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Selective Guide to

Literature on Nuclear Engineering

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INTRODUCTION

This guide presents selected reference sources for nuclear engineering. Nuclear engineering deals with the application of basic sciences to peaceful uses of nuclear energy from fission and fusion reactions, and of various forms of nuclear radiation. To reflect the interdisciplinary nature of the field, the guide also includes a limited selection of reference sources in related areas such as physics, mechanical engineering, and materials science.

The guide is intended for students, faculty, and practicing engineers and scientists in nuclear engineering, and for librarians. Reference sources are arranged in this guide in 12 sections and one appendix, with a brief description of the contents provided at the beginning of each section. Included are primarily materials published in English and those for which English translations are available. Although emphasis has been placed on current sources whenever possible, a few classical titles, albeit somewhat dated, are included for their continued research values. Annotations are provided for all sections, with the exception of those on journals and conferences. In general, standard engineering reference sources are excluded from the guide.

Effort has been made to provide representative sources within the scope of the guide. It is, however, not to be considered an exhaustive or comprehensive literature guide to nuclear science and engineering.

GUIDES TO THE LITERATURE

Many guides to engineering literature exist. Some are merely bibliographies to the literature; others discuss the phases of scientific information from its generation through research and development to its dissemination as well as describe the most important types of literature for engineering. Since many guides discuss engineering literature as a whole and many overlap in coverage, only those which present specific information on nuclear engineering are included here.

Anthony, Lawrence James. Sources of Information on Atomic Energy. Oxford; New York: Pergamon, 1966.

This guide covers the literature of nuclear energy and the organizations, which originate information in this field. Discusses the forms of literature as well as specific sources. Historical value.

Anthony, Lawrence James. Information Sources in Energy Technology. London; Boston, MA: Butterworths, 1988.

This guide to various sources of information on energy is arranged by subject. Each chapter is written by a different author and begins with an overview of the subject, followed by a list of sources including books, reviews, journals, patents, conference proceedings, reports, encyclopedias, handbooks, dictionaries, standards, statistics and databooks, abstracts, indexes, bibliographies, and directories.

Jedruch, Jacek. Nuclear Engineering Data Bases, Standards and Numerical Analysis. New York: Van Nostrand Reinhold, 1985.

Compilation of information sources, computerized databases, computational methods, standards, and regulations related to nuclear energy and reactor engineering. Presents brief technical descriptions and discusses relevance of various data and information sources.

Mildren, Ken, and Peter Hicks, eds. Information Sources in Engineering**.** 3rd ed. London; New Providence, NJ: Bowker-Saur, 1996.

Up-to-date expository guide to engineering sources which devotes a chapter to nuclear power engineering.

Mullay, Marilyn, and Priscilla Schlicke, eds. Science and Technology. Vol. 1 of Walford's Guide to Reference Material. 8th ed. London: Library Association Publishing, 1999.

This is a general guide intended primarily for use by librarians for locating reference material in all areas of science and technology. Energy and nuclear related titles are included in the sections on Nuclear and Atomic Engineering, Energy, and Physics.

Powell, Russell H. ed. Handbooks and Tables in Science and Technology. 3rd ed. Phoenix, AZ: Oryx Press, 1994.

The third revision includes 3,600 handbooks and tables in science, technology, and medicine. The emphasis is on data tabulations of physical and chemical values presented in handbooks, tables, manuals, or guides.

PRINTED AND ELECTRONIC INDEXES AND ABSTRACTS

The indexes and abstracts included in this section represent tools for locating articles, conference proceedings, reports, dissertations, patents, books, monographs, and other publications in nuclear engineering in the United States and other countries. Indexes included are in English; other useful foreign sources for locating information such as Bulletin Signaletique, Euro Abstracts, and Referativnyi Zhurnal are omitted for language reasons and because they tend to overlap with English-language sources covered in this section. Also excluded are general science and engineering sources such as Engineering Index, Applied Science and Technology Index, Government Reports Announcements and Index, Science Citation Index, and Current Contents. Since almost all indexes and abstracts are nowadays available either on CD-ROM, online, or on the Web, print indexes and abstracts (preceded by an *) are cross referenced to the equivalent database titles where full annotations are provided.

Aerospace Database. Reston, VA: American Institute of Aeronautics and Astronautics, updated monthly, 1962 - .
CD-ROM: Dialog OnDisc
Online/Web Vendors: Dialog, Cambridge Scientific Abstracts, SilverPlatter, STN

Covers worldwide resources for the scientific and technical literature on aeronautics, astronautics, and space sciences. It provides access to nuclear physics, energy, and other nuclear related technology topics. Covers two equivalent print abstracting journals: International Aerospace Abstracts and Scientific and Technical Aerospace Reports.

Energy Science and Technology Database . Oak Ridge, TN: U.S. Department of Energy; Springfield, VA: National Technical Information Service, updated biweekly, 1974 - .
CD-ROM: Dialog OnDisc (DOE Energy Science and Technology)
Online/Web Vendors: Dialog, Gov.Research_Center, STN

The database sources are provided by the U.S. Department of Energy (DOE), Energy Technology Data Exchange (ETDE), and International Nuclear Information System (INIS). Covers all types of energy and related topics including nuclear energy.

*Energy Research Abstracts. Oak Ridge, TN: U.S. Department of Energy, Scientific and Technical Information Center, semimonthly, 1976 - 1995. (Partially supersedes Nuclear Science Abstracts and supersedes ERDA Research Abstracts.)
Print abstracts ceased in 1995.

See Energy Science and Technology Database.

*INIS Atomindex. Vienna: International Atomic Energy Agency, semimonthly, 1977 - 1997. (Partially supersedes Nuclear Science Abstracts and List of References on Nuclear Energy, 1959 - 58.) Print index ceased in 1997.

See INIS Database.

INIS Database. Vienna: International Atomic Energy Agency, updated weekly, 1970 - .
CD-ROM: International Nuclear Information System (INIS), SilverPlatter
Online/Web Vendors: International Nuclear Information System (INIS), SilverPlatter, STN

The International Nuclear Information System, a cooperative decentralized information system, is a major abstracting service for nuclear engineering and is international in scope.

Set up by the above agency and its member states, it identifies publications relating to nuclear science and its peaceful applications.

INSPEC. London, UK; Edison, NJ: Institution of Electrical Engineers, updated weekly, 1969 - .
CD-ROM: Dialog OnDisc, IEEE/IEE Electronic Library (IEL)
Online/Web Vendors: Dialog, DataStar, Institute of Physics, Ovid, Questel·Orbit, SilverPlatter, STN

The database covers three print indexes: Physics Abstracts, Electrical and Electronics Abstracts, and Computer and Control Abstracts. It is the most comprehensive abstracting journal in the areas of electrical engineering and electronics, and physics and computer science. It includes nuclear science and physics and energy.

