

Contents

Preface VII

- Chapter 1 **Introductory Chapter: Synchrotron-Based X-Ray Characterization of Nanomaterials 1**
Mehdi Khodaei and Luca Petaccia
- Chapter 2 **Nanocrystallization of Metallic Glasses Followed by *in situ* Nuclear Forward Scattering of Synchrotron Radiation 7**
Marcel B. Miglierini and Vít Procházka
- Chapter 3 **Operando Structural Characterization of the E-ALD Process Ultra-Thin Films Growth 31**
Andrea Giaccherini, Roberto Felici and Massimo Innocenti
- Chapter 4 **X-Ray Absorption Spectroscopy Study of Battery Materials 51**
Marco Giorgetti and Lorenzo Stievano
- Chapter 5 **Synchrotron Radiation-Based X-Ray Study on Energy Storage Materials 77**
Shoaib Muhammad, Hyunchul Kim and Won-Sub Yoon
- Chapter 6 **Studies of Lithium-Oxygen Battery Electrodes by Energy-Dependent Full-Field Transmission Soft X-Ray Microscopy 95**
Dino Tonti, Mara Olivares-Marín, Andrea Sorrentino and Eva Pereiro