

## CONTENTS

Preface to the first edition	v
Preface to the second edition	vi
Contents	vii

## VOLUME I: ELECTRON MICROSCOPY

### INTRODUCTION

General review of the experimental methods for the determination of atomic clusters	3
<i>A. Guinier</i>	

### TRANSMISSION ELECTRON MICROSCOPY

Kinematical theory of electron diffraction	9
<i>R. Gevers</i>	
Dynamical theory of electron diffraction	43
<i>M.J. Whelan</i>	
The study of planar interfaces by means of electron microscopy	107
<i>S. Amelinckx and J. van Landuyt</i>	
The weak-beam method of electron microscopy	153
<i>D.J.H. Cockayne</i>	
Identification of small defect-clusters in particle-irradiated crystals by means of transmission electron microscopy	185
<i>M. Wilkens</i>	

Some applications of transmission electron microscopy to phase transitions <i>G. Thomas</i>	217
Martensitic transformations: Electron microscopy and diffraction studies <i>C.M. Wayman</i>	251
Computed electron micrographs and their use in defect identification <i>P. Humble</i>	315
Direct structure imaging in electron microscopy <i>D. van Dyck</i>	355

#### PARTICULAR ASPECTS OF ELECTRON DIFFRACTION

Kikuchi electron diffraction and applications <i>G. Thomas</i>	399
Study of substitution order-disorder by means of X-ray and electron diffraction <i>R. de Ridder</i>	429
Subject index	xi

### VOLUME II: IMAGING AND DIFFRACTION TECHNIQUES

#### HIGH VOLTAGE ELECTRON MICROSCOPY

The theory of high energy electron diffraction <i>A. Howie</i>	457
Recent progress in high voltage electron microscopy <i>V.E. Coslett</i>	511

#### LOW ENERGY ELECTRON DIFFRACTION

Surface characterization by low energy electron diffraction <i>P.J. Estrup</i>	553
---	-----

## CONTENTS

ix

### X-RAY AND NEUTRON DIFFRACTION AND TOPOGRAPHY

Advances in X-ray and neutron diffraction techniques	593
<i>A. Guinier</i>	
Techniques and interpretation in X-ray topography	623
<i>A.R. Lang</i>	
Contrast of images in X-ray topography	715
<i>A. Authier</i>	

### MIRROR ELECTRON MICROSCOPY

Mirror electron microscopy theory and applications	761
<i>A.B. Bok</i>	

### FIELD EMISSION MICROSCOPY

Surface studies by field emission	791
<i>E.W. Müller</i>	
Developments in field ion microscopy	811
<i>E.W. Müller</i>	

Subject index	xi
---------------	----