*International Aerospace Abstracts. Reston, VA: American Institute of Aeronautics and Astronautics, monthly, 1961 - .
CD-ROM: Dialog OnDisc (Aerospace Database)
Online/Web Vendors: Cambridge Scientific Abstracts, DIALOG, SilverPlatter, STN

Covers worldwide literature on aeronautics and space science and technology, including nuclear-related topics, in journals, conference papers, and translations of journal articles. Published on the 1st and 15th of each month alternating with Scientific and Technical Aerospace Reports, which covers technical reports published by NASA and other government agencies. See also Aerospace Database.

Metadex. Bethesda, MD: Cambridge Scientific Abstracts. Updated monthly, 1966 - .
CD-ROM: Dialog OnDisc
Online/Web Vendors: Dialog, DataStar, Cambridge Scientific Abstracts, Questel·Orbit, STN

Covers all aspects of materials science and engineering with sources provided by Metals Abstracts, Materials Business file, and Engineered Materials Abstracts. Includes nuclear related materials and processing.

*Metals Abstracts. Bethesda, MD: Cambridge Scientific Abstracts, updated monthly, 1968 - .
CD-ROM: Dialog OnDisc (Metadex)
Online/Web Vendors: Cambridge Scientific Abstracts DataStar, Dialog, Questel·Orbit, STN

Major indexing service for metallurgy, which includes nuclear-related material. Separate indexes by subject and author are issued each month, and these cumulate annually. See also Metadex.

*Nuclear Science Abstracts**.** Oak Ridge, TN: U.S. Atomic Energy Commission/Energy Research and Development Administration, semimonthly, 1946 - 1976. (Superseded by Energy Research Abstracts and INIS Atomindex.)
CD-ROM: Dialog OnDisc
Online/Web Vendors: Dialog

Abstracts and indexes the nuclear science literature. Includes the scientific and technical reports of the U.S. Atomic Energy Commission and Energy Research and Development Administration.

*Physics Abstracts. London: Institution of Electrical Engineers, bimonthly, 1898 - .
CD-ROM: Dialog OnDisc (INSPEC)

Online/Web Vendors: Cambridge Scientific Abstracts, DataStar, Dialog, Questel·Orbit, SilverPlatter, STN

Physics Abstracts is Section A of Science Abstracts and is a comprehensive index to modern physics literature in journals, reports, books, dissertations, patents, and conference papers published in all languages. See also INSPEC.

*Scientific and Technical Aerospace Reports. B.W.I. Airport, MD: National Aeronautics and Space Administration, semimonthly, 1963 - .
CD-ROM: Dialog OnDisc (Aerospace Database)
Online/Web Vendors: Dialog, Cambridge Scientific Abstracts

Coverage includes technical reports of NASA and other government agencies and contractors, patents, translations, and dissertations. Published on the 8th and 23rd of each month alternating with International Aerospace Abstracts (IAA). Covers identical subject categories as in IAA. See also Aerospace Database.

Title List of Documents Made Publicly Available. Washington, DC: U.S. Nuclear Regulatory Commission, Division of Technical Information and Document Control, monthly, 1979 - .
NUREG-0540 (Supersedes Power Reactor Docket Information, last published in 1979.)

Indexes information received or generated by the U.S. Nuclear Regulatory Commission. Items are arranged within the docketed and non-docketed categories, with indexes by personal and corporate author, and report number.

DICTIONARIES

This section presents dictionaries listing definitions of terms, acronyms, and abbreviations used in nuclear science and engineering.

Clason, W. E., comp. Elsevier's Dictionary of Nuclear Science and Technology: In six languages, English/American, French, Spanish, Italian, Dutch and German. 2nd rev. ed. Amsterdam, New York: Elsevier, 1978.

This list of 7,800 English terms has been expanded and revised from the 1958 edition of 4,000 terms. Each entry consists of a one-sentence definition and a list of equivalent terms in five other languages. A separate index for each of the other five languages is included.

Glossary of Terms in Nuclear Science and Technology. Prepared by ANS-9, the American Nuclear Society Standards Subcommittee on Nuclear Terminology Units. La Grange Park, IL: American Nuclear Society, 1986.

This replaces earlier publications USAS N1.1-1967 by the USA Standards Institute and ANS-9/ANSI N1.1-1976 by the American Nuclear Society. Included are terms for nuclear reactor physics, reactor shielding, and instrumentation, with an expanded coverage of terms relating to nuclear power technology and its utilization.

IAEA Safeguards Glossary. Vienna; Lanham, MA: International Atomic Energy Agency, 1987.

Provides definitions of terms used under the IAEA agreements regarding safeguards of strategic nuclear materials in civilian nuclear energy programs. Translations of terms into French, Russian, Spanish, German, and Japanese are also included.

Nuclear Energy Vocabulary. 2nd ed. Geneva, Switzerland: International Organization for Standardization, 1997. (ISO 921-1997)

A glossary of nuclear science and technology terms approved by the International Organization for Standardization. Terms are generally defined according to the specifications of the American National Standards Institute.

Radioactive Waste Management Glossary. Vienna; Lanham, MA: International Atomic Energy Agency, 1993. (STI/PUB/940)

Provides definitions of words internationally used in the field of radioactive waste management. Terms that are used only in one country and those whose definitions are the same as in standard dictionaries are generally omitted.

Thewlis, James, R. C. Glass, D. J. Hughes, and A. R. Meetham, eds. Encyclopaedic Dictionary of Physics: General, Nuclear, Solid State, Molecular, Chemical, Metal and Vacuum Physics, Astronomy, Geophysics, Biophysics and Related Subjects. 9 original vols. and 5 supplements. Oxford; New York: Pergamon Press, 1961 - 1975.

The original 9-volume set includes a multilingual equivalency index for English, French, German, Spanish, Russian, and Japanese terms. Articles are fairly technical and contain cross references and bibliographies. Although dated, the work is still considered the major dictionary in the physics field.

ENCYCLOPEDIAS

For lack of encyclopedias devoted specifically to nuclear science and engineering, this section lists general science and engineering encyclopedias that include articles on nuclear subjects. Nuclear engineering topics are generally covered in physics or applied physics encyclopedias.

Besancon, Robert M., ed. The Encyclopedia of Physics. 3rd ed. New York: Van Nostrand Reinhold Co., 1985.

