

Physics Resource Guide

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This guide provides selected information on resources in Physics. For specific book and periodical titles, check the [Suffolk University Library Catalog](#).

Electronic Reference Resources

[AccessScience](#)

Online reference materials taken from the *McGraw-Hill Encyclopedia of Science & Technology* and research updates from the *McGraw-Hill Yearbooks*. Includes graphs, illustrations, news, and student study guides.

[Gale Virtual Reference Library](#)

The Gale Virtual Reference Library is a collection of reference books published by Gale, which has now been made available electronically in full-text. Titles include:

- Building Blocks of Matter: A Supplement to the Macmillan Encyclopedia of Physics 2003.
- Encyclopedia of Space Science and Technology 2v, 2003
- Gale Encyclopedia of Science 3rd ed., 6v, 2004
- Macmillan Encyclopedia of Energy 3v, 2001
- Mathematics 4v, 2002
- Science and Its Times: Understanding the Social Significance of Scientific Discovery 8v,

2001

- o Science of Everyday Things 4v, 2002

Credo Reference (xreferplus): The Penguin Dictionary of Physics

Credo Reference (xreferplus) is an online reference library that provides access to over 150 reference books, including encyclopedias, dictionaries, and subject-specific titles such as *The Penguin Dictionary of Physics*. This dictionary provides definitions of 4,500 terms and concepts, drawn from every area of physics, ranging from optics and acoustics to mechanics and electronics.

Oxford Reference Online: A Dictionary of Physics 6th Edition, 2009.

Oxford Reference Online is a collection of dictionaries, language reference works, and subject reference works published by Oxford University Press. This specialized dictionary of physics contains over 3,800 entries covering all commonly encountered physics terms and concepts, as well as terms from the related fields of astronomy, astrophysics, and physical chemistry.

Periodical Indexes and Full-text Databases

Academic Search Complete

Our best general research database, this online resource covers a wide range of academic areas including chemistry, physics, biology, and medical sciences and provides indexing and abstracting for 4,500 scholarly publications with full-text access for over 3,600 of the titles. Indexing and abstracting coverage begins generally from the mid-1980's and full-text coverage for many titles dating back to 1990. You may limit search results to full-text and/or peer-reviewed articles.

Wiley InterScience (includes Blackwell)

Provides access to a wide variety of journals and periodicals, covering all academic disciplines, including Atomic, Molecular and Optical Physics, Quantum Physics and Field Theory, Solid State Physics, and Thermal Physics. Many articles are available in full-text.

SpringerLink (includes Kluwer)

SpringerLink is a collection of more than 1,000 high-quality, peer-reviewed journals covering scientific, technical and medical journal literature, and it includes all journals formerly hosted by Kluwer Online. Physics, astronomy, and mathematical and computational physics are all well represented in SpringerLink.

Cambridge Journals Online

Cambridge Journals Online provides electronic access to over 200 journals published by

Cambridge University Press. Approximately one dozen titles relate to the physical sciences, such as the *Journal of Fluid Mechanics* and *Laser and Particle Beams*.

JSTOR

Indexes and provides full-text access to over 250 scholarly journals, often with an extensive backfile (for example, the journal *Science* is covered back to 1880). Publications relevant to physics include the *Proceedings of the Royal Society of London. Series A, Mathematical and Physical Sciences 1934-1990*. Note that there is generally three to five years between the last issue available in JSTOR and the most recently published issue of a journal.

Science (AAAS) Magazine 1997 -

Produced by the American Association for the Advancement of Science (AAAS), *Science* is a leading journal of original scientific research and news. Full text coverage is from January 1997 to the present, including the current issue. Full text for the issues 07/03/1880 - 12/20/2002 are available through the JSTOR database.

MathSciNet

MathSciNet is a comprehensive database covering the world's mathematical literature since 1940. It provides Web access to the bibliographic data and signed reviews of mathematical research literature contained in the Mathematical Reviews Database. When available, it provides links to original articles and other original documents, however the Reviews database does not contain the original articles. A search on the concept 'quantum physics' brings results such as "Energy-information coupling from classical to quantum physics" in the *International Journal of Theoretical Physics*.

