The Education of a Physicist

A Collection of Physics Textbooks (More or Less)

Entry for *Fine Books & Collections Magazine* 2008 Collegiate Book-Collecting Championship

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Original Entry

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I, therefore, think that a good theoretical physicist today might find it useful to have a wide range of physical viewpoints and mathematical expressions of the same theory (for example, of quantum electrodynamics) available to him.

- Richard P. Feynman, Nobel Lecture, December 11, 1965

In the course of a dozen years of studying physics, I've had to pull many all nighters doing problem sets while drinking highly caffeinated beverages. This not only had the desirable effect of preparing me for the physics qualifying exam but also the undesirable effect of helping me build a caffeine tolerance. Unfortunately, neither of those things actually help you *understand* physics. To do *that*, you have to take Feynman's advice and surround yourself with a "wide range of physical viewpoints," which I took to mean "spend all my money on physics textbooks instead of food." (seriously, look at the list...)

Consequently I have a fairly complete set of "standard graduate texts" of all major subjects from the last century. What's particularly striking is how different nationalities approach the same topic in very different ways, all of them pedagogically useful. Americans tend to be very intuitive and "hand-wavy," the best example of which is Feynman's own three volume *Lectures on Physics*. On the other hand, the French are very formal and bring a refreshing amount of rigor. My favorite of this style is the two volume *Quantum Mechanics* of Claude Cohen-Tannoudji, Bernard Diu, & Franck Laloë. The British are also formal and very mathematical, such as Paul Dirac's *The Principles of Quantum Mechanics.* German texts tend to be a good mix of all of those qualities as well as being very thorough, which is represented well by Arnold Sommerfeld's six volume *Lectures On Theoretical Physics*. Finally, the Russians tend to be very terse and dense. This maybe an unfair stereotype famously attributable solely to Lev Landau & E.M. Lifshitz's classic ten volume *Course of Theoretical Physics*. Their most amazing feat of compression is their 170 page *Vol 1: Mechanics* which covers more material than Herbert Goldstein's 670 page *Classical Mechanics*. When I was at the start of my studies, I preferred the more conceptual and intuitive American approach. Now that I have developed the requisite mathematical apparatus and actually need to solve real world problems, the French and British texts are invaluable.

Being the ungrateful and rebellious son of a (now apostate) theoretical physicist, it was very straightforward to seed my collection: I absconded with my father's small but expensive physics book collection to California. (Books from retiring physicists is an economically efficient strategy as well as a gold mine of classic out-of-print texts!) As I started to augment what was once his collection, I was very superficial and unfocused. I would simply buy the largest texts with the most intimidating mathematical equations making sure to fall asleep in the public areas of my dorm with the newly purchased book open in my lap. This continued until I met Selwyn Scharnhorst, who would become a very good friend of mine. Although his collection was smaller than mine, it was far superior because of its ruthless efficiency: there was not a single redundant book in his collection. It was from him that I learned The Five Golden Rules of collecting physics textbooks:

1. The most important thing is the physical correctness of the content!

2. For any subject, two styles of textbooks are needed: conceptual and mathematical.

3. A newer/updated edition is not necessarily better.

4. Find the books that the faculty used when they were in graduate school.

5. It is not okay to loan an out-of-print book from the library and then "lose" it into your collection, even if you pay for it.

Regarding Rule 1, Anatole Abragam said it best in the preface for the paperback edition of his classic text *The Principles of Nuclear Magnetism*,

> The subject did not stand still to say the least and the book could not possibly contain now *all* the useful information, even if it ever did, which I doubt. However, although not *all* of Nuclear Magnetism is in there, whatever is, is both important and *not wrong*.

Over the years, I've discovered one important exception to this rule. Books in a lecture note and reprint series give you a snapshot of the ideas that are cutting edge and fashionable *at the time they are published*. With hindsight, we know that a lot of the ideas presented in those books are physically unrealized, but they do provide much needed perspective and illustrate the meandering course of scientific progress. The best examples of this are the books listed under "Topics in Strong Interaction Physics." A lot of the ideas presented in those books, though fundamentally incomplete, still provide the phenomenological language that we use today to talk about intra-nuclear forces.

