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Titolo	Radiation and nuclear techniques in material science : Selected, peer reviewed papers from the Conference on Physical-Technical Problems of Nuclear Science, Energy Generation and Power Industry (PTPAI-2014), June 5-7, 2014, Tomsk, Russia // edited by Oleg Y. Dolmatov, Igor B. Stepanov and Sergey N. Liventsov
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Radiation and Nuclear Techniques in Material Science; Preface and Conference Organization; Table of Contents; Chapter 1: Materials Science and Technologies; Analysis of Magnetron-Deposited Titanium Oxynitride Coatings by Scanning Electron Microscopy and Raman Scattering; Behavior of TiO ₂ -B System under Mechanical Activation; Changes in the Spectral Characteristics of Aluminum Films Deposited under Assisting Argon Ion Beam; Eddy Current Method for Testing of Metals under Simultaneous Exposure to Radiation and Hydrogenation; Effect of Hydrogen on Conductivity of Metals Formation of Shear Zone's Defect Structure in F.C.C. Metals Influence of Carbon Pulse Ion Beam on Titanium Alloy; Investigation of Multilayered Film Structure Properties for Creation of Hydrogen Selective Membrane; Investigation of ZrO ₂ and TiO ₂ Coatings Influence on Hydrogen Sorption Behavior by Zirconium Alloy Zr1%Nb at Saturation from Gas Atmosphere; Laws of Radiation Grafting of Styrene to PVDF Films and Characterization of the Grafted Polymer; Methods of Uranium

Hexafluoride Purification

Obtaining Hydrogen and Carbon Materials from Hydrocarbon Gas in Microwave Plasma Discharge at Atmospheric Pressure; Study on the Spatial Structure of Ultrafine-Grained Light Alloys by Microtomography; Technology of Synthesis of Opal Matrix Metamaterials; Temperature Effect on the Rate of Hydrogen Desorption by Carbon Materials; UHF-Properties of Nanocomposites: Magnetic Resonance; Simulation of the Uranium Crystallization Process Using Cellular Automata; Development of a Thermal Model of the Experimental Electrolyzer; Fluoride Technology of Processing Oxides of Rare Earth Elements
Chapter 2: Plasma, Microwave, Ion, Electron and Isotope Technologies
Development of Impurities Determination Method in Isotopically Enriched Preparations; Carbon and Oxygen Atoms Distribution along Low-Temperature Plasma Torch in the Magnetic Field; Cluster Structure of Salt Solutions in Polar Dielectric Liquids; Control over Hard X-Ray Parameters Using External Temperature Gradient; Determination of Optimal Parameters of the X-Ray Source on the Basis of Compact Electron Accelerators; Diffusion of Hydrogen in Steel by Electron Irradiation
Dosimetry Equipment for the Pulsed X-Ray Source Parameters Investigation
Excitation of Electromagnetic Waves in a Vircator by Radially Diverging Beam; Features of the Distribution Process of the Electromagnetic Field Frequency Components in the High-Frequency Torch Discharge Plasma; First Principle Calculations of Diffusion Barriers for Hydrogen in α -Zirconium; Form-Factors of Relativistic Electron Bunches in Polarization Radiation; Manifestation of the Spin in the Isotope Effects; Nonlinear Electrodynamics of the Torch Discharge Argon Plasma
Plasma Module Based on High Frequency Torch Plasmatron for the Research of the Processes of Plasma Utilization and Immobilization of Closed NFC Wastes

Sommario/riassunto

Collection of selected, peer reviewed papers from the Conference on Physical-Technical Problems of Nuclear Science, Energy Generation and Power Industry, (PTPAI-2014), June 5-7, 2014, Tomsk, Russia. The 151 papers are grouped as follows: Chapter 1: Materials Science and Technologies; Chapter 2: Plasma, Microwave, Ion, Electron and Isotope Technologies; Chapter 3: Nuclear Engineering and Fuel Cycles; Chapter 4: Radiation Technologies in Medicine; Chapter 5: Computation, Automation, Information Technologies and Safety Systems in Nuclear Industry
