



## Lithium-Ion Batteries: Fundamentals and Applications (Electrochemical Energy Storage and Conversion)

From CRC Press



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Lithium-Ion Batteries: Fundamentals and Applications offers a comprehensive treatment of the principles, background, design, production, and use of lithium-ion batteries. Based on a solid foundation of long-term research work, this authoritative monograph:

- Introduces the underlying theory and history of lithium-ion batteries
- Describes the key components of lithium-ion batteries, including negative and positive electrode materials, electrolytes, and separators
- Discusses electronic conductive agents, binders, solvents for slurry preparation, positive thermal coefficient (PTC) materials, current collectors, and cases
- Examines the assembly processes and electrochemical performance of lithium-ion batteries
- Explores applications in power tools, electric vehicles, aerospace, and more

**Lithium-Ion Batteries: Fundamentals and Applications** delivers a systematic overview of lithium-ion batteries, from physical properties to manufacturing technologies. The book also supplies valuable insight into potential growth opportunities in this exciting market.

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## **Lithium-Ion Batteries: Fundamentals and Applications (Electrochemical Energy Storage and Conversion)** From CRC Press Bibliography

- Sales Rank: #1849086 in Books
- Published on: 2015-04-24
- Original language: English
- Number of items: 1
- Dimensions: 1.30" h x 6.20" w x 9.20" l, 2.82 pounds
- Binding: Hardcover
- 582 pages

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### Editorial Review

#### Review

"... offers a comprehensive and systematic coverage of the operating principles, underlying theory, design, production, and use of Li-ion batteries. ... Featuring a deep analysis of newly developed and predicted future developments in Li-ion batteries, this book fosters further discussion, research, and development, and is valuable for teachers, undergraduate and graduate students, industry professionals, and researchers in the field of rechargeable batteries and electrochemistry."

?Fernando A. Silva, Instituto Superior Técnico, Universidade de Lisboa, Portugal, from *IEEE Industrial Electronics Magazine*, March 2016

"... presents the most important cathode materials, technologies, and present knowledge and understanding of lithium-ion batteries. ... useful to students and researchers interested in the direct conversion of chemical energy into electrical energy."

?Ru-Shi Liu, National Taiwan University, Taipei

"... provides a very good balance between the basic and practical aspects of batteries. It addresses important engineering aspects which are missing in many other books."

?Doron Aurbach, Bar-Ilan University, Ramat Gan, Israel

"... covers the full range of aspects related to lithium-ion batteries, from fundamentals and historical background to the present state of knowledge and application, including current trends and future options. ... a must for those already keeping a collection of books on the subject, ... [yet] particularly accessible for beginners and novices."

?Rudolf Holze, Technische Universität Chemnitz, Germany

"... offers the cutting-edge fundamentals and technologies in the area of lithium-ion batteries. It covers the major components of lithium-ion batteries, i.e., cathode, anode, separator, and electrolyte. It also provides the latest information on lithium-ion batteries that is easy yet vital for students, engineers and researchers. Consequently, it could be an informative resource for those who are interested in this area."

?Shi Xue DOU, University of Wollongong

#### About the Author

**Yuping Wu** received his Ph.D from the Institute of Chemistry, Chinese Academy of Science, Beijing, and conducted his postdoctoral research at Tsinghua University, Beijing, China. He has been a visiting researcher at Waseda University, Tokyo, Japan; a Humboldt fellow at Technische Universität Chemnitz, Germany; and a full professor in the Department of Chemistry, Fudan University, Shanghai, China. Widely published and highly decorated, Dr. Wu is currently affiliated with the College of Energy, Nanjing Tech University, China. A popular speaker, he has served as co-chair of the International Union of Pure and Applied Chemistry International Conference on Novel Materials and their Synthesis, as well as an advisory board member for several journals.

## Users Review

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#### Joshua Lippert:

This book untitled Lithium-Ion Batteries: Fundamentals and Applications (Electrochemical Energy Storage and Conversion) to be one of several books which best seller in this year, that's because when you read this publication you can get a lot of benefit on it. You will easily to buy this specific book in the book retail outlet or you can order it by means of online. The publisher of the book sells the e-book too. It makes you quickly to read this book, since you can read this book in your Cell phone. So there is no reason to you personally to past this reserve from your list.

#### Millicent Doty:

Spent a free time to be fun activity to accomplish! A lot of people spent their spare time with their family, or their friends. Usually they carrying out activity like watching television, likely to beach, or picnic from the park. They actually doing same thing every week. Do you feel it? Do you want to something different to fill your own personal free time/ holiday? May be reading a book can be option to fill your free of charge time/ holiday. The first thing that you will ask may be what kinds of e-book that you should read. If you want to attempt look for book, may be the book untitled Lithium-Ion Batteries: Fundamentals and Applications (Electrochemical Energy Storage and Conversion) can be very good book to read. May be it can be best activity to you.

#### Jessie Orlando:

Playing with family in a park, coming to see the coastal world or hanging out with friends is thing that usually you might have done when you have spare time, then why you don't try point that really opposite from that. One particular activity that make you not experiencing tired but still relaxing, trilling like on roller coaster you have been ride on and with addition of information. Even you love Lithium-Ion Batteries: Fundamentals and Applications (Electrochemical Energy Storage and Conversion), you can enjoy both. It is good combination right, you still would like to miss it? What kind of hangout type is it? Oh occur its mind hangout folks. What? Still don't have it, oh come on its called reading friends.

#### Walter Dion:

Is it a person who having spare time and then spend it whole day simply by watching television programs or just lying on the bed? Do you need something totally new? This Lithium-Ion Batteries: Fundamentals and Applications (Electrochemical Energy Storage and Conversion) can be the respond to, oh how comes? It's a book you know. You are therefore out of date, spending your spare time by reading in this fresh era is common not a geek activity. So what these guides have than the others?

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