Rule 2 exists because one has to understand the fundamental reasoning behind the physical concepts, learn how to represent them in a mathematical form, and finally solve problems which elucidate their physical consequences. There is no single book of any kind that has achieved all three of those goals. Even my personal favorite book of all time (physics or otherwise), Edward Purcell's *Electricity & Magnetism*, only truthfully achieves the first one. This is not to denigrate Purcell's masterpiece; his book in my not-so-humble opinion is the closest that one can come to the platonic ideal of a "Physics Textbook." Even so, you must supplement Purcell with both David Griffiths' *Introduction to Electrodynamics* and of course J.D. Jackson's horrible *Classical Electrodynamics*. Physicists born after 1950 know *precisely* what I mean by horrible: as painful as it is necessary & as necessary as it is painful. To the uninitiated, it may seem unusual and perhaps a bit dramatic to call electricity & magnetism "painful." In response, I will refer to the following quotes from the preface of W.R. Smythe's *Static and Dynamic Electricity*, which makes Jackson look like the proverbial walk in the park:

> *(from the first edition)* Although the best students can work all the problems, the average student cannot. They provide an opportunity for the reader who is working up the subject by himelf to test his proficiency.

> *(from the second edition)* Two groups of advanced Ph.D. students worked over this material to get practice attacking every type of wave-field problem. Many are too difficult for first-year graduate students, but every problem was solved by at least one of the advanced students.

> *(from the revised third edition)* In the past 50 years it has been used as a textbook by countless student who have, sometimes painfully, learned the value of a rigorous problem course.

Jackson's book brings us to Rule 3. There have been three editions of this book, which are identified by color: "Green Jackson" (1st edition, 1962), "Red Jackson" (2nd edition, 1975), and "Blue Jackson" (3rd edition, 1999). For me "Red Jackson" beats the pants off of "Blue Jackson" because of the very heresy he appears to be gloating(!) about in the preface to the 3rd edition:

> The most visible change is the use of SI units in the first 10 chapters. (...) My tardy adoption of the universally accepted SI system is a recognition that almost all undergraduate physics texts, as well as engineering books at all levels, employ SI units throughout. For many years Ed Purcell and I had a pact to support each other in the use of Gaussian units. Now I have betrayed him!

Just because everyone else is doing it does not make it all right. The worst part about the whole thing is that Jackson even admits exactly why "Red Jackson" is better,

> Gaussian units are retained in the later chapters, since such units seem more suited to relativity and relativistic electrodynamics than SI.

I am so offended by Jackson's treachery, I simply refuse to buy or use "Blue Jackson," even at the cost of completeness. A less subjective & aesthetic example is the case of Jerry Marion's wonderful book *Classical Dynamics of Particles and Systems*. This book used to be, for me, the perfect bridge to Herbert Goldstein's more advanced *Classical Mechanics*. In later editions, the presentation of certain topics in *Dynamics* started to converge with *Mechanics* and consequently rendered the books redundant as opposed to complimentary.

Rule 4 is helpful because an instructor's pedagogical approach and worked-out examples tend to come from the texts that she used when she was a student. Having the "source" text helps provide context to the material presented in class and usually gives another perspective on the same material. Another curious benefit of this strategy is that it allows you to see the evolution of a subject. The language, notation, and topics covered share a common thread but do change from generation to generation of a series of "the standard graduate text" for a particular subject. For example, in the late 1800's, students learned the full mathematical power and beauty of Maxwell's Equations directly from James Maxwell's two volume *Treatise on Electricity and Magnetism*. Although his books are a landmark achievement, they were notationally cumbersome and written before Einstein's development of special relativity. Sir James Jeans's book *The Mathematical Theory of Electricity and Magnetism* addressed the first issue, but not the second. Around 1940, William Smythe's *Static and Dynamic Electricity* and Julius Stratton's *Electromagnetic Theory* set the stage for what would become the format for the "standard graduate text" for electricity and magnetism. They both used modern vector notation, addressed the very fundamental link to special relativity, and thoroughly covered electromagnetic radiation. The torch was then handed off to Wolfgang Panofsky and Melba Phillips' *Classical Electricity and Magnetism* and subsequently Jackson.

