



Advanced Batteries: Materials Science Aspects

By Robert Huggins

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Storage and conversion are critical components of important energy-related technologies. "Advanced Batteries: Materials Science Aspects" employs materials science concepts and tools to describe the critical features that control the behavior of advanced electrochemical storage systems.

This volume focuses on the basic phenomena that determine the properties of the components, i.e. electrodes and electrolytes, of advanced systems, as well as experimental methods used to study their critical parameters. This unique materials science approach utilizes concepts and methodologies different from those typical in electrochemical texts, offering a fresh, fundamental and tutorial perspective of advanced battery systems.

Graduate students, scientists and engineers interested in electrochemical energy storage and conversion will find "Advanced Batteries: Materials Science Aspects" a valuable reference.

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Editorial Review

Review

From the reviews:

“This book is not at all one more standard textbook on batteries, starting with some thermodynamic and kinetic electrochemistry and continuing with the well-known review of established, emerging, and desired batteries. It is something entirely different. ... The book is a must for materials scientists in the field of secondary batteries, and it may indeed be a tutorial for the most patient reader. ... It is a highly recommended book.” (R. Holze, Journal of Solid State Electrochemistry, Vol. 17, 2013)

“This book is an excellent introduction to the field of advanced batteries for the newcomer to the field. It will not be outdated for a long time, as it is written from the point of view of the basics. ... I can recommend without hesitation this book to all interested in batteries, and particularly to those entering the field. It is written at a level appropriate to someone with a chemistry, physics, or materials background.” (Stan Whittingham, MRS Bulletin, Vol. 37 (3), March, 2012)

“This timely book focuses on the materials science principles of advanced battery technology. ... Extensive reference lists, a summary, and many illustrations and graphs are provided for each chapter, with the author bringing great technical insight to bear on the subject. ... This book is an outstanding technical resource on advanced battery technology for students or researchers It will definitely help to advance battery technology by providing new researchers with the tools and ideas necessary to develop the next generation of batteries.” (IEEE Electrical Insulation Magazine, 2010)

From the Back Cover

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About the Author

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