



Springer

1st
edition

2007, XIV, 336 p.

Printed book

Hardcover

Printed book

Hardcover

ISBN 978-0-387-29260-1

\$ 109,99

Available

Discount group

Professional Books (2)

Product category

Graduate/advanced undergraduate textbook

Other renditions

Softcover

ISBN 978-1-4419-3980-7

Materials Science : Characterization and Evaluation of Materials

Alford, T.L., Feldman, L.C., Mayer, J.W., Arizona State University Dept. Chemical & Materials, Tempe, AZ, USA

Fundamentals of Nanoscale Film Analysis

- **Comprehensively treats the major characterization techniques used to analyze thin films from the micro- to nanoscale**
- **Incorporates the use of x-ray fluorescence (XRF) in thin film analysis**
- **Focuses on surface analysis and includes analytical techniques such as XRF, XRD, and electron microscopy**
- **Offers a modern version (with a nano focus) on the well regarded 1986 book, "Surface and Thin Film Analysis" written by Feldman and Mayer**

Modern science and technology, from materials science to integrated circuit development, is directed toward the nanoscale. From thin films to field effect transistors, the emphasis is on reducing dimensions from the micro to the nanoscale. Fundamentals of Nanoscale Film Analysis concentrates on analysis of the structure and composition of the surface and the outer few tens to hundred nanometers in depth. It describes characterization techniques to quantify the structure, composition and depth distribution of materials with the use of energetic particles and photons. The book describes the fundamentals of materials characterization from the standpoint of the incident photons or particles which interrogate nanoscale structures. These induced reactions lead to the emission of a variety of detected particles and photons. It is the energy and intensity of the detected beams that is the basis of the characterization of the materials. The array of experimental techniques used in nanoscale materials analysis covers a wide range of incident particle and detected beam interactions. Included are such important interactions as atomic collisions, Rutherford backscattering, ion channeling, diffraction, photon absorption, radiative and nonradiative transitions, and nuclear reactions. A variety of analytical and scanning probe microscopy techniques are presented in detail.

Order online at springer.com/booksellers**Springer Nature Customer Service Center LLC**

233 Spring Street

New York, NY 10013

USA

T: +1-800-SPRINGER NATURE

(777-4643) or 212-460-1500

customerservice@springernature.com

ISBN 978-0-387-29260-1 / BIC: TGMT / SPRINGER NATURE: SCZ17000

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add \$5.00 for shipping one book and \$ 1.00 for each additional book. Outside the US and Canada add \$ 10.00 for first book, \$5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.