My copy of Panofsky & Phillips is the gem of my collection, see attachment. Every page is written on, which in conventional terms would mean that its condition would be graded as no better than "Good." What makes it unique, however, is *what* the previous owner, Dick Alan Bergren, wrote. Every reference on the current page made to an equation or figure from a previous page is reproduced very cleanly by hand where the reference is made on the current page. This means that you don't have to flip back and forth to follow the flow of the argument. When a page starts in mid sentence, the start of the sentence from the previous page is reproduced in perfectly legible handwriting at the top of the current page. Every page of this nearly 500 page book has been enhanced in this way! It is indescribable how much value this adds to the book and how much joy it brings to me. It almost compels me to write a poem and/or song about Mr. Bergren.

Finally, we get to Rule 5. This one is very straightforward, but my resolve was severely tested when it involved the most glaring absence in my collection: Richard Feynman & Al Hibbs' *Quantum Mechanics and Path Integrals*. I checked it out from the Physics Library and it was not easy to return it when it was recalled. This book is the very embodiment of the idea of approaching a subject from every possible viewpoint. Quantum Mechanics is the best example of why its important to consult many different textbooks. Because of its very nature, every author has a different, even if slight, interpretation to its meaning. Some authors try to avoid the whole mess altogether and focus on teaching you how to get the right answers out of the mathematical machinery, which is also very useful. Even though he famously told his students to just "shut up and calculate," Feynman's book is heavy on interpretation and light on calculational methods. However, there is no other book dedicated to developing quantum mechanics from a purely path integral approach. This is why it was better to return the book than to "lose" it: I wanted other people to have access to the book. Keeping it to myself would have been very selfish, which I'm usually not above. As far as I can tell, McGraw-Hill no longer prints this book. You can find it used online for hundreds of dollars, which is an order of magnitude in excess of a graduate student's budget. I have tried buying it on eBay on two different occasions for a price that appeared too good to be true and was hoodwinked both times. For nearly half my life, I've been trying to obtain a copy this book, but, for now, it remains the Moby Dick to my Ahab.

There is one last rule that I've developed on my own:

6. If the authors are alive, then buy it new, otherwise get it used.

Even if they recieve only a small amount of royalties from the sale of their books, it's better than nothing. It's a symbol of my respect for their hard work. So that's it, The Six Golden Rules for collecting physics textbooks.

Panofsky & Phillips "Classical Electricity and Magnetism" – the gem of my collection (enhancements by Dick Alan Bergren)

1. Beginning of sentence from previous page

2a. Eq. 14–45 is from 6 chapters ago!

2b. Fig. 14–45 is rewritten here for convenience.

3a. Fig. 20–6 is on the next page.

3b. Fig. 20–6 is redrawn here for convenience.

where we have expressed $\dot{u}$ as a δ-function,

$$\dot{u} = \delta(t - t_0)\,\Delta u, \quad \int_{-\infty}^{\infty} \dot{u}\,dt = \Delta u.$$

If we put

$$E(t) = \int_{-\infty}^{\infty} E_\omega e^{-i\omega t}\,d\omega,$$

then

$$E_\omega = \frac{1}{2\pi}\int E(t)e^{i\omega t}\,dt = \frac{e\sin\theta\,\Delta u}{8\pi^2\epsilon_0 c^2 r}\,e^{i\omega t_0}, \tag{20-27}$$

which, except for phase, is independent of ω. Now the total energy loss is obtained by integrating the Poynting vector over the surface of a sphere and over the time during which the change in velocity takes place. For $u \ll c$,

$$-U = \int -\frac{dU}{dt'}\,dt' = \epsilon_0 c \iint_{-\infty}^{\infty} E^2\,dt\,dS. \tag{20-28}$$