As one of the major reference tools in physics, provides a concise treatment of a wide range of topics including those related to nuclear science and engineering.

Lerner, Rita G., and George L. Trigg, eds. Encyclopedia of Physics. 2nd ed. New York: VCH, 1991.

A concise encyclopedia covering physics and related topics.

Meyers, Robert A., ed. Encyclopedia of Physical Science and Technology. 18 vols. San Diego: Academic Press, 1992.

Contains in-depth descriptions of major areas of physical science and technology including physics, chemistry, engineering, and earth science. Covers nuclear energy topics such as nuclear power reactors, reactor materials and fuels, nuclear safeguards, and fusion power. Each article is preceded by a glossary of terms specific to the subject.

Trigg, George L., Eduardo S. Vera, and Walter Greulich, eds. Encyclopedia of Applied Physics. 23 vols. New York: Wiley-VCH Verlag, 1991 - 1998.

Extensive treatment of subjects in all physics and related fields. Included are nuclear science and engineering topics such as nuclear structure, neutron scattering, nuclear fuels and isotopes, nuclear reactions, nuclear energy, and nuclear waste management. Annual update volumes are to be published.

Webster, John G. ed. Wiley Encyclopedia of Electrical and Electronics Engineering. 24 vols. New York: John Wiley, 1999.

The encyclopedia is the latest publication that covers comprehensive subjects in the electrical and electronics engineering. It covers a number of topics related to nuclear science and engineering, including radiation detection and monitoring, fission and fusion reactors, and nuclear power plants. Online version is also available.

HANDBOOKS AND TABLES

This section presents a list of selected handbooks, databooks, and tables in various areas of nuclear engineering, including reactor physics and engineering, fusion and plasma physics, radiation effects in materials, radiation safety and protection, and nuclear measurements. A limited number of data sources in journal format are also included. Coverage of related areas in engineering and science is limited to a few standard handbooks.

American Society of Mechanical Engineers. ASME Steam Tables: Thermodynamics and Transport Properties of Steam. Prepared by C. A. Meyer, et al., for the ASME Committee on Properties of Steam. 6th ed. New York: American Society of Mechanical Engineers, 1993.

Prepared under an international collaboration, presents data on thermodynamic and transport properties of water including viscosity, specific heat, thermal conductivity, surface tension, and dielectric constant.

Atomic Data and Nuclear Data Tables. New York and London: Academic Press. Vol. 12 - , Aug. 1973 - .

Merges Atomic Data, vols. 1 - 5, Sept. 1969 - June 1973, and Nuclear Data Tables, vols. 1 - 11, Dec. 1965 - July 1973. The journal covers compilations and evaluations of experimental and theoretical data in atomic and nuclear-structure physics, including cross sections, energy levels, fission characteristics, and masses.

Brodsky, Allen, ed. CRC Handbook of Radiation Measurement and Protection. 2 vols. West Palm Beach, FL: CRC Press, Inc., 1986.

Provides information on radiation measurement instruments, monitoring techniques, protective facilities, and radioactive materials handling and disposal.

Browne, Edgardo, and Richard B. Firestone. Table of Radioactive Isotopes. Edited by Virginia S. Shirley. New York: Wiley, 1986.

This compilation of properties of nuclides emphasizes evaluated properties of nuclear radiation. Includes data on isotopic abundance, decay energy, atomic mass excess, isotopic production method, and mass-chain decay scheme. Most of the data are derived from the Evaluated Nuclear Structure Data File, which is maintained by the National Nuclear Data Center at Brookhaven National Laboratory.

CINDA. Vienna: International Atomic Energy Agency, updated annually, 1969 - .

An index to the literature on microscopic neutron data, this work covers bibliographic references, computerized numerical data on measurements, calculations, reviews, and evaluations of neutron cross sections and other microscopic neutron data. The index covers literature compiled by four regional neutron data centers: U.S. National Nuclear Data Center, USSR Nuclear Data Centre, NEA Data Bank, and IAEA Nuclear Data Section.

Der Hardt, Peter von, and Heinz Rottger, eds. Handbook of Materials Testing Reactors and Associated Hot Laboratories in the European Community. Dordrecht, Holland: D. Reidel Publishing Co.; Sold and distr. in the U.S. by Kluwer, 1981.

Technical information is presented for 19 Materials Testing Reactors (power greater than 5 MW) and hot cell facilities in the European Community. The data are presented in eight

categories including experimental irradiation facilities, neutron spectra, and post-irradiation examination facilities.

Etherington, Harold, ed. Nuclear Engineering Handbook. New York: McGraw-Hill, 1958.

Covers data in broad fields of nuclear engineering, with special emphasis on reactor engineering. Includes theory and practice in such topics as reactor physics, materials, mechanical design and operation of reactors, fluid flow, heat transfer, isotopes production, and radiation shielding. Classic reference.

Firestone, Richard B., ed. Table of Isotopes. 8th ed. 2 vols. New York: John Wiley, 1998.

Provides detailed data on properties of nuclides, including mass-chain decay scheme, natural isotopic abundance, atomic mass excess, neutron cross section, type of decay, means of production, and detailed level scheme.

Garber, Donald I., et al., eds. Angular Distributions in Neutron-Induced Reactions. 3rd ed. 2 vols. Upton, NY: National Neutron Cross Section Center, Brookhaven National Laboratory, 1970. (Technical report, BNL-400)

Compilation of significant experimental observations on the angular distribution of scattered neutrons and of the products of the reactions of fast neutrons with nuclei. Intended for use in nuclear reactor analysis and radiation shielding calculations, with emphasis on data for elastically scattered neutrons.

Handbook of Radioactivity Measurements Procedures: With Nuclear Data for Some Biomedically Important Radionuclides, Reevaluated between August 1983 and April 1984. 2nd ed. Bethesda, MD: National Council on Radiation Protection and Measurements, 1985. (NCRP report, no. 58)

Updated as an NCRP report, covers procedures for radioactivity standardization and measurement of radioactivity for clinical and biological purposes. Included in the appendices are nuclear decay data for selected radionuclides.

Handbook on Nuclear Activation Data. Vienna; Lanham, MA: International Atomic Energy Agency, 1987. (Technical Reports Series, no. 273)

Updated version of Technical Reports Series 156, Handbook on Nuclear Activation Cross-Sections. The handbook is divided into four sections: standard reference data, neutron activation, charged particle activation, and photonuclear activation. The handbook emphasizes evaluated and recommended data.

McLane, Victoria, Charles L. Dunford, and Philip F. Rose. Neutron Cross Section Curves. Boston: Academic Press, 1988. (Neutron Cross Sections series, vol. 2)

See Neutron Cross Sections.

