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Advances In Imaging And Electron Physics, Volume 157: Optics Of Charged Particle Analyzers



Synopsis

Advances in Imaging and Electron Physics merges two long-running serials--Advances in Electronics and Electron Physics and Advances in Optical and Electron Microscopy. This series features extended articles on the physics of electron devices (especially semiconductor devices), particle optics at high and low energies, microlithography, image science and digital image processing, electromagnetic wave propagation, electron microscopy, and the computing methods used in all these domains. * Contributions from leading international scholars and industry experts * Discusses hot topic areas and presents current and future research trends * Invaluable reference and guide for physicists, engineers and mathematicians

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Customer Reviews

Peter Hawkes graduated from the University of Cambridge and subsequently obtained his PhD in the Electron Microscopy Section of the Cavendish Laboratory. He remained there for several years, working on electron optics and digital image processing before taking up a research position in the CNRS Laboratory of Electron Optics (now CEMES-CNRS) in Toulouse, of which he was Director in 1987. During the Cambridge years, he was a Research Fellow of Peterhouse and a Senior Research fellow of Churchill College. He has published extensively, both books and scientific journal articles, and is a member of the editorial boards of Ultramicroscopy and the Journal of

Microscopy. He was the founder-president of the European Microscopy Society, CNRS Silver Medallist in 1983 and is a Fellow of the Optical Society of America and of the Microscopy Society of America (Distinguished Scientist, Physics, 2015), Fellow of the Royal Microscopical Society and Honorary Member of the French Microscopy Society. In 1982, he was awarded the ScD degree by the University of Cambridge. In 1982, he took over editorship of the *Advances in Electronics & Electron Physics* (now *Advances in Imaging & Electron Physics*) from Claire Marton (widow of the first editor, Bill Marton) and followed Marton's example in maintaining a wide range of subject matter. He added mathematical morphology to the topics regularly covered; Jean Serra and Gerhard Ritter are among those who have contributed. In 1980, he joined Professor Wollnik (Giessen University) and Karl Brown (SLAC) in organising the first international conference on charged-particle optics, designed to bring together opticians from the worlds of electron optics, accelerator optics and spectrometer optics. This was so successful that similar meetings have been held at four-year intervals from 1986 to the present day. Peter Hawkes organised the 1990 meeting in Toulouse and has been a member of the organising committee of all the meetings. He has also participated in the organization of other microscopy-related congresses, notably EMAG in the UK and some of the International and European Congresses on electron microscopy as well as three Pfefferkorn conferences. He is very interested in the history of optics and microscopy, and recently wrote long historical articles on the correction of electron lens aberrations, the first based on a lecture delivered at a meeting of the Royal Society. He likewise sponsored biographical articles for the *Advances* on such major figures as Ernst Ruska (Nobel Prize 1986), Helmut Ruska, Bodo von Borries, Jan Le Poole and Dennis Gabor (Nobel Prize, 1971). Two substantial volumes of the series were devoted to 'The Beginnings of Electron Microscopy' and 'The Growth of Electron Microscopy'. and others have covered 'Cold Field Emission Scanning Transmission Electron Microscopy' and 'Aberration-corrected Electron Microscopy', with contributions by all the main personalities of the subject.

This is the book, where I think, many people have waited for. It not only describes and explains the language and basics of ion optics in a new easily understandable way, but also the underlying principles of many systems (e. g., magnetic, electrostatic, RF-electric) are explained. I think this is a book that will provide great help for any body who is working with energy analyzers, mass analyzer (magnetic, RF, electrostatic, or time-of-flight) or charge particle beam lines. The basic working principles of all these parts are explained without relying on to much formalism and equations and still offering a thorough and detailed understanding of the systems. A detailed mathematical

treatment of the systems as well as basic performance considerations is given.

As a newbie in this field, this book does provide me profound background from detailed basics to more complex assemblies and their dedicated purposes. A lot to learn, good to read and understand as well as fine for looking up.

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