The ACM Digital Library

The ACM Digital Library is a vast collection of citations and full-text from ACM journal and newsletter articles and conference proceedings. The ACM Portal is published by the Association for Computing Machinery. Although this is not a collection of physics journals, many current topics in physics may be found here since almost all contemporary research in physics involves high level computing.

IEEE Computer Society Digital Library

The IEEE (Institute of Electrical and Electronics Engineers), a non-profit organization, is the world's leading professional association for the advancement of technology. The IEEE Computer Society was founded in 1946, and it is the largest of the 39 societies of the IEEE. The IEEE Computer Society Digital Library provides online access to 22 society magazines and transactions, and more than 1,700 selected conference proceedings. Many topics relating to physics are contained within this database. For example, a search on the term 'electromagnetism'

generates results such as "Analysis of the Electromagnetic Characteristics of Nanowires Using ScaLAPACK on High Performance Computers," from the 2005 Users Group Conference (DOD-UGC'05).

HighWire Press

<http://www.highwire.org>

Indexing and some full-text of over 350 physical, biological, social and medical sciences journals published by Stanford University's High Wire Press. Includes citation searching, and covers areas such as Classical Physics, Condensed-Matter Physics, Nuclear Physics, Particle Physics, and Quantum Physics.

Academic OneFile (InfoTrac)

Another wide-ranging periodical database, Expanded Academic indexes and includes some full-text of journals covering topics in the physical sciences. Searches may be limited to peer-reviewed publications.

Selected Print Reference Resources

Encyclopaedic Dictionary of Physics: general, nuclear, solid state, molecular, chemical, metal and vacuum physics, astronomy, geophysics, biophysics, and related subjects.

REF QC5 .E52 (Nine volumes, plus four supplements)

Although this is an older work, (published between 1961-64; supplements 1966-71), this set is a standard reference in the field of physics, written at the graduate level. Volume 9 contains a multilingual physics dictionary for English, French, German, Spanish, Russian, and Japanese. The Macmillan encyclopedia of physics serves as a good update to this set.

Macmillan Encyclopedia of Physics

REF QC5 .M15 1996 (4 Vols.)

This four volume set contains approximately 1,000 articles, which cover the concepts and applications of physics, as well as biographical information on important scientists.

Handbook of Physics

REF QC61 .H37 2002

Published by the American Institute of Physics, this handbook is based on the third German edition of the *Taschenbuch der Physik*. Topics include all the important concepts, formulas, rules and theorems, practical applications, and error analysis, as well as tables of standard values and material properties.

AIP Physics Desk Reference 3rd edition.

REF QC61 .P49 2003

Updated topics include: atmospheric physics, particle accelerators, polymer physics, and quantum theory, as well as a new chapter on practical laboratory data.

World of Physics

REF QC5 .W67 2001 (2 Vols.)

An A-Z subject-specific guide to concepts, theories, discoveries, pioneers and issues in physics.

Springer Handbook of Atomic, Molecular, and Optical Physics

REF QC173 .S67 2006

A comprehensive reference source for the fields of atomic molecular and optical physics. Topics include atomic spectroscopy, Bose-Einstein condensation, quantum information, and cosmological variations of the fundamental constants.

Cambridge Handbook of Physics Formulas

REF QC61 .W67 2000

Contains over 2,000 formulas and equations found in undergraduate physics courses. Topics include dynamics and mechanics, quantum physics, thermodynamics, solid state physics, electromagnetism, optics and astrophysics.

How Things Work: the Physics of Everyday Life 3rd Edition.

REF QC21.2 .B59 2006

Intended as an introduction to physics for liberal arts majors, or for those who wish to understand the principles of physics behind the phenomena of everyday experience.

Selected Internet Resources

Scirus

<http://www.scirus.com/>

Elsevier Science publisher claims that its Scirus website provides the "most comprehensive science specific search engine on the Internet." Scirus searches "web information, preprint servers, digital archives, repositories and patent and journal databases," and Scirus filters out non-scientific sites. Therefore, unlike Google, a Scirus search for REM finds information on sleep, as opposed to the rock band.

The "Virtual" Physics Center

<http://www.martindalecenter.com/GradPhysics.html>

Part of the (Jim) Martindale Reference Desk, hosted by the University of California, Irvine, Science Library. This is a long scrolling directory to topics in physics, from astrophysics to solid state physics to the physics of ultrafast phenomena.

