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Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (xxx, 836 pages) : illustrations (chiefly color)
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Soggetti	Hydrogen as fuel Water - Electrolysis
Lingua di pubblicazione	Inglese
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Nota di contenuto	Fundamentals of Water Electrolysis. -- Hydrogen and energy transition -- Thermochemical Water-Splitting Cycles -- Water purification and desalination -- Alkaline Liquid Electrolyte Water Electrolysis. -- Proton Exchange Membrane Water Electrolysis. -- Anion Exchange Membrane Water Electrolysis. -- Solid Oxide Water Electrolysis. -- Photoelectrochemical Water Electrolysis. -- Decoupled water splitting -- Hydrogen production using high-pressure electrolyzers -- High temperature steam electrolysis -- Thermodynamic Analysis of Hydrogen Production Processes -- Hydrogen storage -- Hydrogen transportation -- Hydrogen applications -- Safety issues and regulations -- Electrolysis economy.
Sommario/riassunto	This book provides a detailed description of hydrogen production through water electrolysis. It starts with the theoretical description of the chemical, thermodynamic, and kinetic issues related to the electrolysis of water. The main available technologies and the ones under development are detailed from a technical and a scientific point of view. At the end of the book Dr. Cavaliere describes the main hydrogen applications and their contribution to the grand energy transition that is expected by the middle of the century. The book also examines the economic issues related to the transition toward the hydrogen society. Describes hydrogen production from renewable sources and its storage and transportation in a very efficient way; Discusses scaling of technologies up to gigawatt range; Details the

limitations to be solved for the total introduction of hydrogen in the future society.
