

1. Record Nr.	UNINA9910254622303321
Titolo	Nuclear Fusion with Polarized Fuel / / edited by Giuseppe Ciullo, Ralf Engels, Markus Büscher, Alexander Vasilyev
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-39471-1
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (XIV, 154 p. 48 illus., 14 illus. in color.)
Collana	Springer Proceedings in Physics, , 1867-4941 ; ; 187
Disciplina	621.48
Soggetti	Nuclear fusion Electric power production Atoms Molecules Renewable energy sources Nuclear Fusion Electrical Power Engineering Mechanical Power Engineering Atomic, Molecular and Chemical Physics Renewable Energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	G. CIULLO Polarized Fusion: still appealing chance, but what is still missing? -- H. PAETZ gen. SCHIECK Spin Physics and Polarized Fusion: where we stand -- A. VASSILYEV: The double-polarized DD-fusion experiment at PNPI -- R. ENGELS – Hyper-polarized deuterium molecules: An option to produce and store polarized fuel for first tests in a fusion reactor? -- M. BÜCHER - Will nuclear polarization survives in laser-induced plasmas? -- F. BOMBARDA - Relevant spatial and time scale in tokamaks -- R. GATTO - De-polarization effects in tokamak plasmas -- S. BARTALUCCI - Ion polarization in magnetic fields -- A.M. SANDORFI and A. D'ANGELO - Plans for a Direct in situ Measurement of Fuel Polarization Survival in the DIII-D Tokamak Plasma -- J -- P. DIDELEZ – DT polarization in ICF. M. TEMPORAL - Modification of the

ignition conditions for Inertial Confinement Fusion targets with polarized Deuterium-Tritium fuel -- D. TOPORKOV - Polarization of molecule: what we can learn from the nuclear physics efforts? -- N. COLONNA and N. IPPOLITO - Ion sources for fusion experiments.

Sommario/riassunto

This book offers a detailed examination of the latest work on the potential of polarized fuel to realize the vision of energy production by nuclear fusion. It brings together contributions from nuclear physicists and fusion physicists with the aims of fostering exchange of information between the two communities, describing the current status in the field, and examining new ideas and projects under development. It is evident that polarized fuel can offer huge improvements for the first generation of fusion reactors and open new technological possibilities for future generations, including neutron lean reactors, which could be the most popular and sustainable energy production option to avoid environmental problems. Nevertheless, many questions must be resolved before polarized fuel can be used for energy production in the different reactor types. Readers will find this book to be a stimulating source of information on the key issues. It is based on contributions from leading scientists delivered at the meetings "Nuclear Fusion with Polarized Nucleons" (Trento, November 2013) and "PolFusion" (Ferrara, July 2015). .
