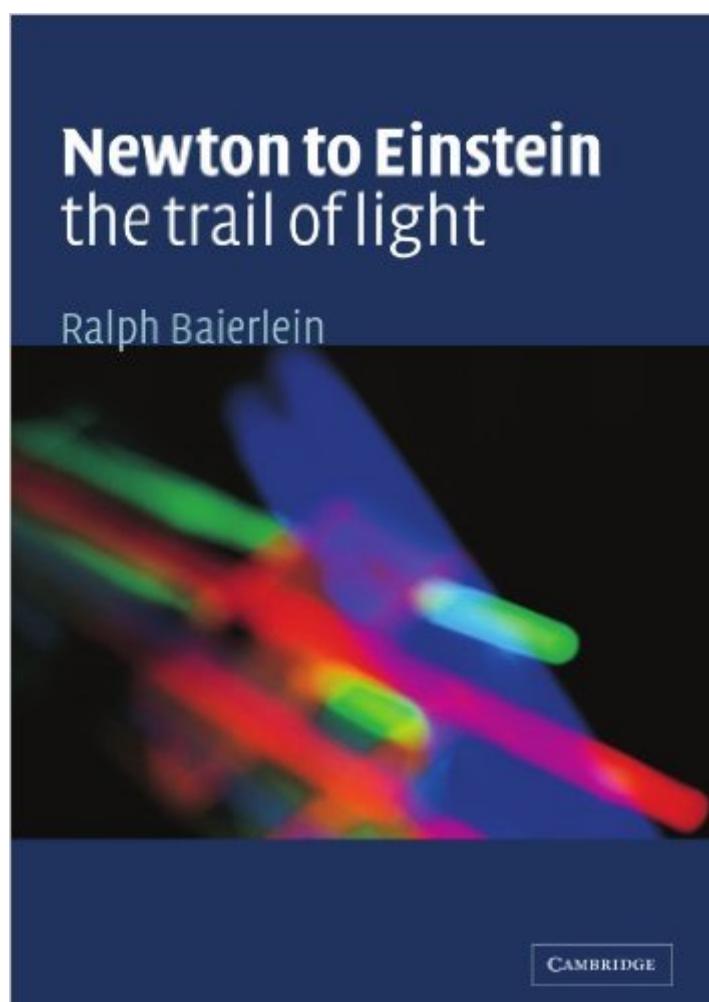


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# Newton To Einstein: The Trail Of Light: An Excursion To The Wave-Particle Duality And The Special Theory Of Relativity



## Synopsis

This engaging text takes the reader along the trail of light from Newton's particles to Einstein's relativity. Like the best detective stories, it presents clues and encourages the reader to draw conclusions before the answers are revealed. The first seven chapters cover the behavior of light, Newton's particle theory, waves and an electromagnetic wave theory of light, the photon, and wave-particle duality. Baierlein goes on to develop the special theory of relativity, showing how time dilation and length contraction are consequences of the two simple principles underlying the theory. An extensive chapter derives the equation  $E = mc^2$  clearly from first principles and then explores its consequences.

## Book Information

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## Customer Reviews

Dr. Baierlein quotes Sigurd Olson on the opening page of the second or third chapter so he started on my good side right there. My complaint is that while Dr. Baierlein goes through great pains to explain, verbally, the mathematical formulas that describe light, he is remarkably stingy with numbers. For example, in Chapter 6, as he is describing the absorption of light and the resulting ejection of electrons from a metallic surface I keep wishing he would throw in some numerical examples rather than just describing how the formula works. He describes "the maximum energy of an electron after it is ejected" and I keep thinking, "DUDE!, would it KILL YOU to give a numerical example?" 100 joules? .00001 joules?  $10^{-49}$  joules? He could have just added a sentence saying "The material constant for [for example] zinc is "b" so the maximum energy of an electron ejected from zinc would be "Y" Joules if the surface is illuminated by light with the frequency of "f"".

This book is clear and very interesting. It teaches the general idea of light and modern physics. It can be too simplistic at times for technically minded people.

Fun book if you can keep with it and most everyone should. Not technical or mathematically challenging! Enjoyed the stories and asides... my son says I'm just like the author. Get to the point. This is a story book (not surprising given the title) although it's being used as a text book for a summer course with no other notes for guidance. Sometimes the questions at the end of the chapters are very simple but some are difficult to answer because the answers aren't sitting out in the open waiting for you to snap them up. You gotta be thinking. Wish there were answers in the back. Would have been fun companion reading in th day when I was taking this [...]

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