9.1. Counts and intensity; 1.9.2. Flat-field; 1.9.3. PSD detector; 1.9.4. CAPS detector; 1.10. Standard samples; 1.10.1. Laboratory x-ray standards;

1.10.2. Neutron texture standards
1.11. Probed thickness (penetration depth)Chapter 2. Structure Refinement by Diffraction Profile Adjustment (Rietveld Method); 2.1. Principle of the Rietveld method; 2.2. Rietveld-based codes; 2.3. Parameter modeling; 2.3.1. Background modeling; 2.3.2. Structure factor; 2.3.3. Crystallites' preferred orientation (texture) corrections; 2.3.4. Peak asymmetry; 2.3.5. Peak displacements; 2.3.6. Lorentz-polarization correction; 2.3.7. Volume, absorption, thickness corrections; 2.3.8. Localization corrections; 2.3.9. Microabsorption/roughness corrections; 2.3.10. Wavelength
2.4. Crystal structure databases2.5. Reliability factors in profile refinements; 2.6. Parameter exactness; 2.7. The Le Bail method; 2.8. Refinement procedures; 2.8.1. Least squares; 2.8.2. Genetic or evolutionary algorithms; 2.8.3. Derivative difference minimization (DDM); 2.8.4. Simulated annealing; 2.9. Refinement strategy; 2.10. Structural determination by diffraction; 2.10.1. The phase problem in diffraction; 2.10.2. Patterson function; 2.10.3. Direct methods; 2.10.4. Direct space methods; 2.10.5. Fourier difference map; 2.10.6. Extension to aperiodic structures
Chapter 3. Automatic Indexing of Powder Diagrams3.1. Principle; 3.2. Dichotomy approach; 3.3. Criterions for quality; Chapter 4. Quantitative Texture Analysis; 4.1. Classic texture analysis; 4.1.1. Qualitative aspects of texture analysis; 4.1.2. Effects on diffraction diagrams; 4.1.3. Limitations of classic diagrams; 4.1.4. The Lotgering factor; 4.1.5. Representations of textures: pole figures; 4.1.6. Localization of crystallographic directions from pole figures; 4.1.7. Texture types; 4.2. Orientation distribution (OD) or orientation distribution function (ODF) 4.2.1. Pole figures and orientation spaces

Sommario/riassunto

This book introduces and details the key facets of Combined Analysis - an x-ray and/or neutron scattering methodology which combines structural, textural, stress, microstructural, phase, layer, or other relevant variable or property analyses in a single approach. The text starts with basic theories related to diffraction by polycrystals and some of the most common combined analysis instrumental set-ups are detailed. Also discussed are microstructures of powder diffraction profiles; quantitative phase analysis from the Rietveld analysis; residual stress analysis for isotropic and anisotropic ma

2. Record Nr. UNINA9910298417503321

Titolo	Filtering Media by Electrospinning : Next Generation Membranes for Separation Applications / / edited by Maria Letizia Focarete, Chiara Gualandi, Seeram Ramakrishna
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-78163-4
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (230 pages)
Disciplina	660.284245
Soggetti	Biochemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Electrospinning Technology for Filtering Membranes Fabrication -- Current Advances on Nanofiber Membranes for Water Purification Applications -- Electrospun Filters for Air Filtration: Comparison with Existing Air Filtration Technologies -- Electrospun Filters for Defense and Protective Applications -- Electrospun Filters for Heavy Metals Removal -- Electrospun Filters for Organic Pollutants Removal -- Electrospun Filters for Oil-water Separation -- Affinity Membranes for Cell Capture and Biological Substances -- Electrospun Nanofibre Filter Media – New Emergent Technologies and Market Perspectives -- Index.
Sommario/riassunto	This book covers the state-of-the-art on electrospun materials for the use of filters for water remediation, ion-exchange membranes and affinity membranes for the capture of selected chemical and biochemical species, as well as filtering applications covering air treatment, defense and protective applications, and oil-water separation. The book also provides an overview of the landscape of marketed electrospun filters and of technical approaches for the large scale production of nanofibrous non-woven filter media. This is an ideal book for biomaterials and polymer researchers interested in the applications of filtering media by electrospinning. Covers the latest research on ion-exchange membranes and affinity membranes for capture of cells and biological substances Broadens reader understanding of antimicrobial electrospun filters and sieving filters for

liquid microfiltration Reviews exhaustively the key recent research into electrospun filters for oil-water separation, heavy metals removal, and defense and protective applications.

3. Record Nr. UNINA9910254084903321

Autore	Aschepkov Leonid T.
Titolo	Optimal Control / / by Leonid T. Aschepkov, Dmitriy V. Dolgy, Taekyun Kim, Ravi P. Agarwal
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-49781-2
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (XV, 209 p. 55 illus.)
Disciplina	629.8312
Soggetti	Calculus of variations System theory Calculus of Variations and Optimal Control; Optimization Systems Theory, Control
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	NOTATIONS -- PREFACE -- INTRODUCTION -- 1. Subject of optimal control -- 2. Mathematical model of controlled object -- 3. Reachability set -- 4. Controllability of linear systems -- 5. Minimum time problem -- 6. Synthesis of optimal system performance -- 7. The observability problem -- 8. Identification problem -- 9. Types of optimal control problems -- 10. Small increments of a trajectory -- 11. The simplest problem of optimal control -- 12. General optimal control problem -- 13. Sufficient optimality conditions -- CONCLUSION -- APPENDIX -- EXAMPLES OF TASKS AND SOLUTIONS -- LITERATURE.
Sommario/riassunto	This book is based on lectures from a one-year course at the Far Eastern Federal University (Vladivostok, Russia) as well as on workshops on optimal control offered to students at various mathematical departments at the university level. The main themes of the theory of linear and nonlinear systems are considered, including the basic problem of establishing the necessary and sufficient conditions of

optimal processes. In the first part of the course, the theory of linear control systems is constructed on the basis of the separation theorem and the concept of a reachability set. The authors prove the closure of a reachability set in the class of piecewise continuous controls, and the problems of controllability, observability, identification, performance and terminal control are also considered. The second part of the course is devoted to nonlinear control systems. Using the method of variations and the Lagrange multipliers rule of nonlinear problems, the authors prove the Pontryagin maximum principle for problems with mobile ends of trajectories. Further exercises and a large number of additional tasks are provided for use as practical training in order for the reader to consolidate the theoretical material.