

## General reading on quantum mechanics and modern physics that you might enjoy:

### **The Quantum Challenge: Modern Research on the Foundations of Quantum Mechanics** by Greenstein and Zanonc

An excellent book for the mathematically adept which breaks down modern quantum experiments in an understandable way. The authors do a wonderful job of putting the "sense" back into seemingly nonsensical results. Better to tackle this one after the first semester of QM.

### **Schrödinger's Cat** by John Gribbins

A layman's explanation of the strangeness of quantum mechanics. Sometimes he gets carried away, but it's a good introduction to the philosophical side of the science.

### **Feynman Lectures vol III** by Richard Feynman

This series is a classic but it is also a quirky look at quantum mechanics by the father of quantum electrodynamics. This book is not the best for the beginning student of quantum mechanics, but gives good insight into the subject for students who already have had the course. You might want to try it next semester or later.

### **The Character of Physical Law** by Richard Feynman

More quirky Feynman, but written for the layman. Interesting insights into general physics.

### **Quantum Mechanics vol I** by Cohen-Tanoudji et al.

Classical graduate text that is uncommonly well written. Great reference. If you plan on graduate school, get this one and vol II as well.

### **The First Three Minutes** by Steven Weinberg

Written for the layman, this little book gives a clear explanation of the uniting of modern particle physics with Big Bang cosmology. A bit out of date by now (for instance, we have a better handle on  $H_0$ , and we know that the expansion of the universe is accelerating), but still valuable.

### **The Tao of Physics**

A mystical view of particle physics. Although there are a few errors and hyperbole, it is *much* better than its competitor, *The Dancing Woo Li Masters* (which is full of mistakes and misunderstandings of basic physics)

### **The Inflationary Universe** by Alan Guth

Written by the father of modern cosmology, this book is a "must read" for cosmologists. It is extremely well written and covers not only the science but the history of the development of inflation. I had the pleasure of meeting Alan Guth once. He is known for being not only one of the most brilliant living physicists but also for being a kind and honest soul, a reputation not shared by many at his level of accomplishment.

### **Warped Passages** by Lisa Randall

A well written, recent look at space-time and quantum mechanics. Very worthwhile.

### **The Making of the Atomic Bomb** by Richard Rhodes

This is the history as well as the science (a little above layman-level) of the Manhattan Project and the race in Germany and elsewhere to develop the atomic bomb. It deservedly won the Pulitzer prize. I couldn't put it down. Bill Hollsworth (a former VSU physics major) said that every physics student should read it.

### **The Story of $e$** by Eli Maor

Since all of wave mechanics depends on the use of  $e$ , you should really read this book sometime. It is clear and beautifully written. Primarily for the layman, it also contains material for the mathematically sophisticated reader.

### **Flatland** by Edwin A. Abbot

I read this classic when I was in high school and it forever changed the way I look at the universe. It is written in an old style that at first might seem cumbersome, but if you stick with it you will see its artistry.

### **The Fourth Dimension** by Rudy Rucker

This book is a whimsical. It gives you various exercises to try to get you to "visualize" a fourth dimension. If you plan to read this, read **Flatland** first.

### **Subtle is the Lord** by Abraham Pais

This biography of Einstein is not only about the man but also about his science. It is rigorous and not for the faint-hearted, although it can be read without delving into the scientific details. This book is considered to be the best ever written on Einstein.

### **Why People Believe Weird Things** by Michael Shermer

If you read only 1 book from this list, make it this one. It will help hone your scientific skills, and your ability to argue with pseudo-scientists.