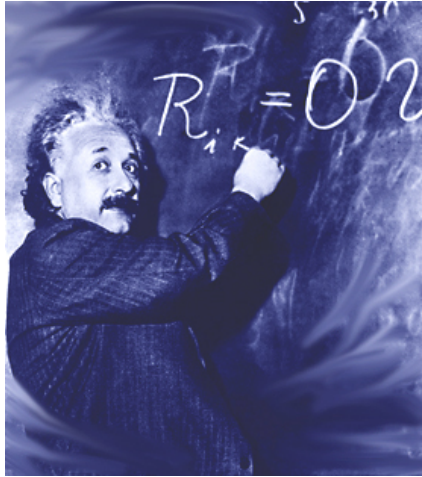


Albert Einstein



The World Year of Physics 2005

2005 is the 100th anniversary of Albert Einstein's "miraculous year." In 1905 he published three seminal papers describing ideas that have since influenced all of modern physics: the "theories of special relativity," the "photoelectric effect," and the paper on "Brownian motion." In Germany several major scientific outreach events are planned for the "Einstein-Year" (<http://www.einsteinjahr.de/>) and the United Nations declared 2005 the International Year of Physics.

Celebrate the life and achievements of Albert Einstein (1879-1955) by viewing manuscripts and papers, scientific articles, related news and events, photographs and AV, and even sites for kids.

World Year of Physics 2005

(<http://www.wyp2005.org/>). The United Nations has declared 2005 the International Year of Physics (<http://www.wyp2005.org/>) - and there's a very good reason why this particular year was chosen to raise worldwide public awareness of physics. It is also the 100th anniversary of physicist Albert Einstein's (<http://www.physorg.com/search/Einstein>) miraculous year in which he wrote five - or three depending on whom you ask - of his most famous scientific papers. Also known as the World Year of Physics (WYP) - as declared by the International Union of Pure and Applied Physics - 2005 will feature worldwide events of interest not only to physicists, but also to the general public.

"Science is a powerful instrument. How it is used, whether it is a blessing or a curse to mankind, depends on mankind and not on the instrument. A knife is useful, but it can also kill."

--Albert Einstein

()Main Websites (Official sources of materials)

- o Year of Physics 2005 (<http://www.goethe-institut.de/kug/buw/fut/thm/en163712.htm>) - **Scientific Research in the Spirit of**
Albert Einstein UNISCO has declared

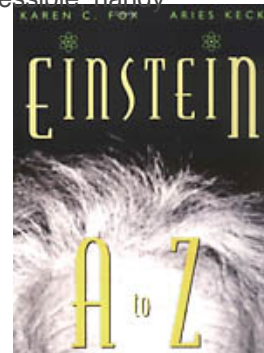
Albert Einstein. UNESCO has declared 2005, which marks the 100-year anniversary of Albert Einstein's theory of relativity and the 50-year anniversary of his death, to be World Year of Physics. ([Goethe-Institut](http://www.goethe-institut.de/enindex.htm) (<http://www.goethe-institut.de/enindex.htm>))

- **Albert Einstein Archives** (<http://www.albert-einstein.org/>). Everything imaginable on the man and his works. Also has good [kid's pages](http://www.albert-einstein.org/index6.html) (<http://www.albert-einstein.org/index6.html>) and a page of [sound files and a video clip](http://www.albert-einstein.org/index7.html) (<http://www.albert-einstein.org/index7.html>). "The Goal of Human Existence" Source: Broadcast on behalf of the United Jewish Appeal, November 4, 1943
- **Einstein Archives Online** (<http://www.alberteinstein.info/>). Hundreds of pages of [manuscripts, papers, and documents](http://www.alberteinstein.info/manuscripts/) (<http://www.alberteinstein.info/manuscripts/>) are available digitally, along with photographs and other items. See the manuscript describing $E=mc^2$ (/images/01-148p01z_high.jpg)
- **Einstein Papers Project** (<http://www.einstein.caltech.edu/>) at the [California Institute of Technology](http://www.caltech.edu/) (<http://www.caltech.edu/>) in Pasadena.
- **Einstein-Year** (<http://www.einsteinjahr.de/>) website in celebration of the 1905 anniversary (special German website with English pages).



