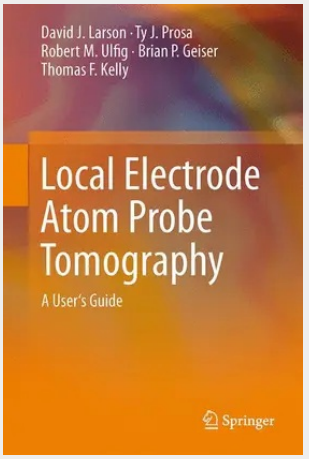
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Local Electrode Atom Probe Tomography

A User's Guide



This book is the first, single-source guide to successful experiments using the local electrode atom probe (LEAP) microscope. Coverage is both comprehensive and user friendly, including the fundamentals of preparing specimens for the microscope from a variety of materials, the details of the instrumentation used in data collection, the parameters under which optimal data are collected, the current methods of data reconstruction, and selected methods of data analysis. Tricks of the trade are described that are often learned only through trial and error, allowing users to succeed much more quickly in the challenging areas of specimen preparation and data collection. A closing chapter on applications presents selected, state-of-the-art results using the LEAP microscope.

Preface.- Acknowledgements.- Foreword.- Abbreviations.- Chapter 1. History of APT and LEAP.- Chapter 2. Specimen Preparation.- Chapter 3. Design & Instrumentation.- Chapter 4. Data Collection.- Chapter 5. Data Processing and Reconstruction.- Chapter 6. Selected Analysis Topics.- Chapter 7. Applications of the Local Electrode Atom Probe.- Appendix A. Data File Formats.- Appendix B. Field Evaporation.- Appendix C. Reconstruction Geometry.- Appendix D. Mass Spectral Performance.- Appendix E. Additional Considerations for LEAP Operation.- Glossary.- Index.

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