The frequency of the energy loss, corresponding to a field whose Fourier components are E_ω, is then obtained as in Section 14–4.

$$\int_{-\infty}^{\infty} E^2\,dt = 4\pi\int_0^{\infty} |E_\omega|^2\,d\omega$$

follows from Eq. (14–45). Her
$d\omega$ is

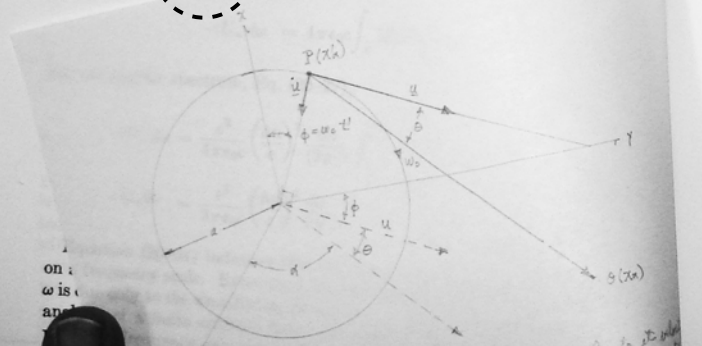

Fig. 20-6 Charge d $P(x_a)$ with acceleration at right angle to its velocity, the vector $\underline{u}$ is in the xy-plane; the

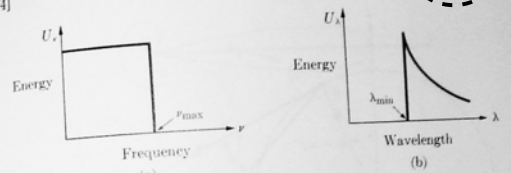

Fig. 20–5. Ideal spectrum of bremsstrahlung as a function of frequency and as a function of wavelength.

the point where the kinetic energy of the electron is equivalent to a single quantum of radiation:

$$\text{K.E.} = \tfrac{1}{2}mu^2 = h\nu_{\max}. \tag{20-32}$$

With such a maximum the ideal spectrum is shown on a frequency scale and again on a wavelength scale in Fig. 20–5. By means of Planck's hypothesis, Eq. (20–31) can be expressed in terms of the number of quanta, $dN = -U_\omega\,d\omega/\hbar\omega$, that are "shaken off" during the velocity change. This gives

$$dN_\omega = \frac{e^2}{4\pi\epsilon_0\hbar c}\,\frac{2}{3\pi}\left(\frac{\Delta u}{c}\right)^2\frac{d\omega}{\omega} = \frac{1}{137}\,\frac{2}{3\pi}\left(\frac{\Delta u}{c}\right)^2\frac{d\omega}{\omega}. \tag{20-33}$$

Thus an infinite number of zero energy quanta would be emitted, although the total energy is finite.

20–4 Radiation when the acceleration is perpendicular to the velocity (radiation from circular orbits). There are important practical applications of the case of a charge moving in a circle of radius a with a constant angular velocity ω_0, as indicated in Fig. 20–6. Here we have shown the circular orbit to be in the xy-plane with z perpendicular to the orbit. Let the observation point O be chosen such that the radius vector $\mathbf{r}$ from the source point $P(x_a')$ to the point $O(x_a)$ is parallel to the zy-plane. Let θ be the angle between $\mathbf{u}$ and $\mathbf{r}$ as before; let $\varphi = \omega_0 t'$ be the angle between the x-axis and the radius vector which is parallel to $\dot{\mathbf{u}}$. We have

$$u = a\omega_0, \qquad \mathbf{r}_u = \mathbf{r} - \frac{\mathbf{u}r}{c},$$

$$\dot{u} = a\omega_0^2, \qquad \mathbf{u}\cdot\mathbf{r} = ur\cos\theta,$$

$$\dot{\mathbf{u}}\cdot\mathbf{r} = \dot{u}r\cos\theta\,\frac{\sin\varphi}{\cos\varphi}.$$

