

1. Record Nr.	UNINA9910463953703321
Autore	Sorrentino Alfonso
Titolo	Action-minimizing methods in Hamiltonian dynamics : an introduction to Aubry-Mather theory // Alfonso Sorrentino
Pubbl/distr/stampa	Princeton, [New Jersey] ; ; Oxford, [England] : , : Princeton University Press, , 2015 ©2015
Edizione	[Pilot project,eBook available to selected US libraries only]
Descrizione fisica	1 online resource (129 p.)
Collana	Mathematical Notes ; ; 50
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Soggetti	Hamiltonian systems Hamilton-Jacobi equations Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- Contents -- Preface -- Chapter One. Tonelli Lagrangians and Hamiltonians on Compact Manifolds -- Chapter Two. From KAM Theory to Aubry-Mather Theory -- Chapter Three. Action-Minimizing Invariant Measures for Tonelli Lagrangians -- Chapter Four. Action-Minimizing Curves for Tonelli Lagrangians -- Chapter Five. The Hamilton-Jacobi Equation and Weak KAM Theory -- Appendices -- Appendix A. On the Existence of Invariant Lagrangian Graphs -- Appendix B. Schwartzman Asymptotic Cycle and Dynamics -- Bibliography -- Index
Sommario/riassunto	John Mather's seminal works in Hamiltonian dynamics represent some of the most important contributions to our understanding of the complex balance between stable and unstable motions in classical mechanics. His novel approach-known as Aubry-Mather theory-singles out the existence of special orbits and invariant measures of the system, which possess a very rich dynamical and geometric structure. In particular, the associated invariant sets play a leading role in determining the global dynamics of the system. This book provides a comprehensive introduction to Mather's theory, and can serve as an interdisciplinary bridge for researchers and students from different fields seeking to acquaint themselves with the topic.Starting with the

mathematical background from which Mather's theory was born, Alfonso Sorrentino first focuses on the core questions the theory aims to answer-notably the destiny of broken invariant KAM tori and the onset of chaos-and describes how it can be viewed as a natural counterpart of KAM theory. He achieves this by guiding readers through a detailed illustrative example, which also provides the basis for introducing the main ideas and concepts of the general theory. Sorrentino then describes the whole theory and its subsequent developments and applications in their full generality. Shedding new light on John Mather's revolutionary ideas, this book is certain to become a foundational text in the modern study of Hamiltonian systems.

2. Record Nr.	UNINA9910865260503321
Titolo	Corrosion and Degradation in Fuel Cells, Supercapacitors and Batteries // edited by Viswanathan S. Saji
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	3-031-57012-X
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (XIII, 499 p. 200 illus., 172 illus. in color.)
Disciplina	621.31242
Soggetti	Electric batteries Materials Fuel cells Corrosion and anti-corrosives Surfaces (Technology) Thin films Nanotechnology Batteries Fuel Cells Corrosion Surfaces, Interfaces and Thin Film Metal-organic Frameworks
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

Nota di bibliografia

Includes bibliographical references and index.

Nota di contenuto

Part I. Electrochemical energy storage and conversion -- 1. Electrochemical energy storage and conversion devices – Types and importance -- 2. Materials degradation in electrochemical energy storage and conversion devices – An overview -- Part II. Fuel cells -- 3. Corrosion and its mitigation approaches of metallic bipolar plates -- 4. Carbon corrosion in fuel cells- Fundamentals and mitigation approaches -- 5. Platinum dissolution and ionomer redistribution/degradation in fuel cells – An evaluation -- 6. Performance degradation of PEM fuel cells during startup-shutdown cycles – A case study -- Part III. Supercapacitors -- 7. Corrosion and degradation in supercapacitors and mitigation approaches -- 8. Carbon corrosion in supercapacitors -- Part IV. Batteries -- 9. Corrosion in Pb-acid batteries – Recent developments -- 10. Corrosion in nickel-metal hydride (Ni-MH) batteries– Recent developments -- 11. Corrosion of current collectors in metal-ion batteries -- 12. Novel corrosion-resistant nonmetallic current collectors for aqueous batteries -- 13. CEI and SEI formation in Li-ion batteries -- 14. Corrosion and degradation in aqueous Zn-ion batteries -- 15. Novel electrolytes and electrolyte additives for metal-ion and metal-air batteries – A case study of acetonitrile and LiCTFSI -- 16. Degradation in metal-air batteries - Recent developments -- 17. Anode corrosion and its mitigation in metal-air batteries - I (Li/Na/Al/Mg-air) -- 18. Anode corrosion and mitigation in metal-air batteries – II (Zn-air) -- 19. Electrolyte additives/corrosion inhibitors for anode corrosion in metal-air batteries -- 20. Approaches to construct high-performance Mg-air batteries -- 21. Corrosion and its control in redox-flow batteries.

Sommario/riassunto

This book discusses research and development on various degradation types and their mitigation approaches in electrochemical energy storage and conversion (EESC) devices, such as fuel cells, batteries, and supercapacitors, essential to realizing carbon neutrality and a sustainable energy economy. Corrosion and degradation of the components remains a major threat to EESC devices' long-term durability, and at present there is an insufficient number of book-length treatments of this topic. This volume brings together the most up-to-date findings from the research literature.