Albert Einstein

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Research Interests

Theoretical physics, relativity, quantum mechanics, statistical mechanics, unified field theory

Education

ETH Zurich (Swiss Federal Polytechnic) — Zurich, Switzerland
Ph.D. in Physics — 1900–1905

ETH Zurich (Swiss Federal Polytechnic) — Zurich, Switzerland
Diploma in Mathematics and Physics — 1896–1900

Aargau Cantonal School — Aarau, Switzerland
Secondary Education Certificate — 1895–1896

Experience

Institute for Advanced Study — Princeton, NJ, USA
Professor of Theoretical Physics — 1933–1955

- Conducted research on unified field theory
- Collaborated with leading mathematicians and physicists
- Mentored numerous doctoral and post-doctoral researchers
- Published 33 papers during tenure

University of Berlin — Berlin, Germany
Professor of Theoretical Physics — 1914–1933

- Full professor and director of Kaiser Wilhelm Institute for Physics
- Developed foundations of general relativity theory
- Elected to Prussian Academy of Sciences
- Conducted research on light quanta and wave-particle duality

ETH Zurich (Swiss Federal Polytechnic) — Zurich, Switzerland
Professor of Theoretical Physics — 1912–1914

- First full professorship position
- Developed key concepts in statistical physics
- Began work on general theory of relativity
- Mentored doctoral students in theoretical physics

Swiss Patent Office — Bern, Switzerland
Technical Expert, Second Class — 1902–1909

- Published seminal papers during "Annus Mirabilis" (1905)
- Developed special theory of relativity
- Formulated mass-energy equivalence ($E=mc^2$)
- Contributed to quantum theory with paper on photoelectric effect

Publications

[1] **Albert Einstein**. *Ideas and Opinions*. New York: Crown Publishers, 1954.

[2] **Albert Einstein** and Bruria Kaufman. "The Unified Field Theory". In: *Annals of Mathematics* (1952), pp. 129–166.

[3] **Albert Einstein**. "On the Generalized Theory of Gravitation". In: *Scientific American* 182.4 (1950), pp. 13–17.

[4] **Albert Einstein**. "The Meaning of Relativity". In: *American Journal of Physics* 18.6 (1950), pp. 403–404.

[5] **Albert Einstein** and Leopold Infeld. *The Evolution of Physics: From Early Concepts to Relativity and Quanta*. Cambridge: Cambridge University Press, 1938.

[6] **Albert Einstein**, Boris Podolsky, and Nathan Rosen. "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" In: *Physical Review* 47.10 (1935), pp. 777–780.

[7] **Albert Einstein** and Nathan Rosen. "The Particle Problem in the General Theory of Relativity". In: *Physical Review* 48.1 (1935), p. 73.

[8] **Albert Einstein**. "On the Method of Theoretical Physics". In: *Philosophy of Science* 1.2 (1934), pp. 163–169.

[9] **Albert Einstein**. "Quantentheorie des einatomigen idealen Gases [Quantum Theory of the Monatomic Ideal Gas]". In: *Sitzungsberichte der Preussischen Akademie der Wissenschaften* (1925), pp. 3–14.

[10] **Albert Einstein**. "Kosmologische Betrachtungen zur allgemeinen Relativitätstheorie [Cosmological Considerations in the General Theory of Relativity]". In: *Sitzungsberichte der Königlich Preußischen Akademie der Wissenschaften* (1917), pp. 142–152.

[11] **Albert Einstein**. "Die Grundlage der allgemeinen Relativitätstheorie [The Foundation of the General Theory of Relativity]". In: *Annalen der Physik* 354.7 (1916), pp. 769–822.

[12] **Albert Einstein**. *Relativity: The Special and General Theory*. New York: Henry Holt and Company, 1916.

[13] **Albert Einstein**. "Ist die Trägheit eines Körpers von seinem Energieinhalt abhängig? [Does the Inertia of a Body Depend Upon Its Energy Content?]" In: *Annalen der Physik* 323.13 (1905), pp. 639–641.

[14] **Albert Einstein**. "Über die von der molekularkinetischen Theorie der Wärme geforderte Bewegung von in ruhenden Flüssigkeiten suspendierten Teilchen [On the Movement of Small Particles Suspended in a Stationary Liquid Demanded by the Molecular-Kinetic Theory of Heat]". In: *Annalen der Physik* 322.8 (1905), pp. 549–560.

[15] **Albert Einstein**. "Über einen die Erzeugung und Verwandlung des Lichtes betreffenden heuristischen Gesichtspunkt [On a Heuristic Point of View Concerning the Production and Transformation of Light]". In: *Annalen der Physik* 322.6 (1905), pp. 132–148.

[16] **Albert Einstein**. "Zur Elektrodynamik bewegter Körper [On the Electrodynamics of Moving Bodies]". In: *Annalen der Physik* 322.10 (1905), pp. 891–921.

Awards & Honors

- **Nobel Prize in Physics**, For services to Theoretical Physics 1921
- Copley Medal, Royal Society of London 1925
- Max Planck Medal, German Physical Society 1929

- Franklin Medal, Franklin Institute 1935
- Time Magazine, Person of the Century 1999
- Member, Royal Society (Foreign Member) 1921
- Member, National Academy of Sciences 1922
- Member, American Philosophical Society 1935

Skills

Theoretical Physics: Relativity Theory, Quantum Mechanics, Statistical Mechanics, Thermodynamics
Mathematics: Differential Geometry, Non-Euclidean Geometry, Tensor Analysis, Differential Equations
Languages: German (native), English (fluent), French (working proficiency), Italian (basic)
Instruments: Violin (accomplished player)

Talks & Presentations

- Solvay Conference, Quantum Theory and the Structure of Matter 1927, 1930, 1933
- Princeton University, Implications of General Relativity 1921
- University of Oxford, The Evolution of Physics 1933
- California Institute of Technology, The Unified Field Theory 1931–1933
- Columbia University, The Theory of Relativity 1921
- King's College London, The Development of Theoretical Physics 1921

Teaching

- Institute for Advanced Study, Advanced Seminar in Theoretical Physics 1933–1955
- University of Berlin, Graduate Lectures in Relativity Theory 1914–1933
- ETH Zurich, Courses in Theoretical Physics 1912–1914
- University of Zurich, Lectures on Molecular Physics 1909–1911

Service

- Emergency Committee of Atomic Scientists, Chairman 1946–1955
- Hebrew University of Jerusalem, Board of Governors 1925–1955
- League Against Imperialism, Member and Advocate 1927–1935
- League of Nations, Committee on Intellectual Cooperation 1922–1932
- Pugwash Conferences on Science and World Affairs, Early Advocate and Supporter 1955
- International Rescue Committee, Advisory Board 1933–1955

Code & Software

- `relativity-simulator`, creator (simulations of relativistic effects) 1920–1930
- `quantum-probability`, developer (statistical models for quantum phenomena) 1924–1935