() Resources (websites for discussion and Secondary research materials)

- **Einstein** (<http://www.pbs.org/wgbh/nova/einstein/index.html>) Website (PBS). All kinds of resources and links.
- **Einstein A-Z** (<http://www.einsteinatoz.com/>). "The first accessible, handy reference to Einstein's world." Website includes information, facts (and myths de-bunked), trivia, news, calendar of 2005 events and much more. The site complements the [new book](#)



(<http://www.amazon.com/exec/obidos/ASIN/0471466743/foxwritings>) of the same title (Karen C. Fox and Aries Keck. Wiley, 2004; ISBN: 0471466743).

- **Einstein Forum** (<http://www.einstein-forum.de/>) (Ger.). "If you think something can't be serious unless it's boring, you haven't been to the Einstein Forum."
- **Relativity** (<http://nobelprize.org/physics/educational/relativity/tool-1.html>) (Nobel Prize official site).
- **American Museum of Natural History** (<http://www.amnh.org/exhibitions/einstein/?src=adwords>) exhibit page. Resources, text, ephemera

() Theories, Postulations, and Other Concepts

The Theory of Relativity is One Hundred Years Old (<http://www.goethe-institut.de/kug/buw/fut/thm/en163697.htm>). On June 30, 1905, Albert Einstein completed his theory of special relativity. This was followed ten years later by the theory of general relativity. These two works revolutionised physics and revised conceptions of time and space. The laws of physics that govern this modern description of nature have formed the basis for the invention of atomic and hydrogen bombs, as well as nuclear power stations. In-car navigation devices, too, only function thanks to the theory of relativity. (Goethe-Institut (<http://www.goethe-institut.de/enindex.htm>))

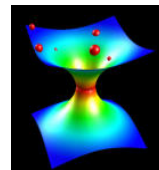
- o Einstein Explains the Equivalence of Energy and Matter (<http://www.aip.org/history/einstein/voice1.htm>) (Center for History of Physics (<http://www.aip.org/history/index.html>) (AIP). Hear Einstein in his own words, as he explains Special Relativity and $E=mc^2$.
- o What Did Albert Einstein Invent (<http://www.juliantrubin.com/einsteininvent.html>) ?
- o 100 years of Einstein (http://www.economist.com/printedition/displayStory.cfm?Story_ID=3518580). Economist article on Einstein's life and achievements.
- o International Year of Physics, 100th anniversary of Albert Einstein (<http://www.physorg.com/news2326.html>) (Phys.org).
- o The Twin Paradox (<http://www.phys.unsw.edu.au/%7Ejw/twin.html>) (Univ. of New South Wales).
- o " The photoelectric effect (http://www.itba.edu.ar/cargrado/fismat/fismod/transf/htm/photoelectric_effect.htm) " *Annalen der Physik* , 17, 1905.
- o On the electrodynamics of moving bodies (http://www.itba.edu.ar/cargrado/fismat/fismod/transf/htm/einstein_1.htm) *Annalen de Physik*, 17 ,1905.
- o Does the inertia of a body depend upon its energy - content? (http://www.itba.edu.ar/cargrado/fismat/fismod/transf/htm/einstein_2.htm) *Annalen der Physik*, 17, 1905.

"Everything that is really great and inspiring is created by the individual who can labor in freedom."

-- Albert Einstein *Out of My Later Years* , 1950.

() Fun Stuff and Interesting Items

- o Einstein Quotes and Humor (<http://www.juliantrubin.com/einsteinjokes.html>). Page also has commemorative stamps, anecdotes, and relativity humor. Also has many links to Einstein-related topics. (Jokes and Science Home (<http://www.juliantrubin.com/sciencejokes.html>)).
- o More Quotes by Einstein (http://www.quotationspage.com/quotes/Albert_Einstein/) (the Quotations page). Also links to many more quotes (<http://www.quotationspage.com/search.php3?Author=Albert+Einstein&file=other>).
- o Einstein for Kids (<http://www.albert-einstein.org/.index6.html>) . Great learning materials for young students.
- o Examine Einstein's Special Theory of Relativity (<http://cnnstudentnews.cnn.com/2002/fyi/lesson.plans/06/06/einstein.relativity/>) (CNN Student News). Interesting tutorial and study program.
- o Think Like Einstein (<http://www.pbs.org/wqwb/nova/time/think.html>) (PBS Einstein



Revealed (<http://www.pbs.org/wgbh/nova/einstein/index.html>) website). View animations and read text to learn how to think like Einstein!

