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Autore	Hausbrand René
Titolo	Surface Science of Intercalation Materials and Solid Electrolytes [[electronic resource] ] : A View on Electron and Ion Transfer at Li-ion Electrodes Based on Energy Level Concepts // by René Hausbrand
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Descrizione fisica	1 online resource (XII, 103 p. 65 illus., 3 illus. in color.)
Collana	SpringerBriefs in Physics, , 2191-5423
Disciplina	541.372
Soggetti	Surfaces (Physics) Interfaces (Physical sciences) Thin films Physical chemistry Optical materials Electronic materials Nanoscale science Nanoscience Nanostructures Amorphous substances Complex fluids Surface and Interface Science, Thin Films Physical Chemistry Optical and Electronic Materials Nanoscale Science and Technology Soft and Granular Matter, Complex Fluids and Microfluidics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Fundamental Aspects of interface formation and charge transfer -- Experimental techniques -- Electronic structure and structure of LiCoO <sub>2</sub> surfaces -- Electronic structure and reactivity of cathode – Liquid electrolyte interfaces -- Electronic structure and reactivity of electrode – Solid electrolyte interfaces -- Formation of the

CEI layer and properties of interfaces with surface layers -- Li-ion energy levels, Li-ion transfer and electrode potential -- Conclusion and outlook.

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Sommario/riassunto

This book shares essential insights into the formation and properties of ionic interfaces based on the energy level structures of their interfaces obtained using a surface science approach. It covers both interfaces with liquid and solid electrolyte contacts, and includes different material classes, such as oxides and phosphates. The specific material properties result in particular effects observed at interfaces, which are often not yet, or not sufficiently, taken into account in battery development and technologies. Discussing fundamental issues concerning the properties of intercalation electrodes and electrode–solid electrolyte interfaces, the book investigates the factors that determine voltage, kinetics and reactivity. It presents experimental results on interface formation, and relates them to electron and ion energy levels in the materials and at their interfaces. It explores these topics integrating electrochemistry, solid-state ionics and semiconductor physics, and accordingly will appeal not only to battery scientists, but also to a broader scientific community, including material scientists and electrochemists.

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