Note: This list of over 300 books represents at least 90% of my collection. There is some ambiguity because I often loan books to both my friends and enemies alike. When there are more than 4 authors, only the first author is listed followed by "et al." For the book titles, every attempt is made to include the full title including the subtitle. For some multiple volume books, only the number of volumes is listed. As noted I'm missing Vol. 4 of Sommerfeld's *Lectures on Theoretical Physics*, which every now and then keeps me up at night. In addition, I only have 2 of 5 of the Berkeley Physics Course (BPC) series and 2 of 4 of the MIT Introductory Physics Series by A.P. French (and others). In the edition column, "corr" is corrected, "exp" is expanded or enlarged, "int" is international, "rev" is revised, "trans" is English translation, and "up" is updated. The year usually refers to the date when the book was printed, not first published. When the publisher is in the form of "*UP", it refers to the university press of the school listed in the city column. The "H/p" column indicates whether the book is Hardcover or paperback. Finally, the condition is reported based on my best interpretation of the standards listed on the IOBA website (Independent Online Booksellers Association). Many of the books suffered water damage when my apartment was flooded six years ago. Books denoted by ¶(study first) & ♠(study second) are those that are in my opinion absolutely essential to a serious study of physics at a professional level.

Lecture Books by Richard P. Feynman

TITLE	EDITION	YEAR	CITY	PUBLISHER	TYPE	CONDITION
¶*The Feynman Lectures on Physics, Vols. 1-3* (with Robert B. Leighton & Matthew Sands)	1	1964	Reading, MA	Addison-Wesley	H	good, reprint
Photon-Hadron Interactions	1	1998	Reading, MA	Perseus	p	good, reprint
Quantum Electrodynamics	1	1998	Reading, MA	Perseus	p	good, reprint
Statistical Mechanics: A Set of Lectures	1	1998	Reading, MA	Perseus	p	good, reprint
The Theory of Fundamental Processes	1	1998	Reading, MA	Perseus	p	good, reprint
Feynman Lectures on Gravitation	1	1995	Reading, MA	Addison-Wesley	H	very good

♠The Course of Theoretical Physics by L.D. Landau and E.M. Lifshitz, paperback reprints by Butterworth-Heinemann (Oxford)

AUTHORS	TITLE	EDITION	YEAR	CONDITION
L.D.L. & E.M.L.	*Vol. 1: Mechanics*	4, trans	1997	good, light foxing
L.D.L. & E.M.L.	*Vol. 2: The Classical Theory of Fields*	4, rev, trans	1996	good, light water damage
L.D.L. & E.M.L.	*Vol. 3: Quantum Mechanics: Non-relativistic Theory*	3, rev, exp, trans	1997	good, light foxing
E.M.L. & V.B. Berestetskii & L.P. Pitaevskii	*Vol. 4: Quantum Electrodynamics*	2, trans	1997	good, light foxing
L.D.L. & E.M.L.	*Vol. 5: Statistical Physics, part 1*	3, trans	1997	good, light water damage
L.D.L. & E.M.L.	*Vol. 6: Fluid Mechanics*	2, rev, trans	1998	good
L.D.L. & E.M.L.	*Vol. 7: Theory of Elasticity*	3, rev, exp, trans	1998	good, light foxing
L.D.L. & E.M.L. & L.P. Pitaevskii	*Vol. 8: Electrodynamics of Continuous Media*	2, rev, exp, trans	1996	good, light foxing
E.M.L. & L.P. Pitaevskii	*Vol. 9: Statistical Physics, part 2*	1, trans	1996	good, light water damage
E.M.L. & L.P. Pitaevskii	*Vol. 10: Physical Kinetics*	1, trans	1998	good, light foxing

Lectures on Theoretical Physics by Arnold Sommerfeld, published by Academic Press (New York)