Nero, Anthony V. A Guidebook to Nuclear Reactors. Berkeley, CA: University of California Press, 1979; Marietta: TechBooks, 1993.

Provides descriptions of various types of nuclear reactors as well as background information on issues related to reactor safety, uranium utilization, and radioactive waste disposal. Includes a number of illustrations for key nuclear power plant systems.

Neutron Cross Sections. Compiled by S. F. Mughabghab, M. Divadeenam, and N. E. Holden. 4th ed. 2 vols. New York: Academic Press, 1981 - 1988.

As the latest edition of what has been previously known as BNL-325, serves as a standard reference on neutron cross sections.

Vol. 1: Neutron Resonance Parameters and Thermal Cross Sections, pt. A (Z = 1-60) edited by N. E. Holden, S. F. Mughabghab, and M. Divadeenam; pt. B (Z = 61-100), edited by S. F. Mughabghab.
Vol. 2: Neutron Cross Section Curves, edited by Victoria McLane, Charles. L. Dunford, and Philip F. Rose.

Nuclear Data Sheets. New York: Academic Press, 1966 - .

Presents experimental results on radioactivity, nuclear moments, nuclear reactions, and nuclear energy levels.

Nuclides and Isotopes. 15th ed. Revised by Josef R. Parrington. San Jose, CA: Lockheed Martin: Knolls Atomic Power Laboratory; Dist. by GE Nuclear Energy, 1996.

Widely used chart of stable and unstable nuclides**.** It presents important properties for each nuclide including neutron cross sections and radioactive decay schemes. Key physical constants, conversion factors, and the periodic table of elements are also included. Previous edition was titled Chart of the Nuclides.

Rahn, F. J, et al. Guide to Nuclear Power Technology: A Resource for Decision Making. New York: Wiley, 1984; Malalsar, FL: Krieger, 1992.

Provides comprehensive coverage on nuclear power technology including nuclear fuel, power plant operation, nuclear materials, power plant components, radioactive waste disposal, safety, and regulations. Also included are historical perspectives on nuclear energy development and a number of tables on key aspects of nuclear technology.

Reactor Handbook. 2nd ed. 4 vols. New York: Interscience Publishers, 1960 - 1964.

Presents physics and engineering information on design and fabrication of nuclear reactor components and analysis of reactor systems. Vol. 1: Materials; Vol. 2: Fuel Processing; Vol. 3. Physics and Shielding; and Vol. 4: Engineering. Classic reference.

Ronen, Yigal, ed. CRC Handbook of Nuclear Reactors Calculations. 3 vols. Boca Raton, FL: CRC Press, 1986.

Presents calculational methods for nuclear reactor analysis including nuclear cross section preparation, unit cell calculations, diffusion theory, and transport calculations. Volumes 2 and 3 cover additional topics including Monte Carlo calculations, in-core fuel management, thermal and fast reactor calculations, and control absorber calculations.

Reactor Physics Constants Center (U.S.). Reactor Physics Constants. 2nd ed. Washington, DC: U.S. Atomic Energy Commission, 1963. (Technical report, ANL-5800)

Extensive collection of data useful for nuclear reactor design and analysis: fission processes, selected nuclear cross sections, constants for thermal, intermediate and fast reactors, shielding constants, constants related to interpretation of experimental data, and properties of elements and reactor materials. Classic reference.

U.S. Atomic Energy Commission. Division of Reactor Development. Naval Reactors Physics Handbook. 3 vols. Washington, DC, 1958 - 1964.

Provides analytical and experimental physics techniques and data for reactor design in the Naval and Shippingport (PWR) Reactor programs. Strong emphasis is given on reactor physics. Vol. 1: Selected Basic Techniques; Vol. 2: The Physics of Pressurized Water Reactor; and Vol. 3: The Physics of Intermediate Spectrum Reactors. Classic reference.

Wick, Oswald J., ed. Plutonium Handbook: A Guide to the Technology. Revised ed. 2 vols. La Grange Park, IL: American Nuclear Society, 1980.

Provides information on a broad range of topics of interest in utilizing plutonium in various applications. Includes physics, chemistry, metallurgy, and engineering aspects of plutonium use, and health and safety considerations in plutonium handling.

DIRECTORIES – NUCLEAR INDUSTRIES AND ORGANIZATIONS

Directories of nuclear-related organizations and nuclear power plants are presented in this section. All of these directories contain certain common information in each entry. Typically this includes the address, telephone number, and often the name of either the director or a representative who serves as a public liaison for the organization.

Burn, Reed Robert, ed. Research, Training, Test, and Production Reactor Directory, United States of America. 3rd ed. La Grange Park, IL: American Nuclear Society, 1988.

A comprehensive collection of administrative, operational, and technical data for all non-power reactors in the U.S. The table of contents is alphabetically arranged by parent organization.

Directory of Nuclear Research Reactors. Vienna: International Atomic Energy Agency, 1998.

Information collected by the IAEA on non-power reactors. Includes administrative, technical, and utilization information on research reactors, training reactors, test reactors, and prototype reactors.

Dresser, Peter D. ed. Nuclear Power Plants Worldwide. Detroit, MI: Gale Research, 1993.

Provides general information on commercial nuclear power plants operating, planned or inactive throughout the world.

Nuclear News. Buyers Guide. La Grange Park, IL: American Nuclear Society, annual, 1969 - .

Published as the mid-March issue of Nuclear News. Buyers guide to nuclear products, materials, and suppliers.

Nuclear Power Reactors in the World. Vienna; Lanham, MA: International Atomic Energy Agency, 1999.

This is the 15th edition of Reference Data series no. 2, Nuclear Power Reactors in the World, which replaces the IAEA publication Power Reactors in Member States. Provides a summary record on reactors operating or under construction, planned and shut down, including reactor types and net electrical power, construction date, grid connection date, commercialization date, and performance data.

World Directory of Nuclear Utility Management. Compiled by the Nuclear News staff. 12th ed. La Grange Park, IL: American Nuclear Society, 2000.

Includes listings of key managers from the chairman of the board to the purchasing agent for both nuclear utilities and nuclear power plants worldwide. It covers both operating units and those under construction. Revised annually.

World List of Nuclear Power Plants. La Grange Park, IL: American Nuclear Society, 1978 - .

Published in the March issue of Nuclear News. Arranged alphabetically by country, the list gives general location but no address. Also includes power output, reactor type, reactor supplier, generator supplier, architect/engineer, constructor, stage in construction, and date of expected or actual commercial operation.

World Energy and Nuclear Directory. 5th ed. Harlow, Great Britain: Longman Group, 1996.

