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Altri autori (Persone)	Pandey
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Soggetti	Condensed matter Mathematical physics Composite materials Two-dimensional Materials Theoretical, Mathematical and Computational Physics Composites
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Nota di contenuto	Role of overall water splitting in the global energy landscape -- Unravelling mechanistic pathways in electrochemical water splitting -- Electrochemical diagnostics in water splitting: methods and best practices -- Cutting-edge approaches to self-supported 2D electrocatalyst synthesis -- 2D transition metal dichalcogenides for water splitting -- 2D trichalcogenides for HER and OER -- MXenes: a class of 2D electrocatalyst for water splitting -- The rise of MBenes in electro catalysing water splitting reactions -- Graphdiyne-supported catalysts for enhanced HER and OER performance -- Engineering of MOF-Based Heterostructures for Enhanced HER and OER -- High entropy materials for electrochemical water splitting -- Challenges in scaling up 2D material-based electrocatalyst -- Designing electrocatalyst for integrated HER and OER -- Integration of 2D materials in water splitting devices.
Sommario/riassunto	This book highlights the advancement of 2D materials and their composites for electrochemical water splitting. It explores fundamental aspects such as the structure, synthesis, and chemical diversity of

various 2D materials (TMDCs, TMTCs, MXenes, Borophenes, MBenes, Graphene and Graphdiyne) with a viewpoint for water splitting. The book also covers designing strategies to integrate an electrocatalyst for both HER and OER. The book also presents detailed computational insights into electrochemical water splitting. The current state of 2D material-based water splitting technologies, as well as the challenges faced while scaling them up, is addressed. The book also provides a comprehensive look at the integration of 2D materials into water-splitting devices. Additionally, the book offers a broad overview of 2D materials for electrochemical water splitting from a global perspective. This book will serve as a valuable resource for scientists, engineers, research scholars, and graduate students specializing in electrochemical water splitting.