

Analytical Methods For Nonproliferation Advanced Sciences And Technologies For Security Applications

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*108-1 Hearings: Energy and Water Development Appropriations For 2004, Part 4, 2003, * - 2003*

Reducing the Use of Highly Enriched Uranium in Civilian Research Reactors - National Academies of Sciences, Engineering, and Medicine 2016-02-12

The continued presence of highly enriched uranium (HEU) in civilian installations such as research reactors poses a threat to national and international security. Minimization, and ultimately elimination, of HEU in civilian research reactors worldwide has been a goal of U.S. policy and programs since 1978. Today, 74 civilian research reactors around the world, including 8 in the United States, use or are planning to use HEU fuel. Since the last National Academies of Sciences, Engineering, and Medicine report on this topic in 2009, 28 reactors have been either shut down or converted from HEU to low enriched uranium fuel. Despite this progress, the large number of remaining HEU-fueled reactors demonstrates that an HEU minimization program continues to be needed on a worldwide scale. Reducing the Use of Highly Enriched Uranium in Civilian Research Reactors assesses the status of and progress toward

eliminating the worldwide use of HEU fuel in civilian research and test reactors.

Electricity Generation - United States. Congress. Senate. Committee on Energy and Natural Resources 2004

Energy and Water Development Appropriations for 2003 - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 2002

Energy and Water Development Appropriations for 2010 - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 2009

Energy and Water Development Appropriations for 2004 - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 2003

Energy and Water Development Appropriations for 2009 - United States. Congress. House. Committee on Appropriations. Subcommittee

on Energy and Water Development 2008

Energy and Water Development Appropriations for 1999: Department of Energy fiscal year 1999 budget justifications - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 1998

Nonproliferation Policy and Nuclear Posture - Neil Narang
2015-10-08

This volume examines the causes and consequences of nuclear postures and nonproliferation policies. The real-world importance of nuclear weapons has led to the production of a voluminous scholarly literature on the causes and consequences of nuclear weapons proliferation. Missing from this literature, however, is a more nuanced analysis that moves beyond a binary treatment of nuclear weapons possession, to an exploration of how different nuclear postures and nonproliferation policies may influence the proliferation of nuclear weapons and subsequent security outcomes. This volume addresses this deficit by focusing on the causes and consequences of nuclear postures and nonproliferation policies. It is the aim of this book to advance the development of a new empirical research agenda that brings systematic research methods to bear on new dimensions of the nuclear weapons phenomenon. Prior to the contributions in this volume, there has been little evidence to suggest that nuclear postures and policies have a meaningful impact on the spread of nuclear weapons or security outcomes. This book brings together a new generation of scholars, advancing innovative theoretical positions, and performing quantitative tests using original data on nuclear postures, nonproliferation policies, and WMD proliferation. Together, the chapters in this volume make novel theoretical, empirical, and methodological contributions to the field of nuclear weapons proliferation. This book will be of much interest to students of nuclear proliferation, international relations and security studies.

107-1 Hearings: Energy and Water Development Appropriations for

2002, Part 4, 2001 - 2001

GAO Report on the Department of Energy National Laboratory Management - United States. Congress. House. Committee on Science. Subcommittee on Basic Research 2000

Handbook of Radioactivity Analysis - Michael F. L'Annunziata
2020-03-07

Handbook of Radioactivity Analysis: Radiation Physics and Detectors, Volume One, and Radioanalytical Applications, Volume Two, Fourth Edition, constitute an authoritative reference on the principles, practical techniques and procedures for the accurate measurement of radioactivity - everything from the very low levels encountered in the environment, to higher levels measured in radioisotope research, clinical laboratories, biological sciences, radionuclide standardization, nuclear medicine, nuclear power, and fuel cycle facilities, and in the implementation of nuclear forensic analysis and nuclear safeguards. It includes sample preparation techniques for all types of matrices found in the environment, including soil, water, air, plant matter and animal tissue, and surface swipes. Users will find the latest advances in the applications of radioactivity analysis across various fields, including environmental monitoring, radiochemical standardization, high-resolution beta imaging, automated radiochemical separation, nuclear forensics, and more. Spans two volumes, Radiation Physics and Detectors and Radioanalytical Applications Includes a new chapter on the analysis of environmental radionuclides Provides the latest advances in the applications of liquid and solid scintillation analysis, alpha- and gamma spectrometry, mass spectrometric analysis, Cherenkov counting, flow-cell radionuclide analysis, radionuclide standardization, aerosol analysis, high-resolution beta imaging techniques, analytical techniques in nuclear forensics, and nuclear safeguards Describes the timesaving techniques of computer-controlled automatic separation and activity analysis of radionuclides Provides an extensive table of the radiation characteristics of most radionuclides of interest for the radioanalytical chemist

Energy and Water Development Appropriations for Fiscal Year 2013 - United States. Congress. Senate. Committee on Appropriations. Subcommittee on Energy and Water Development 2013