Provides detailed profiles of research laboratories and institutions that carry out all types of research in energy, including nuclear. Included are a variety of organizations with basic information concerning their activities.

DIRECTORIES – BIOGRAPHICAL

In addition to a rather limited number of biographical directories specifically related to the nuclear field, a number of general directories are included in this section. Given the age of the nuclear field, most of the sources listed here are current. As such they tend to contain information for locating the individual, vital statistics, and summary of the individual's expertise. Each entry typically includes home or work address, telephone number, educational level attained, employment record, and area of interest. Many entries also include organizational or society memberships and affiliations, or honors received.

American Men and Women of Science 1998/1999. 20th ed. 8 vols. New York: R. R. Bowker, 1998.

Provides profiles of leading American scientists in the physical and biological sciences, engineers, computer scientists, mathematicians, and health scientists. Biographical data include research interests, concurrent positions, honors and awards, and society affiliations.

Energy & Nuclear Sciences International Who's Who. 5th ed. New York: Groves Dictionaries, Inc., 1994.

Provides biographical profiles of over 3,000 scientists and engineers in the areas of energy production and related industries.

Who's Who in Engineering. 9th ed. New York: American Association of Engineering Societies, 1995.

National in scope, this has several indices, including one by state and another by the specialization of the individual. In addition to standard information, it lists major accomplishments in the field.

Who's Who in Technology. 7th ed. Farmington Hills, MI: Gale Group, 1995.

Includes 25,000 leading scientists and engineers in North America. Provides detailed access points by areas of expertise.

STANDARDS AND SPECIFICATIONS

Both within the United States and internationally there are many sources of standards concerning nuclear activity. These standards are primarily created by three types of organizations: societies and associations, governments, and industries. The foremost source of nuclear standards is the American Nuclear Society (ANS). The other primary sources are, in alphabetical order, the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), International Atomic Energy Agency (IAEA), International Commission on Radiological Protection (ICRP), International Commission on Radiation Units and Measurements (ICRU), National Institute of Standards and Technology (NIST), and National Council on Radiation Protection and Measurements (NCRP).

Standards from all of the above organizations are available from the issuing agency, and can also be obtained through various commercial standards services.

American Nuclear Society Standards. La Grange Park, IL: American Nuclear Society.

> ANS maintains complete records on all available nuclear standards, nationally and internationally. Copies of any nuclear standard can be obtained from the Information Center on Nuclear Standards (ICON) located at the ANS office.

American Society for Testing and Materials. Annual Book of ASTM Standards, Volume 12: Nuclear, Solar, and Geothermal Energy. Philadelphia, PA: American Society for Testing and Materials, revised annually.

> ASTM is one of the significant sources of voluntary standards in the nuclear field. This volume collects nuclear-related standards which have been endorsed by the ASTM.

American Society of Civil Engineers. Guideline for Design and Analysis of Nuclear Safety Related Earth Structures. New York: American Society of Civil Engineers, 1988.

American Society of Civil Engineers. Seismic Analysis of Safety-Related Nuclear Structures. New York: American Society of Civil Engineers, 1986.

American Society of Civil Engineers. Structural Analysis and Design of Nuclear Plant Facilities. New York: American Society of Civil Engineers, 1980.

> These three standards focus on the design and analysis of nuclear plant structures, including seismic analysis of safety-related facilities.

American Society of Mechanical Engineers. ASME Boiler and Pressure Vessel Code. New York: American Society of Mechanical Engineers, 1998.

> Presents rules of safety governing the construction of boilers, pressure vessels, and other nuclear power plant components. This includes requirements for materials, design, fabrication, inspection during construction, and stamping. The code has been adopted by the American National Standards Institute. Sections III and XI cover rules for construction and in-service inspection, respectively, of nuclear power plant components.

Code of Federal Regulations: Title 10, Energy. Washington, DC: Office of the Federal Register, National Archives and Records Service, General Services Administration. (For sale by the Supt. of Docs., U.S. G.P.O.)

This is the best source of legislation and regulations regarding nuclear energy. Updated and released annually, it covers all relevant topics, including standards for radiation safety and protection, domestic licensing, waste disposal, environmental protection, security of national information, and conduct of employees.

Institute of Electrical and Electronics Engineers. Piscataway, NJ: IEEE Standards, 196? - .

IEEE provides standards in a wide range of electrical and electronics areas. In the section on nuclear engineering, it provides current and active standards relevant to the nuclear field including those related to nuclear instrumentation.

International Atomic Energy Agency. Safety Series. Vienna: International Atomic Energy Agency.

IAEA is a source of many nuclear standards. Standards endorsed by the IAEA are adhered to by all 130+ member nations.

International Commission on Radiological Protection. Annals of the ICRP. Oxford; New York: Pergamon Press, 4 issues a year, 1977 - .

Published periodically on topics of current interests related to radiation protection and application. Selected issues are published also as ICRP Publication.

International Commission on Radiological Protection. ICRP Publication. Oxford; New York: Pergamon Press, irregular, 1959 - .

Covers topics of current interests related to radiation protection and application. Selected issues are published also as Annals of the ICRP.

International Commission on Radiation Units and Measurements. ICRU Report. Washington, DC: International Commission on Radiation Units and Measurements, irregular, 1956 - .

Provides internationally acceptable recommendations regarding units of radiation and radioactivity and procedures for the measurement and application of the radiation. Prior to 1967, ICRU reports were published as NBS Handbooks.

NCRP Reports. Washington, DC: National Council on Radiation Protection and Measurements, 1931 - .

This report series deals with scientific information and recommendations on protection against radiation and techniques of radiation measurements.

Rules and Regulations - United States Nuclear Regulatory Commission. Washington, DC: Nuclear Regulatory Commission, Office of Administration, Division of Rules and Records.

This four-volume set includes all rules and regulations, policy statements, and general notices related to nuclear energy issued by the Nuclear Regulatory Commission and other agencies, and published in Federal Register. Updated monthly, the rules and regulations are arranged by subject into CFR parts.

U.S. Atomic Energy Commission, Law Library Staff. Atomic Energy Act of 1954: Legislative History of Public Law 703, 83rd Congress. Reprint ed. Buffalo, NY: W. S. Hein, 1978. 3 vols. in 4 bks.

This set represents the House and Senate reports, prints and resolutions, transcripts of hearings and excerpts from floor debates. The Act is the initial legislation enacted by Congress in 1954 and has historical significance as the foundation from which followed later laws, regulations, and standards.

MAJOR PERIODICALS

Listed in this section are core journals in nuclear engineering and related fields. Frequency may vary from year to year for some journals and many journals are available online.