TITLE	EDITION	YEAR	TYPE	CONDITION
Vol. 1: Mechanics	4, trans	1964	p	good, ex-library, reprint
Vol. 2: Mechanics of Deformable Bodies	1, trans	1962	H	good, ex-library
Vol. 3: Electrodynamics	1, trans	1952	H	good, ex-library
NOTE: STILL TRYING TO PROCURE *Vol. 4: Optics*!				
Vol. 5: Thermodynamics and Statistical Mechanics	1, trans	1957	H	good, ex-library
Vol. 6: Partial Differential Equations in Physics	1, trans	1953	H	good, ex-library

Classical Mechanics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Alligood, Kathleen T., & Tim D. Sauer & James A. Yorke	*Chaos: An Introduction to Dynamical Systems*	1	1996	New York	Springer	p	good, slightly warped
Corben, H.C. & Philip Stehle	*Classical Mechanics*	2	1994	New York	Dover Pub.	p	mint, reprint
♠Goldstein, Herbert	*Classical Mechanics*	2	1980	Reading, MA	Addison-Wesley	H	very good, minor foxing, small scratches on cover
Greenwood, Donald T.	*Classical Dynamics*	1, corr	1997	New York	Dover Pub.	p	mint, reprint
¶Marion, Jerry B.	*Classical Dynamics of Particles and Systems*	1, corr	1965	New York	Academic Press	H	good, water damage
Marion, Jerry B. & Stephen T. Thornton	*Classical Dynamics of Particles and Systems*	4	1995	New York	Academic Press	H	very good, bumps on cover
Maxwell, James Clerk	*Matter and Motion*	1	1991	New York	Dover Pub.	p	good, reprint
Ott, Edward	*Chaos in dynamical systems*	1, corr	1997	Cambridge	CUP	p	good, warped book
Symon, Keith R.	*Mechanics*	3	1971	Reading, MA	Addison-Wesley	H	very good, minor scratches on cover
Synge, John L. & Byron A. Griffith	*Principles of Mechanics*	2	1949	New York	McGraw-Hill	H	good
Whittaker, E.T.	*A Treatise on the Analytical Dynamics of Particles & Rigid Bodies*	4	1993	Cambridge	CUP	p	good, reprint

Waves

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Crawford, Jr., Frank S.	*BPC, Vol. 3: Waves*	1	1968	New York	McGraw-Hill	H	good, damaged corners
Elmore, William C. & Mark A. Heald	*Physics of Waves*	1, corr	1985	New York	Dover Pub.	p	very good, reprint
¶French, A.P.	*Vibrations and Waves*	1	1971	New York	W.W. Norton	p	very good
Rayleigh, J.W.S.	*The Theory of Sound, Vols. 1 & 2*	2, rev, exp	1945	New York	Dover Pub.	p	very good, reprint

Special Relativity

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Bergmann, Peter Gabriel	*Introduction to the Theory of Relativity*	1	1976	New York	Dover Pub.	p	very good, reprint
French, A.P.	*Special Relativity*	1	1991	London	Chapman & Hall	p	good
Mermin, N. David	*Space and Time in Special Relativity*	1	1968	Prospect Heights, IL	Waveland Press	p	very good
Shadowitz, Albert	*Special Relativity*	1	1988	New York	Dover Pub.	p	good, reprint
¶Taylor, Edwin T. & John Archibald Wheeler	*Spacetime Physics: Introduction to Special Relativity*	2	1992	New York	W.H. Freeman	p	good

General Relativity

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Dirac, P.A.M.	*General Theory of Relativity*	1	1996	Princeton	PUP	p	very good, reprint
Misner, Charles W. & Kip S. Thorne & John Archibald Wheeler	*Gravitation*	1	1973	New York	W.H. Freeman	p	good, light water damage
Peebles, P.J.E.	*Principles of Physical Cosmology*	1	1993	Princeton	PUP	H	good, remainder
♠Schutz, Bernard F.	*A first course in general relativity*	1, corr	1998	Cambridge	CUP	p	fair, water damage, reprint
¶Taylor, Edwin F. & John Archibald Wheeler	*Exploring Black Holes: Introduction to General Relativity*	1	2000	San Francisco	Addison-Wesley	H	very good

