

1. Record Nr.	UNINA9910739462003321
Autore	Naterer Greg F
Titolo	Hydrogen production from nuclear energy // Greg F. Naterer, Ibrahim Dincer, Calin Zamfirescu
Pubbl/distr/stampa	New York, : Springer, 2013
ISBN	1-4471-4938-6
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (xiv, 492 pages) : illustrations (some color)
Collana	Lecture Notes in Energy ; ; v.8
Altri autori (Persone)	DincerIbrahim, 1964- ZamfirescuCalin
Disciplina	333.7968
Soggetti	Hydrogen Nuclear energy
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.
Nota di contenuto	Hydrogen as a Clean Energy Carrier -- Role of Nuclear Energy for Hydrogen Production -- Status of Nuclear Hydrogen Programs in the World -- Water Electrolysis -- High Temperature Electrolysis -- Thermochemical Sulfur Cycles -- Thermochemical Copper-Chlorine Cycle -- Advanced Nuclear Reactor Concepts and Designs -- Economics and Market Analysis -- Safety Aspects of Nuclear Hydrogen Production.
Sommario/riassunto	With the resurgence of nuclear power around the world, and the increasingly important role of hydrogen as a clean energy carrier, the utilization of nuclear energy for large-scale hydrogen production will have a key role in a sustainable energy future. Co-generation of both electricity and hydrogen from nuclear plants will become increasingly attractive. It enables load leveling together with renewable energy and storage of electricity in the form of hydrogen, when electricity prices and demand are lowest at off-peak hours of nuclear plants, such as overnight. Hydrogen Production from Nuclear Energy provides an overview of the latest developments and methods of nuclear based hydrogen production, including electrolysis and thermochemical cycles. Particular focus is given to thermochemical water splitting by the copper-chlorine and sulphur-based cycles. Cycle configurations, equipment design, modeling and implementation issues are presented and discussed. The book provides the reader with an overview of the

key enabling technologies towards the design and industrialization of hydrogen plants that are co-located and linked with nuclear plants in the future. The book includes illustrations of technology developments, tables that summarize key features and results, overviews of recent advances and new methods of nuclear hydrogen production. The latest results from leading authorities in the fields will be presented, including efficiencies, costs, equipment design, and modeling.

---