



# Ludwig Boltzmann: The Man Who Trusted Atoms

By Carlo Cercignani

Download now

Read Online 

## Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani

This book presents the life and personality, the scientific and philosophical work of Ludwig Boltzmann, one of the great scientists who marked the passage from 19th- to 20th-Century physics. His rich and tragic life, ending by suicide at the age of 62, is described in detail. A substantial part of the book is devoted to discussing his scientific and philosophical ideas and placing them in the context of the second half of the 19th century. The fact that Boltzmann was the man who did most to establish that there is a microscopic, atomic structure underlying macroscopic bodies is documented, as is Boltzmann's influence on modern physics, especially through the work of Planck on light quanta and of Einstein on Brownian motion.

Boltzmann was the centre of a scientific upheaval, and he has been proved right on many crucial issues. He anticipated Kuhn's theory of scientific revolutions and proposed a theory of knowledge based on Darwin. His basic results, when properly understood, can also be stated as mathematical theorems. Some of these have been proved: others are still at the level of likely but unproven conjectures. The main text of this biography is written almost entirely without equations. Mathematical appendices deepen knowledge of some technical aspects of the subject.

 [Download Ludwig Boltzmann: The Man Who Trusted Atoms ...pdf](#)

 [Read Online Ludwig Boltzmann: The Man Who Trusted Atoms ...pdf](#)

# Ludwig Boltzmann: The Man Who Trusted Atoms

*By Carlo Cercignani*

## **Ludwig Boltzmann: The Man Who Trusted Atoms** By Carlo Cercignani

This book presents the life and personality, the scientific and philosophical work of Ludwig Boltzmann, one of the great scientists who marked the passage from 19th- to 20th-Century physics. His rich and tragic life, ending by suicide at the age of 62, is described in detail. A substantial part of the book is devoted to discussing his scientific and philosophical ideas and placing them in the context of the second half of the 19th century. The fact that Boltzmann was the man who did most to establish that there is a microscopic, atomic structure underlying macroscopic bodies is documented, as is Boltzmann's influence on modern physics, especially through the work of Planck on light quanta and of Einstein on Brownian motion.

Boltzmann was the centre of a scientific upheaval, and he has been proved right on many crucial issues. He anticipated Kuhn's theory of scientific revolutions and proposed a theory of knowledge based on Darwin. His basic results, when properly understood, can also be stated as mathematical theorems. Some of these have been proved: others are still at the level of likely but unproven conjectures. The main text of this biography is written almost entirely without equations. Mathematical appendices deepen knowledge of some technical aspects of the subject.

## **Ludwig Boltzmann: The Man Who Trusted Atoms** By Carlo Cercignani Bibliography

- Sales Rank: #1414003 in eBooks
- Published on: 2006-01-12
- Released on: 2006-01-12
- Format: Kindle eBook

 [Download Ludwig Boltzmann: The Man Who Trusted Atoms ...pdf](#)

 [Read Online Ludwig Boltzmann: The Man Who Trusted Atoms ...pdf](#)

## Download and Read Free Online Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani

---

### Editorial Review

#### Review

'It is valuable, not only for the wealth and scope of information it provides, but for offering an up-to-date view, accessible to all, of Boltzmann's scientific ideas.'

Studies in History and Philosophy of Modern Physics

'Carlo Cercignani has made an important contribution to our understanding of the man and his work in the context of his times... Much of the book will be interesting for the general reader.'

George Fleck, *The Chemical Intelligencer*

'I can warmly recommend the book to everybody who is interested in the history of science.'

Dieter Flamm, *Physics World*

#### Review

"Ludwig Boltzmann (1844-1906) is the scientist to whom, more than anyone else, we owe the great conceptual leap that yielded a joint view of mechanics, statistics, radiation and thermodynamics. . . . Boltzmann paid dearly for his vision, in terms of his own psychological stability and mental health, up to his tragic suicide. . . . Boltzmann had a very intense life, dominated by insecurity, academic feuds and a passion for science. He was also a sensitive musician and a lover of nature, with a keen eye for picking out and explaining to his children, for example, evolutionary mechanisms. He would tell them long tales of a great English scientist sailing around the world in a ship called *Beagle*, and from that explain why foxes have fur, or birds feathers. . . . Cercignani's beautiful book has the merit, first of all, of bringing Boltzmann fully back to life, as a scientist, a philosopher and a poet, thanks to painstaking research."--*Nature*

"While researching the mathematical theory of the Boltzmann equation, Cercignani (theoretical mechanics, Politecnico di Milano) encountered the eclectic thought of this Austrian physicist (1844-1906) who established that an atomic structure underlies macroscopic bodies. This biography covers physics and kinetic theory before Boltzmann; his Darwinian theory of knowledge anticipating Kuhn's theory of scientific revolutions; relationship with Maxwell, Planck, and other peers; and influence on modern science. Appends mathematical theorems and models. Includes a chronology, portraits, and diagrams related to his work."--*SciTech Book News*