Annals of Nuclear Energy. Oxford; New York: Pergamon Press, monthly, 1975 - .

Atomic Energy (Atomnaia energiia. English) New York: Consultants Bureau, monthly, 1992 - .

ATW: Internationale Zeitschrift fur Kernenergie. Düsseldorf: Verlagsgruppe Handelsblatt, monthly, 1995- . (Articles in German and English; Content in brief in English.)

Bulletin of the Atomic Scientists. Chicago: Educational Foundation for Nuclear Science, bimonthly, 1974 - .

Comments on Plasma Physics and Controlled Fusion. New York: Gordon and Breach Science Publishers, 6 issues per volume, 1972 - .

Fusion Engineering and Design. Amsterdam, The Netherlands: North-Holland, 20 issues a year, 1987 - .

Fusion Technology. La Grange Park, IL: American Nuclear Society, 8 times a year, 1984 - .

IEEE Transactions on Nuclear Science. New York: Institute of Electrical and Electronics Engineers, bimonthly, 1954 - .

Journal of Heat Transfer. New York: American Society of Mechanical Engineers, quarterly, 1959 - .

Journal of Nuclear Materials. Amsterdam: North-Holland, monthly (except March, April, May, when issued semimonthly), 1959 - .

Journal of Nuclear Science and Technology. Tokyo: Atomic Energy Society of Japan, monthly, 1964 - .

Kerntechnik. München: C. Hanser, 6 issues a year, 1987 - . (Articles in English.)

Nuclear Energy. London: British Nuclear Energy Society, bimonthly, 1978 - .

Nuclear Engineering and Design. Amsterdam: North-Holland, 24 issues a year, 1966 - .

Nuclear Engineering International. London: IPC Electrical-Electronic Press, monthly, 1968 - .

Nuclear Fusion. Vienna: International Atomic Energy Agency, monthly, 1960 - .

Nuclear Instruments and Methods in Physics Research. Section A, Accelerators, Spectrometers, Detectors and Associated Equipment. Amsterdam: North-Holland Physics Pub., frequency varies, 54 issues expected in year 2000, 1984 - .

Nuclear Instruments and Methods in Physics Research. Section B, Beam Interactions with Materials and Atoms. Amsterdam: North-Holland, frequency varies, 52 issues expected in year 2000, 1984 - .

Nuclear News. La Grange Park, IL: American Nuclear Society, monthly (except March, April, September, when issued semimonthly), 1959 - .

Nuclear Plant Journal. Glen Ellyn, IL: EQES, Inc., 7 times a year, 1987 - .

Nuclear Science and Engineering. La Grange Park, IL: American Nuclear Society, 9 times a year, 1956 - .

Nuclear Technology. La Grange Park, IL: American Nuclear Society, monthly, 1971 - .

Physical Review. A: Atomic, Molecular, and Optical Physics. New York: Published by the American Physical Society through the American Institute of Physics, monthly, 1990 - .

Physical Review. B: Condensed Matter. New York: Published by the American Physical Society through the American Institute of Physics, 4 times a month, 1978 - .

Physical Review. C: Nuclear Physics. New York: Published for the American Physical Society by the American Institute of Physics, monthly, 1970 - .

Physical Review. E: Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics. Woodbury, NY: American Physical Society through the American Institute of Physics, monthly, 1993 - .

Physical Review Letters. Woodbury, NY: American Physical Society, weekly, 1958 - .

Plasma Chemistry and Plasma Processing. New York: Plenum Press, quarterly, 1981 - .

Plasma Physics and Controlled Fusion. Bristol, UK: Institute of Physics Publishing, monthly, 1984 - .

Plasma Sources Science and Technology. Bristol, UK: Institute of Physics Publishing; Woodbury, NY: American Institute of Physics, quarterly, 1992 - .

Radiation Measurements. Oxford; New York: Pergamon Press, bimonthly, 1994 - .

Radiation Physics and Chemistry. Oxford; New York: Pergamon Press, monthly, 1977 - .

Radioactive Waste Management and Environmental Restoration. New York: Harwood Academic Publishers, 2 vols. per year; 4 issues per vol., 1994 - .

Radwaste Magazine. La Grange Park, IL: American Nuclear Society, quarterly, 1994 - .

Reliability Engineering and System Safety. Barking, Essex, England: Elsevier Science, 4 vols. per year; 3 issues per vol., 1988 - .

Reviews of Modern Physics. New York: Published by the American Physical Society through the American Institute of Physics, quarterly, 1929 - .

Transactions of the American Nuclear Society. La Grange Park, IL: American Nuclear Society, semiannually, 1958 - .

MAJOR CONFERENCES

This section lists selective conferences and topical meetings in nuclear engineering and related fields. The conferences are sponsored by major U.S. engineering societies and international organizations including the American Nuclear Society, American Society of Mechanical Engineers, Institute of Electrical and Electronics Engineers, Materials Research Society, National Council on Radiation, Protection and Measurements, and other international or foreign organizations. Within each sponsoring society, conferences are listed alphabetically by the first subject keyword in the conference title. Sponsoring organizations for conferences other than annual society meetings may vary from year to year.

American Nuclear Society (ANS)

Annual Meeting of the American Nuclear Society, Boston, MA, June, 1999.

Winter Meeting of the American Nuclear Society, Long Beach, CA, November, 1999.

International Topical Meeting on Advanced Reactors Safety, San Diego, CA, June, 2000.
(An Embedded International Topical Meeting, ANS Annual Meeting)

Topical Meeting on Emergency Preparedness and Response, Santa Fe, NM, September, 1999.

Symposium on Fusion Technology (SOFT), Marseille, France, September, 1998.

International High-Level Radioactive Waste Management Conference, Las Vegas, NV, May, 1998.

International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH), San Francisco, CA, October, 1999.

Topical Meeting on the Technology of Fusion Energy, New Orleans, LA, October, 2000.

Conference on Robotics and Remote Systems, Pittsburgh, PA, April, 1999.

American Society of Mechanical Engineers (ASME)

National Heat Transfer Conference, Albuquerque, NM, August, 1999.

International Conference on Nuclear Engineering (ICONE-8), Baltimore, MD, April, 2000.

International Joint Power Generation Conference, Birlingame, CA, July, 1999.

ASME Pressure Vessels and Piping Conference, Boston, MA, August, 1999.

Conferences Sponsored by International or Foreign Organizations

International Symposium on International Safeguards, Vienna, Austria, October, 1997.

International Conference on Packaging and Transportation of Radioactive Materials, Paris, France, May, 1998.