[Science.gov: Physics](#)

http://www.science.gov/browse/w_129C.htm

"Science.gov provides a gateway to information resources at the U.S. government science agencies. Science.gov contains reliable information resources selected by the respective agencies as their best science information. Two major types of information are included — selected authoritative science Web sites and databases of technical reports, journal articles, conference proceedings, and other published materials." In a fashion similar to Yahoo!, Science.gov presents the user with a searchable directory to government information resources in science. Sample topics include advanced light source, condensed matter, and quantum physics.

[PhysNet](#)

<http://www.physnet.net>

"PhysNet - the worldwide Network of Physics Departments and Documents," is a noncommercial free service with the goal of providing "a longtime stable and distributed information service for physics with the collaboration of many national and international societies and physics organisations." Users of PhysNet will first be directed to choose from the available mirror sites. Three of PhysNet's main sections will be of interest to physics students: [PhysDep](#) provides a searchable list of links to "nearly all Physics Institutions worldwide ordered by continent, country and town;" [PhysDoc](#) links to posted documents of the distributed Physics Institutions, including "preprints, research reports, annual reports, and list of publications of local research groups and individual scientists;" and [Journals](#) "lists Physics-related Journals, which are freely available on the net."

[BUBL Link: Physics](#)

<http://bubl.ac.uk/link/linkbrowse.cfm?menuid=6406>

"Catalogue of selected Internet resources covering all academic subject areas and catalogued according to DDC (Dewey Decimal Classification). All items are selected, evaluated, catalogued and described." This is an academically oriented virtual library, based in the United Kingdom. As with any directory, a few of the recommended links no longer function, but in general BUBL can be trusted to provide good recommendations for academic topics.

[American Physical Society \(APS\)](#)

<http://www.aps.org>

The website of the American Physical Society - with sections devoted to APS publications and career guidance.

[The Virtual Library: Physics](#)

<http://www.vlib.org/Physics.html>

A virtual library of libraries for Physics, including geophysics, high energy physics, nuclear

physics, and optics.

Fundamental Physical Constants

http://www.chemie.fu-berlin.de/chemistry/general/constants_en.html

This website is based at the Institute of Chemistry, within the Department of Biology, Chemistry, Pharmacy, at the Freie Universität in Berlin, Germany. It includes constants such as electron, proton, and neutron rest mass, and the Planck constant, Boltzmann constant, and Avogadro number.

NIST Reference on Constants, Units, and Uncertainty

<http://physics.nist.gov/cuu/Constants/index.html>

The "NIST (National Institute of Standards and Technology) Reference on Constants, Units, and Uncertainty, [is] one of the technical activities of the Fundamental Constants Data Center of the NIST Physics Laboratory. The contents of this site have been prepared by Barry N. Taylor of the Data Center in close collaboration with Peter J. Mohr of the Physics Laboratory's Atomic Physics Division." Constants may be searched by name, or browsed by category (e.g. electromagnetic or physico-chemical). Novice physics students may be interested in the [Background information related to the constants](#) which includes the section [Introduction to the constants for nonexperts](#).

International System of Units (SI)

<http://physics.nist.gov/cuu/Units/index.html>

Part of the NIST Reference on Constants, Units, and Uncertainty. Provides an introduction to the SI units and prefixes, including definitions of the SI base units and their historical context, and units outside the SI that are accepted for use with the SI.

NTRS: NASA Technical Reports Server

<http://ntrs.nasa.gov/>

The Technical Reports Server is an index providing the public access to NASA's technical literature, and includes research reports, journal articles, conference and meeting papers, technical videos, mission-related operational documents, and preliminary data. The content of this site is primarily abstracts and citations; full-text documents can be ordered from the NASA Center for AeroSpace Information.

CERN Document Server: Articles and Preprints

http://weplib.cern.ch/Home/Library_Catalogue/Articles_and_Preprints/index.php>

CERN's "Articles & Preprints collection aims to cover as far as possible the published and pre-published literature in particle physics and its related technologies. The collection contains something like 400,000 documents, out of which about 50% can be accessed electronically. The documents originate from articles published in journals, preprints, technical reports, conference

presentations, scientific committee documents and theses - all comprehensively indexed by the CERN Scientific Information Service. The collection starts, comprising only the most important documents in the first decades, from the mid of the 19th century. The full coverage starts from 1980 onwards."