Methods of Strategic Trade Analysis - Christopher Nelson 2023-01-05

This book addresses ways that governments, international organizations, and other stakeholders can utilize data to uncover illicit trade in materials and equipment that could be used to support chemical, biological, nuclear, and advanced conventional weapons systems. Key concepts of strategic trade are introduced, including examples of strategic goods and their potential uses in weapons of mass destruction (WMDs) and weapons systems, the interplay between the Harmonized System and strategic trade control regimes, and the data available for analysis in the field. Innovative, yet practical methodologies to analyze strategic trade cover the use of crime scripts, risk assessment indicators, mirror statistics, market share analysis, and transshipment and re-export analysis. There are also chapters on leading-edge techniques involving machine learning and network analysis that have shown promise in other areas of crime and illicit trade investigations. Each chapter provides step-by-step instructions on applying the technique, numerous case studies and examples, and discussions of the strengths and weaknesses of each approach. This volume is designed to provide all types of analysts with practical pathways for understanding, detecting, and disrupting illicit procurement of materials and equipment needed to produce WMDs and advanced weapons.

Energy and Water Development Appropriations for 1999 - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 1998

Nuclear Non-proliferation and Arms Control Verification - Irmgard Niemeyer 2020-03-12

This book strives to take stock of current achievements and existing challenges in nuclear verification, identify the available information and gaps that can act as drivers for exploring new approaches to verification

strategies and technologies. With the practical application of the systems concept to nuclear disarmament scenarios and other, non-nuclear verification fields, it investigates, where greater transparency and confidence could be achieved in pursuit of new national or international nonproliferation and arms reduction efforts. A final discussion looks at how, in the absence of formal government-to-government negotiations, experts can take practical steps to advance the technical development of these concepts.

Fundamentals of Materials for Energy and Environmental Sustainability - David S. Ginley 2011-11-30

How will we meet rising energy demands? What are our options? Are there viable long-term solutions for the future? Learn the fundamental physical, chemical and materials science at the heart of:

- Renewable/non-renewable energy sources
- Future transportation systems
- Energy efficiency
- Energy storage

Whether you are a student taking an energy course or a newcomer to the field, this textbook will help you understand critical relationships between the environment, energy and sustainability. Leading experts provide comprehensive coverage of each topic, bringing together diverse subject matter by integrating theory with engaging insights. Each chapter includes helpful features to aid understanding, including a historical overview to provide context, suggested further reading and questions for discussion. Every subject is beautifully illustrated and brought to life with full color images and color-coded sections for easy browsing, making this a complete educational package. Fundamentals of Materials for Energy and Environmental Sustainability will enable today's scientists and educate future generations.

Energy and Water Development Appropriations for 2012: Dept. of Energy FY 2012 justifications - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 2011

Energy and Water Development Appropriations for 2002 - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 2001

The Non-proliferation Treaty - United States. Congress. Senate. Committee on Foreign Relations. Subcommittee on Arms Control, Oceans, International Operations, and Environment 1980

Basic Research Needs for Advanced Nuclear Energy Systems - 2006

Analytical Methods for Nonproliferation - Edward C. Morse 2018-04-20
This book is intended to be used as a textbook and research reference for the field of nuclear nonproliferation. The book is primarily technical and focussed on methods of detecting clandestine nuclear material that might be illicitly transported. The book also touches on nuclear forensics, i.e. methods for identification, attribution, and establishment of transport pathways for illicit nuclear material. Also covered are topics of methods used for arms control and treaty verification, and an assessment of technologies under development for all of the above. A description of the government and international agencies involved in nuclear terrorism prevention, nuclear safeguards, and arms control is also included.
107-2 Hearings: Energy and Water Development Appropriations For 2003, Part 4, 2002, * - 2002

Energy Research Abstracts - 1992

Department of Defense Authorization for Appropriations for Fiscal Year 1997 and the Future Years Defense Program: Strategic forces - United States. Congress. Senate. Committee on Armed Services 1997

Science and Technology to Counter Terrorism - International Strategic and Security Studies Programme of the National Institute of Advanced Studies 2007-02-27

This volume presents the papers and summarizes the discussions of a workshop held in Goa, India, in January 2004, organized by the Indian National Institute of Advanced Science (NIAS) and the U.S. Committee on International Security and Arms Control (CISAC). During the workshop, Indian and U.S. experts examined the terrorist threat faced in

both countries and elsewhere in the world, and explored opportunities for the U.S. and India to work together. Bringing together scientists and experts with common scientific and technical backgrounds from different cultures provided a unique opportunity to explore possible means of preventing or mitigating future terrorist attacks.