International Conference on Plasma Physics and Controlled Nuclear Fusion, Yokohama, Japan, October, 1998.

International Conference on Radiation Shielding, Tsukuba, Japan, October, 1999.

International Conference on Radioactive Waste Management and Environmental Remediation, Nagoya, Japan, September, 1999.

Institute of Electrical and Electronics Engineers (IEEE)

IEEE Symposium on Fusion Engineering, Albuquerque, NM, October, 1999.

IEEE Nuclear Science Symposium, Seattle, WA, October, 1999.

IEEE International Conference on Plasma Science, Monterey, CA, June, 1999.

Materials Research Society (MRS)

Spring Meeting of the Materials Research Society, San Francisco, CA, April, 1999.

Fall Meeting of the Materials Research Society, Boston, MA, November - December, 1999.

National Council on Radiation, Protection and Measurements (NCRP)

Annual Meeting of the National Council on Radiation, Protection and Measurements, Arlington, VA, April, 1999.

YEARBOOKS AND REVIEW SERIES

The articles in the yearbooks or review series included in this section usually present lengthy and substantial coverage of topics of current interest in nuclear energy and technology and nuclear science. These review series are published annually or less frequently.

Advances in Nuclear Physics. New York: Plenum, annual, vol. 1 - , 1968 - .

This publication includes review papers designed to chart the field of nuclear physics. It is aimed at a wide readership, including both students and researchers.

Advances in Nuclear Science and Technology. New York: Plenum, biennial, vol. 1- , 1962 - .

This series includes analysis, critiques, and interpretations of current advances in all phases of nuclear science and technology except radiation biology and medicine.

Annual Review of Nuclear and Particle Science. Palo Alto, CA: Annual Reviews, Inc., annual, vol. 28 - , 1978 - . (Continues Annual Review of Nuclear Science.)

These annual reviews include a collection of critical appraisals in chapter form of each year's progress in various fields of nuclear and particle science. Each volume includes cumulative author indexes for that volume as well as for previous volumes.

IAEA Yearbook. Vienna: International Atomic Energy Agency, annual, 1989 - .

Provides an annual assessment of the nuclear industry, including nuclear energy supply and radioactive waste management, and information on the radiation processing of food and medicine.

Progress in Nuclear Energy. Oxford: Pergamon Press, two vols. per year, vol. 1 - , 1956 - .

This international review journal covers current problems in all aspects of nuclear energy including safety, siting and environmental problems, economics, and future management. Basic physics and engineering articles are also included.

INTERNET RESOURCES

The phenomenal growth of the Internet over the past decade has facilitated ready access to an abundance of scientific and technical information. The fast evolving nature of the Internet is, however, a concern as the currency of the Internet sites varies, and a particular site may become obscure and outdated to be of any use. The resources listed here are established major research sites, government agencies, data centers, and national laboratories conducting nuclear related research. Included also are several websites at academic nuclear engineering programs, where substantial Internet links are provided. This section should serve as a basis for links to a variety of nuclear engineering resources available on the web.

Nuclear Organizations

American Nuclear Society (ANS)
http://www.ans.org

Nuclear Energy Agency (NEA)
http://www.nea.fr

As an agency within the Organization for Economic Co-operation and Development (OECD), coordinates the nuclear energy development in member countries, including nuclear safety and licensing, radioactive waste management, radiation protection, and other nuclear related issues.

International Atomic Energy Agency (IAEA)
http://www.iaea.org

Established as a United Nations scientific organization, coordinates and oversees activities related to nuclear science and engineering in approximately 130 member states.

Electric Power Research Institute (EPRI)
http://www.epri.com

Funded by electric utility companies, coordinates and manages research and development activities related to production and distribution of electricity, including nuclear electricity.

Uranium Institute
http://www.uilondon.org/index.htm

Provides a variety of nuclear energy information including nuclear fuel, nuclear industry issues. The site offers links to national and international websites on nuclear topic.

Nuclear Data Centers

National Nuclear Data Center (NNDC)
http://www.nndc.bnl.gov

The NNDC, funded by the U.S. Department of Energy, provides information on neutron, charged-particle, and photonuclear reactions, nuclear structure, and decay data, and links to other nuclear data centers in the U.S. and other countries. Key databases available through the NNDC include:

Computer Index of Neutron Data (CINDA)
http://www.nndc.bnl.gov/nndc/cinda

Evaluated Nuclear Data File (ENDF)
http://www.nndc.bnl.gov/nndc/endf

Experimental Nuclear Reaction Data (CSISRS)
http://www.nndc.bnl.gov/nndc/exfor

Table of the Nuclides
http://www.dne.bnl.gov/CoN/index.html

JAERI Nuclear Data Center (JNDC)
http://wwwndc.tokai.jaeri.go.jp/Figs/endfplot.html

Provides evaluated nuclear cross section data maintained by the Japan Atomic Energy Research Institute. JNDC databases are similar to the ENDF and related files provided by the NNDC.

Russian Nuclear Data Center (CJD)
http://www.ippe.obninsk.ru

Nuclear data files at the center are maintained by the Institute of Physics and Power Engineering (IPPE) at Obninsk, Russia.

IAEA Nuclear Data Centre (NDS)
http://www-nds.iaea.org

The Nuclear Data Section at the Centre coordinates the development and dissemination of nuclear and atomic data in member countries.

OECD NEA Data Bank
http://www.nea.fr/html/databank

Maintains and coordinates development effort among OECD countries in nuclear data files, in particular, the Joint Evaluated File (JEF) and European Fusion File (EFF).

<u>National Laboratories and Government Agencies</u>

Argonne National Laboratory (ANL)
http://www.anl.gov

Brookhaven National Laboratory (BNL)
http://www.bnl.gov

Idaho National Engineering and Environmental Laboratory (INEEL)
http://www.inel.gov

Lawrence Berkeley National Laboratory (LBNL)
http://www.lbl.gov

Lawrence Livermore National Laboratory (LLNL)

http://www.llnl.gov

Los Alamos National Laboratory (LANL)
http://www.lanl.gov

National Institute of Standards and Technology (NIST)
http://www.nist.gov

Oak Ridge National Laboratory (ORNL)
http://www.ornl.gov

Sandia National Laboratories (SNL)
http://www.sandia.gov

U.S. Department of Energy (DOE)
http://www.doe.gov

U.S. Nuclear Regulatory Agency (NRC)
http://www.nrc.gov

University Servers for Nuclear Resources

Massachusetts Institute of Technology (MIT). Nuclear Engineering
http://web.mit.edu/ned/www/links.html

University of Michigan
Department of Nuclear Engineering and Radiological Sciences
http://www-ners.engin.umich.edu/links/nuc_res.html

Media Union Library
http://www.lib.umich.edu/ummu/SUBJECTGUIDES/NUCL/NuclearNR.html

WWW Virtual Library: Nuclear Engineering
http://www.nuc.berkeley.edu/NEadm.html

APPENDIX: SELECTED PUBLISHERS AND INFORMATION SERVICES

This appendix lists addresses of societies, vendors, and online services. Standard publishers that are easily found in Books-in-Print and Ulrich's International Periodicals Directory are not included.