"Solving the enigma of irreversibility was the great enterprise to which the Austrian physicist Ludwig Boltzmann . . . dedicated his life. . . . Carlo Cercignani's [book] is not about recent developments in nonequilibrium statistical mechanics. It may be described briefly as a careful, in-depth discussion of Boltzmann's science and personality and of the world he lived in. . . . Actually, Boltzmann's scientific ideas have retained immediacy because the development of nonequilibrium statistical mechanics has been slow . . . [Cercignani's book] is obviously a work of love, and I would advise the reader to take time going through it. There are, for instance, sensitive descriptions of the intellectual atmosphere of central Europe in the late 19th century. . . . It is refreshing to see the philosophy of science discussed not by a licensed hermeneutician but

by a true scientist like Boltzmann, who is able to disregard formal details and go straight to the important ideas."--*Physics Today*

"The text is packed with fascinating aspects of Boltzmann's career. . . . In the 1870's, Boltzmann was, in Cercignani's words, 'also busy with an experimental study on the law that according to the Maxwell picture related the dielectric constant and the refractive index of a given material.' The measurements of the dielectric constant were based on electrical attraction or changes in capacitance. Thus they determined the dielectric constant at zero frequency. The good agreement that Boltzmann found with the refractive index . . . was--in part--a stroke of good luck. (If Boltzmann had tried water, he would have been surprised.) And then there were Boltzmann's travels from one university to another, especially during the 'restless years,' from 1888 to his suicide in 1906. . . . I can recommend the book to anyone wanting to know more about Ludwig Boltzmann, a man who was misunderstood by many of his colleagues and yet highly respected . . ."  
."--*American Journal of Physics*

"This book gives an interesting review of Boltzmann's work and time and the various relationships to other scientists. Boltzmann's equation . . . , Boltzmann's work in statistical mechanics, the problem of polyatomic molecules, and his reflexions on other physical parts are described well. . . . The book contains an appendix, a reference list and a useful index. It is a nice book . . ."  
."--*Mathematical Reviews*

"...a thorough analysis of Boltzmann's scientific achievements by an expert on modern kinetic theory, who has also made an effort to read the original papers in "dense German" and has surveyed some of the extensive biographical material. The result is a book that can be highly recommended to all physical scientists and mathematicians, including graduate students. Cercignani, who is Professor of Theoretical Mechanics at the Politecnico di Milano, is well known for his research on the Boltzmann equation and is credited with several notable results, such as establishing the Boltzmann-Grad limit hierarchy....Well-written chapters on Boltzmann's life and time and on the early history of thermodynamics and kinetic theory, and followed by chapters on his philosophical views, his relations with his contemporaries, his dispute with the anti-atomists, and his influence on 20th century science." -- *Journal of Statistical Physics, Vol 98, No 5/6, 2000*

About the Author

Carlo Cercignani Dipartimento di Matematica Politecnico di Milano Piazza Leonardo da Vinci, 32 20133 Milano Italy

## Users Review

**From reader reviews:**

**Earl Diehl:**

With other case, little men and women like to read book Ludwig Boltzmann: The Man Who Trusted Atoms. You can choose the best book if you'd prefer reading a book. Given that we know about how is important

some sort of book Ludwig Boltzmann: The Man Who Trusted Atoms. You can add expertise and of course you can around the world by way of a book. Absolutely right, because from book you can learn everything! From your country until finally foreign or abroad you will end up known. About simple issue until wonderful thing you are able to know that. In this era, you can open a book or even searching by internet unit. It is called e-book. You should use it when you feel weary to go to the library. Let's learn.

**Patrick Bodin:**

What do you with regards to book? It is not important together with you? Or just adding material when you need something to explain what your own problem? How about your time? Or are you busy individual? If you don't have spare time to accomplish others business, it is give you a sense of feeling bored faster. And you have extra time? What did you do? Everyone has many questions above. They have to answer that question simply because just their can do that will. It said that about e-book. Book is familiar on every person. Yes, it is right. Because start from on kindergarten until university need this kind of Ludwig Boltzmann: The Man Who Trusted Atoms to read.

**Ricardo Donaldson:**

The book Ludwig Boltzmann: The Man Who Trusted Atoms will bring someone to the new experience of reading a new book. The author style to explain the idea is very unique. If you try to find new book to read, this book very suited to you. The book Ludwig Boltzmann: The Man Who Trusted Atoms is much recommended to you you just read. You can also get the e-book from the official web site, so you can quickly to read the book.

**Iva Simmon:**

Reading a guide tends to be new life style within this era globalization. With examining you can get a lot of information that can give you benefit in your life. Together with book everyone in this world could share their idea. Books can also inspire a lot of people. A great deal of author can inspire their very own reader with their story or even their experience. Not only the storyline that share in the guides. But also they write about advantage about something that you need example. How to get the good score toefl, or how to teach your sons or daughters, there are many kinds of book which exist now. The authors on earth always try to improve their proficiency in writing, they also doing some study before they write for their book. One of them is this Ludwig Boltzmann: The Man Who Trusted Atoms.

**Download and Read Online Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani #LB1Y5F630ZK**

## **Read Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani for online ebook**

Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani 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 Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani books to read online.

### **Online Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani ebook PDF download**

**Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani Doc**

**Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani Mobipocket**

**Ludwig Boltzmann: The Man Who Trusted Atoms By Carlo Cercignani EPub**