- **Teacher's Guide**
(http://www.pbs.org/wgbh/nova/teachers/programs/2311_einstein.html) to the program
- **Time Traveler game** (<http://www.pbs.org/wgbh/nova/einstein/hotsciencetwin/index.html>) . Also from PBS. Learn while trying to work with light-speed activities.
- **Traveling Through Time** (<http://www.pbs.org/wgbh/nova/time/through.html>) (NOVA). Learning and study materials.
- **Einstein's Philosophy of Peace** (<http://www.ppu.org.uk/learn/infodocs/people/pp-einstein.html>) (Pledge Peace Union). Albert Einstein was both a scientist and a proponent of peace. His work seems a paradox but he understood well the world in which he lived and how these concepts needed to be in harmony.
- **Young Einstein** (<http://www.imdb.com/title/tt0096486/>) . A more humorous view of Albert Einstein, that even he might enjoy. A motion picture satire (1988), in which Albert Einstein is the son of a Tasmanian apple farmer, who discovers the secret of splitting the beer atom to put the bubbles back into

beer. When Albert travels to Sydney to patent his invention he meets beautiful French scientist Marie Curie, as well as several unscrupulous types who try to take advantage of the naive genius and his invention.



() UB Libraries Resources (Selected list)

Below are a selection of library materials on Einstein and his work. For more books, videos, and other materials, see BISON, the UB Libraries Catalog (<http://library.buffalo.edu/libraries/e-resources/bison/>), or search among the databases (<http://library.buffalo.edu/libraries/cgi-test/title.cgi>) Of journal articles. The following terms are among some of the more relevant:

- **Einstein, Albert, 1879-1955**
- **Space and time**
- **Quantum theory**
- **Relativity (Physics)**

Books

Biographies and the Personal Side

- *Albert Einstein* / Clarice Swisher, editor. San Diego: Greenhaven Press, 2002. **UGL QC16 .E5 E3917 2002.**
- *Albert Einstein, a biographical portrait*, by Anton Reiser. New York: A. & C. Boni, 1930. **UGL QC16.E5 R4.**
- *Albert Einstein: a biography* / Albrecht Folsing ; translated from the German by Ewald Osers. New York: Viking, 1997. **LOCK QC16 .E5 F5913 1997.**
- *Einstein: a life* / Denis Brian. New York: Wiley, c1996. **LOCK QC16 .E5 B737 1996.**
- *Albert Einstein, Creator and Rebel* by Banesh Hoffmann with the collaboration of Helen Dukas. New York: Viking Press, 1972. **LOCK QC16.E5 H64 1972.**
- *Albert through the looking-glass : the personal papers of Albert Einstein* / Ze'ev Rosenkranz. Jerusalem: Albert Einstein Archives, Jewish National & University Library, Hebrew University of Jerusalem, c1998. **LOCK QC16 .E5 R67 1998.**
- *Albert Einstein, the human side: new glimpses from his archives* / selected and edited by Helen Dukas and Banesh Hoffmann. Princeton, N.J.: Princeton University Press, 1979. **LOCK and UGL QC16.E5 A33.**
- *Einstein Defiant: Genius Versus Genius in the Quantum Revolution* / Edmund Blair Bolles. Bolles, Edmund Blair, 1942- Washington, D.C. : Joseph Henry Press, c2004. **SEL and LOCK QC173.98 .B65 2004.** Also

A photograph of a handwritten page. At the top, it shows the equation $Mg + \frac{1}{c^2}g = M'g$. Below that is $M' - M = \frac{1}{c^2}$. The German text reads: "Gleichung drückt den Satz der Äq. an Energie - Zuwachs G ist mit Energie ihrer äquivalenten Masse mit, so können wir (statt dessen) $g = Mc^2$."

online as: <http://www.nap.edu/books/0309089980/html/>

(<http://www.nap.edu/books/0309089980/html/>).

- *Einstein lived here* / Abraham Pais. Pais, Abraham, 1918- Oxford: Clarendon Press ; New York: Oxford University Press, c1994. **LOCK and UGL QC16 .E5 P25 1994.**
- *Einstein's Cosmos: How Albert Einstein's Vision Transformed Our Understanding Of Space And Time* / Michio Kaku. New York: Atlas/Norton, c2004. **UGL QC173.59 .S65 K356 2004.** See [Table of contents](#) (<http://www.loc.gov/catdir/toc/ecip0411/2003025580.html>).

