

# Preface

This book aims to describe the microscopic characterization of the soft matter in the light of new advances acquired in the science of microscopy techniques such as AFM; SEM; TEM, etc. It does not focus on the traditional information on the microscopy methods as well as systems already present in different books, but intends to answer more fundamental questions associated with commercially important systems by using new advances in microscopy. Such questions are generally not answered by other techniques. The contents of this book also reflect this as the chapters are not based on describing only the material systems, but are also based on answering the problems or questions arising in their characterization. Both qualitative as well as quantitative analysis using such microscopic techniques are discussed. Moreover, efforts have been made to provide a broader reach as discussions on both polymers as well as biological matter have been included as different sections. Such a text with comprehensive overview of the various characterization possibilities using microscopy methods can serve as a valuable reference for microscopy experts as well as non-experts alike. We are deeply indebted to Dr. Anton Efimov, and Dr. Victoria Klang for providing perfect cryo AFM and cryo TEM projects. We are very grateful to the team of FELMI-ZFE, especially to Ilse Letofsky-Papst, Michaela Albu Franz Schmidt and Werner Grogger for the experimental support and fruitful discussions. Our special thanks go to Ferdinand Hofer and Martin Mueller for their support during this work. We would like to also thank Prof. Claudia Valenta, Prof. Otto Glatter, Prof. Andreas Zimmer, and Dr. Nada Znidarsic who provided us interesting samples. Co-operation with Austrian Cooperative Research (ACR) in Vienna, ETH Zurich, and FFG foundation, Austria is highly appreciated.

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