



Einstein's Miraculous Year: Five Papers That Changed the Face of Physics

By Albert Einstein

Download now

Read Online ➔

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics

By Albert Einstein

After 1905, Einstein's miraculous year, physics would never be the same again. In those twelve months, Einstein shattered many cherished scientific beliefs with five extraordinary papers that would establish him as the world's leading physicist. This book brings those papers together in an accessible format. The best-known papers are the two that founded special relativity: *On the Electrodynamics of Moving Bodies* and *Does the Inertia of a Body Depend on Its Energy Content?* In the former, Einstein showed that absolute time had to be replaced by a new absolute: the speed of light. In the second, he asserted the equivalence of mass and energy, which would lead to the famous formula $E = mc^2$.

The book also includes *On a Heuristic Point of View Concerning the Production and Transformation of Light*, in which Einstein challenged the wave theory of light, suggesting that light could also be regarded as a collection of particles. This helped to open the door to a whole new world--that of quantum physics. For ideas in this paper, he won the Nobel Prize in 1921.

The fourth paper also led to a Nobel Prize, although for another scientist, Jean Perrin. *On the Movement of Small Particles Suspended in Stationary Liquids Required by the Molecular-Kinetic Theory of Heat* concerns the Brownian motion of such particles. With profound insight, Einstein blended ideas from kinetic theory and classical hydrodynamics to derive an equation for the mean free path of such particles as a function of the time, which Perrin confirmed experimentally. The fifth paper, *A New Determination of Molecular Dimensions*, was Einstein's doctoral dissertation, and remains among his most cited articles. It shows how to calculate Avogadro's number and the size of molecules.

These papers, presented in a modern English translation, are essential reading for any physicist, mathematician, or astrophysicist. Far more than just a collection of scientific articles, this book presents work that is among the high points of human achievement and marks a watershed in the history of science.

Coinciding with the 100th anniversary of the miraculous year, this new

paperback edition includes an introduction by John Stachel, which focuses on the personal aspects of Einstein's youth that facilitated and led up to the miraculous year.

 [Download Einstein's Miraculous Year: Five Papers That ...pdf](#)

 [Read Online Einstein's Miraculous Year: Five Papers Tha ...pdf](#)

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics

By Albert Einstein

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein

After 1905, Einstein's miraculous year, physics would never be the same again. In those twelve months, Einstein shattered many cherished scientific beliefs with five extraordinary papers that would establish him as the world's leading physicist. This book brings those papers together in an accessible format. The best-known papers are the two that founded special relativity: *On the Electrodynamics of Moving Bodies* and *Does the Inertia of a Body Depend on Its Energy Content?* In the former, Einstein showed that absolute time had to be replaced by a new absolute: the speed of light. In the second, he asserted the equivalence of mass and energy, which would lead to the famous formula $E = mc^2$.

The book also includes *On a Heuristic Point of View Concerning the Production and Transformation of Light*, in which Einstein challenged the wave theory of light, suggesting that light could also be regarded as a collection of particles. This helped to open the door to a whole new world--that of quantum physics. For ideas in this paper, he won the Nobel Prize in 1921.

The fourth paper also led to a Nobel Prize, although for another scientist, Jean Perrin. *On the Movement of Small Particles Suspended in Stationary Liquids Required by the Molecular-Kinetic Theory of Heat* concerns the Brownian motion of such particles. With profound insight, Einstein blended ideas from kinetic theory and classical hydrodynamics to derive an equation for the mean free path of such particles as a function of the time, which Perrin confirmed experimentally. The fifth paper, *A New Determination of Molecular Dimensions*, was Einstein's doctoral dissertation, and remains among his most cited articles. It shows how to calculate Avogadro's number and the size of molecules.

These papers, presented in a modern English translation, are essential reading for any physicist, mathematician, or astrophysicist. Far more than just a collection of scientific articles, this book presents work that is among the high points of human achievement and marks a watershed in the history of science.

Coinciding with the 100th anniversary of the miraculous year, this new paperback edition includes an introduction by John Stachel, which focuses on the personal aspects of Einstein's youth that facilitated and led up to the miraculous year.