Discoveries, Theories, Papers, Quotes

- *Einstein's miraculous year: five papers that changed the face of physics* / edited and introduced by John Stachel... et al. Princeton, NJ: Princeton University Press, c1998. Includes: Einstein's dissertation on the determination of molecular dimensions -- Einstein on Brownian motion -- Einstein on the theory of relativity -- Einstein's early work on the quantum hypothesis. **SEL QC7 .E52 1998.**
- *Essays in science*. Einstein, Albert, 1879-1955. New York, Philosophical Library, 1955? c1934. **LOCK and UGL QC71 .E515.**
- *Albert Einstein's special theory of relativity: emergence (1905) and early interpretation, 1905-1911* / Arthur I. Miller. Reading, Mass.: Addison-Wesley, 1981. **LOCK QC173.52 M54.**
- *Anticipations of Einstein in the general theory of relativity* / Christopher Jon Bjerknes. Downers Grove, Ill.: XTX, c2003. **SELQC173.6 .B54 2003.**
- *The complete idiot's guide to understanding Einstein* / by Gary F. Moring. 2nd ed. Indianapolis: Alpha Books, c2004. **UGL UGLQC16 .E5 M67 2004.**
- *The Quotable Einstein* (1996). **UGL QC16 .E5 A25 1996.**
- *Out of my later years* (Essays by Einstein) (1950). **LOCK & UGL QC16 .E5 A3.**
- *Driving Mr. Albert: a Trip Across America With Einstein's Brain* / Michael Paterniti. New York : Dial Press, 2000. **LOCK RB17 .H365 P38 2000.**
- *E=mc² : a Biography of the World's Most Famous Equation* / David Bodanis. New York : Walker, c2000. **UGL QC73.8 .C6 B63 2000.**
- *Einstein's Clocks, Poincare's Maps: Empires of Time* / Peter Galison. Galison, Peter Louis. New York: Norton, c2003. **LOCK QB209 .G35 2003.** See [Table of contents](#) (<http://www.loc.gov/catdir/toc/fy042/2002155114.html>).

Unusual Topics

- *Einstein and Dostoyevsky* / Boris Kuznetsov, translated from the Russian. London: Hutchinson, 1972. **LOCK QC6 .K78413.**
- *Einstein and Modern French Drama: an Analogy* / Kenneth Steele White. Washington, D.C.: University Press of America, c1983. **LOCK PQ558 .W48 1983.**
- *Einstein, Picasso: Space, Time and the Beauty That Causes Havoc* / Arthur I. Miller. New York: Basic Books, c2001. **LOCK N72 .S3 M55 2001.**
- *Einstein and Soviet ideology* / Alexander Vucinich. Vucinich, Alexander. Stanford: Stanford University, c2001. **LOCK HX514 .V83 2001.**

Videos

- *A. Einstein* (NOVA). **UGL Circulation Desk Videocassette VHS QC16.E5 G75 1988.**
- *A. Einstein: How I See the World* (PBS). **UGL Circulation Desk Videocassette VHS QC16.E5 A45 1991.**
- *Einstein revealed*. Boston: WGBH Boston Video; PBS, c1996. VHS (111 min.). "Albert Einstein is known as the sprightly old sage with unruly hair. But now from the pages of his private notebooks and letters, a surprising new picture emerges, a portrait of the physicist as a passionate young man." **UNDERGRADUATE Circulation Desk VHS QC16 .E5 E367 1996.**
- *The Majestic clockwork*. BBC-TV and Time-Life Video, 1974. VHS (52 min.) From Series: The Ascent of man ; no. 7. Focuses on the contributions of Newton and Einstein in the evolution of physics by exploring the revolution that ensued when Einstein's theory of relativity upset Newton 's description

of the universe. **INSTRUCTIONAL TECHNOLOGY SERVICES**
Videocassette VHS V01104.

- *Einstein's Wife: the Life of Mileva Einstein-Maric* . Alexandria, Va.: PBS, 2003. DVD (60 min.). **UGL Circulation Desk DVD Video QC16 .E5 E36 2003**. "Drawing on long-hidden documents, love letters and biographies, Einstein's wife pieces together a partnership of extraordinary passion and intellect that led to one of the greatest theoretical breakthroughs in the twentieth century."--Container.
- Albert Einstein: Light to the Power of 2 (<http://www.devine-ent.com/shows/inventors/einstein.shtml>). Educational dramatization of Einstein and his work.

"My pacifism is an instinctive feeling, a feeling that possesses me because the murder of men is abhorrent. My attitude is not derived from intellectual theory but is based on my deepest antipathy to every kind of cruelty and hatred."

-- Albert Einstein