Active Interrogation in Nuclear Security - Igor Jovanovic 2018-06-07
This volume constitutes the state-of-the-art in active interrogation, widely recognized as indispensable methods for addressing current and future nuclear security needs. Written by a leading group of science and technology experts, this comprehensive reference presents technologies and systems in the context of the fundamental physics challenges and practical requirements. It compares the features, limitations, technologies, and impact of passive and active measurement techniques; describes radiation sources for active interrogation including electron and ion accelerators, intense lasers, and radioisotope-based sources; and it describes radiation detectors used for active interrogation. Entire chapters are devoted to data acquisition and processing systems, modeling and simulation, data interpretation and algorithms, and a survey of working active measurement systems. Active Interrogation in Nuclear Security is structured to appeal to a range of audiences, including graduate students, active researchers in the field, and policy analysts. The first book devoted entirely to active interrogation Presents a focused review of the relevant physics Surveys available technology Analyzes scientific and technology trends Provides historical and policy context Igor Jovanovic is a Professor of Nuclear Engineering and Radiological Sciences at the University of Michigan and has previously also taught at Penn State University and Purdue University. He received his Ph.D. from University of California, Berkeley and worked as physicist at Lawrence Livermore National Laboratory. Dr. Jovanovic has made numerous contributions to the science and technology of radiation detection, as well as the radiation sources for use in active interrogation in nuclear security. He has taught numerous undergraduate and graduate courses in areas that include radiation detection, nuclear physics, and nuclear security. At University of Michigan Dr. Jovanovic is

the director of Neutron Science Laboratory and is also associated with the Center for Ultrafast Optical Science. Anna Erickson is an Assistant Professor in the Nuclear and Radiological Engineering Program of the G.W. Woodruff School of Mechanical Engineering at Georgia Institute of Technology. Previously, she was a postdoctoral researcher in the Advanced Detectors Group at Lawrence Livermore National Laboratory. Dr. Erickson received her PhD from Massachusetts Institute of Technology with a focus on radiation detection for active interrogation applications. Her research interests focus on nuclear non-proliferation including antineutrino analysis and non-traditional detector design and characterization. She teaches courses in advanced experimental detection for reactor and nuclear nonproliferation applications, radiation dosimetry and fast reactor analysis.

Energy and Water Development Appropriations for 1998: Department of Energy fiscal year 1998 budget justifications - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 1997

Technical Aspects of Nuclear Nonproliferation - United States. Congress. House. Committee on Science and Technology. Subcommittee on Energy Research and Production 1982

Big Data - National Research Council 2012-12-07

In 2012, the Defense Intelligence Agency (DIA) approached the National Research Council's TIGER standing committee and asked it to develop a list of workshop topics to explore the impact of emerging science and technology. From the list of topics given to DIA, three were chosen to be developed by the Committee for Science and Technology Challenges to U.S. National Security Interests. The first in a series of three workshops was held on April 23-24, 2012. This report summarizes that first workshop which explored the phenomenon known as big data. The objective for the first workshop is given in the statement of task, which explains that that workshop will review emerging capabilities in large computational data to include speed, data fusion, use, and

commodification of data used in decision making. The workshop will also review the subsequent increase in vulnerabilities over the capabilities gained and the significance to national security. The committee devised an agenda that helped the committee, sponsors, and workshop attendees probe issues of national security related to so-called big data, as well as gain understanding of potential related vulnerabilities. The workshop was used to gather data that is described in this report, which presents views expressed by individual workshop participants. Big Data: A Workshop Report is the first in a series of three workshops, held in early 2012 to further the ongoing engagement among the National Research Council's (NRC's) Technology Insight-Gauge, Evaluate, and Review (TIGER) Standing Committee, the scientific and technical intelligence (S&TI) community, and the consumers of S&TI products.

Nuclear Science Information of Japan. Oral Presentation - 2001

Energy and Water Development Appropriations for 2002: Department of Energy fiscal year 2002 budget justifications - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 2001

Fiscal Year 1981 Department of Energy Authorization for National Security Programs - United States. Congress. Senate. Committee on Armed Services. Subcommittee on Arms Control 1980

Energy and Water Development Appropriations for 1998 - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 1997

Catalog of Federal Domestic Assistance - 2009

Identifies and describes specific government assistance opportunities such as loans, grants, counseling, and procurement contracts available under many agencies and programs.

Legislation to Amend the Nuclear Non-proliferation Act of 1978 - United States. Congress. House. Committee on Foreign Affairs.

Subcommittee on International Security and Scientific Affairs 1983

Energy and Water Development Appropriations for 2003: Department of Energy ... National Nuclear Security Administration ... Power Marketing Administrations - United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 2002

ERDA Authorization, Fiscal Year 1977 - United States. Congress. House. Committee on Science and Technology 1976

Analytical Methods for Nonproliferation - Edward C. Morse 2016-04-04
This book is intended to be used as a textbook and research reference for

the field of nuclear nonproliferation. The book is primarily technical and focussed on methods of detecting clandestine nuclear material that might be illicitly transported. The book also touches on nuclear forensics, i.e. methods for identification, attribution, and establishment of transport pathways for illicit nuclear material. Also covered are topics of methods used for arms control and treaty verification, and an assessment of technologies under development for all of the above. A description of the government and international agencies involved in nuclear terrorism prevention, nuclear safeguards, and arms control is also included.

Charting the Course for American Nuclear Technology - United States. Congress. House. Committee on Science and Technology (2007) 2010