American Nuclear Society. 555 N. Kensington Avenue, La Grange Park, IL 60526
Telephone: 708-579-8210
Fax: 708-579-8314
http://www.ans.org

American Society for Testing and Materials. 1916 Race Street, Philadelphia, PA 19103
Telephone: 215-299-5585
Fax: 215-977-9679
http://www.astm.org

American Society of Civil Engineers. 345 East 47th Street, New York, NY 10017
Telephone: 212-705-7510
Fax: 212-980-4681
http://www.asce.org

American Society of Mechanical Engineers. 345 East 47th Street, New York, NY 10017. To order: 22 Law Drive, Box 2900, Fairfield, NJ 07007-2900
Telephone: 800-THE-ASME
Fax: 201-882-1717
http://www.asme.org

Cambridge Scientific Abstracts. 7200 Wisconsin Avenue, Suite 601, Bethesda, MD 20814
Telephone: 800-843-7751; 301-961-6700
Fax: 301-961-6720
http://www.csa.com

DataStar. See Dialog Corporation.

Dialog Corporation. U.S. Headquarters, 11000 Regency Parkway, Suite 10, Cary, NC 27511
Telephone: 800-3DIALOG; 919-462-8600
Fax: 919-468-9890
http://www.dialog.com

Gov.Research_Center
Is a partnership between National Information Services Corporation(NISC) and National Technical Information Service (NTIS).
http://grc.ntis.gov/energy.htm

Institute of Electrical and Electronics Engineers. IEEE Customer Services, 445 Hoes Lane, P.O. Box, 1331, Piscataway, NJ 08855-1331
Telephone: 800-678-IEEE
Fax: 908-981-9667
http://www.ieee.org

Institute of Physics Publishing, Inc. The Public Ledger Building, Suite 1035
150 South Independence Mall West, Philadelphia, PA 19106
Tel: (215) 627 0880
Fax: (215) 627 0879

http://www.iop.org

International Atomic Energy Agency. Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria
The exclusive sales agent for IAEA publications in the United States is Bernan Associates (www.bernan.com), 4611-F Assembly Drive, Lanham, MD 20706.
Telephone: 800-274-4447.
Fax: 301-459-0056
http://www.iaea.org

International Commission on Radiation Units and Measurements. ICRU Publications, 7910 Woodmont Avenue, Suite 800, Bethesda, MD 20814
Telephone: 800-229-2652; 301-657-2652
Fax: 301-907-8768
http://www.icru.org

National Council on Radiation Protection and Measurements. NCRP Publications, 7910 Woodmont Avenue, Suite 800, Bethesda, MD 20814-3095
Telephone: 800-229-2652
Fax: 301-907-8768
http://www.ncrp.com

Questel·Orbit, Inc. 8000 Westpark Drive, McLean, VA 22102
Telephone: 800-456-7248; 703-442-0900
Fax: 703-893-4632
http://www.questel.orbit.com

SilverPlatter Information, Inc. 100 River Ridge Drive, Norwood, MA 02062-5043
Telephone: 800-343-0064; 781-769-2599
Fax: 781-769-8763
http://www.silverplatter.com

STN International, c/o CAS, 2540 Olentangy River Road, P.O. Box 3012, Columbus, OH 43210
Telephone: 800-848-6533; 614-447-3600
Fax: 614-447-3713
http://www.stnweb.cas.org

Career Paths: Nuclear Engineering is a new educational resource for nuclear engineering professionals who want to improve their English communication in a work environment. Incorporating career-specific vocabulary and contexts, each unit offers step-by-step instruction that immerses students in the four key language components: reading, listening, speaking, and writing.Â â€¢ A variety of realistic reading passages â€¢ Career-specific dialogues â€¢ 45 reading and listening comprehension checks â€¢ Over 400 vocabulary terms and phrases â€¢ Guided speaking and writing exercises â€¢ Complete glossary of terms and phrases The Teacherâ€™s Guide contains detailed lesson plans, a full answer key and audio scripts. . Nuclear Engineering and Design covers the wide range of disciplines involved in the engineering, design, safety and construction of nuclear fission reactors. The Editors welcome papers both on applied and innovative aspects and developments in nuclear science and technology. Fundamentals of Reactor Design include: â€¢ Thermal-Hydraulics and Core Physics â€¢ Safety Analysis, Risk Assessment (PSA) â€¢ Structural and Mechanical Engineering â€¢ Materials Science â€¢ Fuel Behavior and Design â€¢ Structural Plant Design â€¢ Engineering of Reactor Components â€¢ Experiments. Office of Nuclear Regulatory Research. Availability of reference materials in nrc publications.Â The literature distinguishes between radiation that is electrically charged and radiation that is electrically neutral. The electrically charged radiation includes alpha and beta particles. Alpha rays are high-speed, high-energy particles expelled from unstable nuclei; each alpha particle is the nucleus of a helium atom, which is made up of two protons and two neutrons.Â Tables were prepared for nuclear engineering applications. The tables give the dose equivalent per unit incident fluence as a function of the mass thickness of the concrete slabs (Wyckoff and Chilton 1973, Shultis and Faw 2000). The Nuclear Physics and Reactor Theory Handbook was developed to assist nuclear facility operating contractors in providing operators, maintenance personnel, and the technical staff with the necessary fundamentals training to ensure a basic understanding of nuclear physics and reactor theory. The handbook includes information on atomic and nuclear physics; neutron characteristics; reactor theory and nuclear parameters; and the theory of reactor operation. This information will provide personnel with a foundation for understanding the scientific principles that are associated with various DOE n... Handbook of Generation IV nuclear reactors Edited by Igor L. Pioro Foreword Dear Readers: Elsevier is presenting this new Handbook of Generation IV Nuclear Reactors, which has been written by nuclear engineering experts throughout the world. The need for this Handbook is based on the absence of any such comprehensive text, and has the following rationale. Currently, nuclear power plants (NPPs), with about 436 nuclear-power reactors1, generate about 11.2% of electricity around the world, and demand for this essential and reliable energy source, free from greenhouse gases, is and will be growing