[Preprints and Eprints - Los Alamos National Library](http://library.lanl.gov/libinfo/preprints.htm)

<http://library.lanl.gov/libinfo/preprints.htm>

This page from the [Research Library at Los Alamos National Laboratory](http://library.lanl.gov/) (<http://library.lanl.gov/>) gives a brief background to preprints and eprints, and provides links to several preprint databases, including the [arXiv.org e-Print archive](http://arxiv.org/). And, what are preprints and eprints? "A preprint is "an issue of a technical paper often in preliminary form before its publication in a journal" (Webster's online). The term "eprint" was coined to also include papers which are never formally published. You can often recognize preprints in bibliographies as "submitted to" or "will appear in" or with a cryptic code such as CONDMAT9803066 or HEP-TH/9703185."

[The SAO/NASA Astrophysics Data System \(ADS\)](http://adswww.harvard.edu/)

<http://adswww.harvard.edu/>

"The SAO/NASA Astrophysics Data System (ADS) is a Digital Library portal for researchers in Astronomy and Physics, operated by the Smithsonian Astrophysical Observatory (SAO) under a NASA grant. The ADS maintains three bibliographic databases containing more than 6.7 million records: Astronomy and Astrophysics, Physics, and arXiv e-prints." The bulk of the data in the ADS is made up of bibliographic records (searchable through the Abstract Service query forms), and full-text scans of much of the astronomical literature (available through the Browse interface). In addition ADS provides links to other NASA centers, the Los Alamos preprint server, and the Harvard-Smithsonian Center for Astrophysics Preprints. All abstracts and articles in the ADS are copyrighted and their use is free for personal use only.

[The Particle Adventure](http://particleadventure.org/index.html)

<http://particleadventure.org/index.html>

"The Particle Data Group of Lawrence Berkeley National Laboratory presents an award-winning interactive tour of quarks, neutrinos, antimatter, extra dimensions, dark matter, accelerators and particle detectors." The tour is organized along a series of questions, (What is the world made of? What holds it together? How do we experiment with tiny particles?) followed by brief illustrated explanations. In addition to the tour, the website also offers a list of links to other [Particle Physics Education sites](#), a glossary, and a [chart of fundamental particles](#) and their interactions.

[The Net Advance of Physics](http://web.mit.edu/redingtn/www/netadv/)

<http://web.mit.edu/redingtn/www/netadv/>

"Review Articles and Tutorials in an Encyclopædic Format" produced by the Massachusetts Institute of Technology.

[HyperPhysics](#)

<http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html>

HyperPhysics is an interactive physics course designed in "flashcard" and "concept map" format, and produced by Dr. Rod Nave of the Department of Physics and Astronomy at Georgia State University.

[How Everything Works](#)

<http://www.howeverythingworks.org/>

Based on his book called *How Things Work: the Physics of Everyday Life*, Louis Bloomfield, Professor of Physics, University of Virginia, has developed this guide to explain physical principles. Useful, practical information on the physics behind everyday things like: air conditioners, bicycles, clocks, lasers, television, wood stoves, and many more topics. Presented in a question and answer format, it is updated constantly with answers to new questions.

[Physics News Update](#)

<http://www.aip.org/physnews/update/>

"Physics News Update is a digest of physics news items arising from physics meetings, physics journals, newspapers and magazines, and other news sources," published by the American Institute of Physics. Archives (searchable) and subscriptions are free in order to promote information about physics and physicists.

[Physicsworld.com](#)

<http://physicsworld.com/cws/home>

Self described as "physics news, jobs, and resources," this guide to physics resources includes features from *Physics World* magazine, recent news items related to physics, and links to physics reference resources.

[PhysLink.com](#)

<http://www.physlink.com/index.cfm>

PhysLink.com is an online education and reference service for physics and astronomy. It includes reference sources (e.g., fundamental constants, decimal multiples and prefixes), news stories, online forums, and worldwide links to college and university physics departments.