

1. Record Nr.	UNINA9910820956403321
Titolo	An assessment of the prospects for inertial fusion energy // Committee on the Prospects for Inertial Confinement Fusion Energy Systems, Board on Physics and Astronomy, Board on Energy and Environmental Systems, Division on Engineering and Physical Sciences, National Research Council of the National Academies
Pubbl/distr/stampa	Washington, District of Columbia : , : National Academies Press, , [2013] ©2013
ISBN	0-309-27224-6 0-309-27222-X
Descrizione fisica	1 online resource (247 p.)
Disciplina	621.48/4
Soggetti	Inertial confinement fusion - United States - Evaluation Inertial confinement fusion - Research - United States Nuclear energy - Technological innovations - United States
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	Introduction -- Status and Challenges for Inertial Fusion Energy Drivers and Targets -- Inertial Fusion Energy Technologies -- A Roadmap for Inertial Fusion Energy -- Appendix A: The Basic Science of Inertial Fusion Energy -- Appendix B: Statements of Task -- Appendix C: Agendas for Committee Meetings and Site Visits -- Appendix D: Agendas for Meetings of the Panel on the Assessment of Inertial Confinement Fusion (ICF) Targets -- Appendix E: Bibliography of Previous Inertial Confinement Fusion Studies Consulted by the Committee -- Appendix F: Foreign Inertial Fusion Energy Programs -- Appendix G: Glossary and Acronyms -- Appendix H: Summary from the Report of the Panel on the Assessment of Inertial Confinement Fusion (ICF) Targets (Unclassified Version) -- Appendix I: Technical Discussion of the Recent Results from the National Ignition Facility -- Appendix J: Detailed Discussion of Technology Applications Event Profiles.

## Sommario/riassunto

"The potential for using fusion energy to produce commercial electric power was first explored in the 1950s. Harnessing fusion energy offers the prospect of a nearly carbon-free energy source with a virtually unlimited supply of fuel. Unlike nuclear fission plants, appropriately designed fusion power plants would not produce the large amounts of high-level nuclear waste that requires long-term disposal. Due to these prospects, many nations have initiated research and development (R&D) programs aimed at developing fusion as an energy source. Two R&D approaches are being explored: magnetic fusion energy (MFE) and inertial fusion energy (IFE). An Assessment of the Prospects for Inertial Fusion Energy describes and assesses the current status of IFE research in the United States; compares the various technical approaches to IFE; and identifies the scientific and engineering challenges associated with developing inertial confinement fusion (ICF) in particular as an energy source. It also provides guidance on an R&D roadmap at the conceptual level for a national program focusing on the design and construction of an inertial fusion energy demonstration plant." --Publisher's description --

---