

Preface

Over the years a number of atom probe books have been written by various authors [1–10], so why write another one you might ask. We believe that this book is unique in specifically targeting atom probe adopters who are new to the technique. The book introduces new users to the process of performing all of the aspects of a Local Electrode Atom Probe™ experiment. It includes the fundamentals of preparing specimens for the microscope from a variety of materials, details of the instrumentation used in data collection, parameters under which optimal data are collected, current methods of data reconstruction, and selected methods of data analysis. In addition, certain topics are explained specifically from a user perspective and include details that are often learned only through trial and error, allowing users to succeed more quickly in the challenging areas of specimen preparation and data collection.

This book is meant to be a useful reference for the “conventional wisdom” type of information that is not always found in academic books and is usually gained only through experience. It is not meant to be a comprehensive treatment of atom probe tomography but rather an everyday reference for data collection on the local electrode atom probe and for the specimen preparation and data analysis that go along with such experiments. For the most part, we have dealt with more advanced topics, such as the details of the spatial reconstruction equations, by including the information in appendices or by simply referring the reader to other textbooks or journal articles. In this way we hope to have produced a very usable reference for both novice users and experienced scientists. The future of atom probe tomography is bright, and we hope that the path to adoption will be clearer with the availability of this book.

Madison, WI, USA

David J. Larson
Ty J. Prosa
Robert M. Ulfig
Brian P. Geiser
Thomas F. Kelly

<http://www.springer.com/978-1-4614-8720-3>

Local Electrode Atom Probe Tomography

A User's Guide

Larson, D.J.; Prosa, T.J.; Ulfing, R.M.; Geiser, B.P.; Kelly, Th.F.

2013, XVII, 318 p. 164 illus., 54 illus. in color.,

Hardcover

ISBN: 978-1-4614-8720-3