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein
Bibliography

- Sales Rank: #244470 in Books
- Published on: 2005-04-17
- Original language: English
- Number of items: 1
- Dimensions: 8.50" h x .58" w x 5.51" l, .68 pounds
- Binding: Paperback

- 272 pages

 [Download Einstein's Miraculous Year: Five Papers That ...pdf](#)

 [Read Online Einstein's Miraculous Year: Five Papers Tha ...pdf](#)

Download and Read Free Online Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein

Editorial Review

From [Booklist](#)

The *anno mirabilis* was 1905, when an obscure patent examiner published several papers. This volume consists of translations of Einstein's revolutionary papers that year, with introductions by physicist Roger Penrose and others that explain why these papers are among the most important scientific documents of this century--if not all time. As a group they are notable for bridging mechanical theories of physics--particles whizzing around--and the relativistic view. In the former category, Einstein figured out the sizes of molecules, and that their bombardments kept microscopic particles in motion, both mysterious matters hitherto. The relativity papers announce the two things everyone knows about Einstein besides his iconic appearance, that energy and mass are equivalent and that time is not absolute. That the soul of this book is Ph.D.-level mathematics doesn't disqualify it from public libraries: mightn't some wunderkind of the future fondly remember in her memoirs the day she discovered Einstein's actual equations in the stacks? *Gilbert Taylor*

Review

"In these excellent new translations of Einstein's papers, the economy and freshness of Einstein's style come through with undiminished force. . . . To re-read these papers is to relive perhaps the most dramatic year in the history of physics."--**Werner Israel, *Physics World***.

"Read this beautifully translated and edited collection and enjoy an encounter with one of the greatest minds at work and five of the greatest physics papers of [the twentieth] century."--**David C. Cassidy, *American Journal of Physics***

"I find myself thrilled by these papers. Why? Because through the original choice of words and arguments, through the simple but profound ideas and thought processes . . . I have been able to gaze into the mind of this great scientist in a way that no distillation or restatement or commentary would allow. In these papers one can see an enormously gifted human being grappling with the nature of the world."--**Alan Lightman, *Atlantic Monthly***

"Drawing heavily on his subject's autobiographical reflections about the relationship between thought and language in his struggles to understand deep physical problems, Stachel paints a not-unfamiliar picture of Einstein as a solitary genius whose driving ideas were entirely his own."--**David E. Rowe, *Times Higher Education Supplement***

"John Stachel devotes several pages to rebutting recent claims that Einstein's first wife, Mileva Maric, co-authored the 1905 papers. . . . [R]elativity and the quantum revolution sprang from the subtle gray matter of Einstein's brain alone."--**PD Smith, *The Guardian***

"*Einstein's Miraculous Year* provides a well-considered look back at the seminal ideas that eventually helped make Einstein a household name. . . . [I]t's never too late to take a closer look at the century-old work that revolutionized [physics]."--**Ryan Wyatt, *Planetarian***

From the Inside Flap

"It is particularly remarkable that a single physicist--Albert Einstein--has such extraordinarily deep perceptions of the workings of Nature that he laid foundation stones of . . . [the] twentieth-century revolutions

[in physics] in the single year of 1905."--From the foreword by Roger Penrose, Rouse Ball Professor of Mathematics at the University of Oxford

Users Review

From reader reviews:

Marilyn Apperson:

Now a day those who Living in the era wherever everything reachable by match the internet and the resources included can be true or not call for people to be aware of each info they get. How individuals to be smart in obtaining any information nowadays? Of course the solution is reading a book. Studying a book can help folks out of this uncertainty Information specifically this Einstein's Miraculous Year: Five Papers That Changed the Face of Physics book since this book offers you rich facts and knowledge. Of course the data in this book hundred pct guarantees there is no doubt in it as you know.

Hae Hughes:

The actual book Einstein's Miraculous Year: Five Papers That Changed the Face of Physics will bring you to definitely the new experience of reading any book. The author style to describe the idea is very unique. When you try to find new book to learn, this book very appropriate to you. The book Einstein's Miraculous Year: Five Papers That Changed the Face of Physics is much recommended to you to study. You can also get the e-book from official web site, so you can quickly to read the book.

Jeff Wheeler:

Typically the book Einstein's Miraculous Year: Five Papers That Changed the Face of Physics has a lot associated with on it. So when you make sure to read this book you can get a lot of advantage. The book was compiled by the very famous author. This articles author makes some research previous to write this book. This specific book very easy to read you can obtain the point easily after scanning this book.

Brenda Moulton:

Does one one of the book lovers? If yes, do you ever feeling doubt when you find yourself in the book store? Try to pick one book that you just dont know the inside because don't assess book by its deal with may doesn't work at this point is difficult job because you are scared that the inside maybe not as fantastic as in the outside seem likes. Maybe you answer may be Einstein's Miraculous Year: Five Papers That Changed the Face of Physics why because the fantastic cover that make you consider about the content will not disappoint an individual. The inside or content is usually fantastic as the outside or even cover. Your reading sixth sense will directly show you to pick up this book.

**Download and Read Online Einstein's Miraculous Year: Five
Papers That Changed the Face of Physics By Albert Einstein
#C7T6DI9L0OS**

Read Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein for online ebook

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein books to read online.

Online Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein ebook PDF download

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein Doc

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein Mobipocket

Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein EPub

C7T6DI9L0OS: Einstein's Miraculous Year: Five Papers That Changed the Face of Physics By Albert Einstein