Topics in Special & General Relativity

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Einstein, Albert	*Relativity: The Special and General Theory*	15, trans	1961	New York	Three Rivers Press	p	good, reprint
Eddington, A.S.	*The Mathematical Theory of Relativity*	2	1965	Cambridge	CUP	p	fair, heavy foxing, reprint
¶Lorentz, H.A., et al.	*The Principle of Relativity: A Collection of Original Memoirs on the Special and General Theory of Relativity*	1, trans	1952	New York	Dover Pub.	p	good, reprint
Pauli, W.	*Theory of Relativity*	1, trans	1981	New York	Dover Pub.	p	good, creased cover
Tolman, Richard C.	*Relativity, Thermodynamics, and Cosmology*	1	1987	New York	Dover Pub.	p	fair, water damage, reprint
Torretti, Roberto	*Relativity and Geometry*	1, corr	1996	New York	Dover Pub.	p	very good, reprint

Electricity and Magnetism

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Barger, Vernon D. & Martin G. Olsson	*Classical Electricity and Magnetism: A Contemporary Perspective*	1	1987	Boston	Allyn and Bacon	H	fair, broken spine
Barut, A.O.	*Electrodynamics and Classical Theory of Fields and Particles*	1	1980	New York	Dover Pub.	p	good, cracked spine, reprint
Becker, R.	*Electromagnetic Fields and Interactions*	1, trans	1982	New York	Dover Pub.	p	good, reprint
Eyges, L.	*The Classical Electromagnetic Field*	1, corr	1980	New York	Dover Pub.	p	good, reprint
¶Griffiths, David J.	*Introduction to Electrodynamics*	2	1989	Engelwood Cliffs, NJ	Prentice-Hall	H	good
♠Jackson, John David	*Classical Electrodynamics*	2	1975	New York	Wiley	H	good, broken and torn spine
Jeans, Sir James	*The Mathematical Theory of Electricity and Magnetism*	5	1948	Cambridge	CUP	H	fair, warped cover, foxing
Lorentz, H.A.	*The Theory of Electrons*	2	1952	New York	Dover Pub.	p	fair
Maxwell, James Clerk	*A Treatise on Electricity and Magnetism: Vols. 1 & 2*	3	1954	New York	Dover Pub.	p	very good, reprint
Mead, Carver A.	*Collective Electrodynamics: Quantum Foundations of Electromagnetism*	1	2001	Cambridge, MA	MITP	H	very good, minor wear to dust jacket
Panofsky, Wolfgang K.H. & Melba Phillips	*Classical Electricity and Magnetism*	2	1962	Reading, MA	Addison-Wesley	H	good, sophisticated
Papas, Charles Herach	*Theory of Electromagnetic Wave Propagation*	1, corr	1988	New York	Dover Pub.	p	very good, reprint
¶Purcell, Edward M.	*BPC, Vol. 2: Electricity and Magnetism*	2	1984	New York	McGraw-Hill	H	fair, burn marks, loose binding, very worn
Reitz, John R. & Frederick J. Milford	*Foundations of Electromagnetic Theory*	1	1962	Reading, MA	Addison-Wesley	H	good, worn cover
Schwinger, Julian, et al.	*Classical Electrodynamics*	1	1998	Reading, MA	Perseus	H	very good, scratches to cover
Slater, John C. & Nathaniel H. Frank	*Electromagnetism*	1	1969	New York	Dover Pub.	p	good, reprint
Smythe, William R.	*Static and Dynamic Electricity*	3, rev	1989	Bristol, PA	Taylor & Francis	p	very good, reprint
Stratton, Julius Adams	*Electromagnetic Theory*	1	1941	New York	McGraw-Hill	H	good, ex-library
Winch, Ralph P.	*Electricity and Magnetism*	1	1957	Englewood Cliffs, NJ	Prentice-Hall	H	good, foxing

Quantum Mechanics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Baym, Gordon	*Lectures on Quantum Mechanics*	1	1990	Boulder, CO	Westview	p	good, creased covers
Bethe, Hans A. & Roman W. Jackiw	*Intermediate Quantum Mechanics*	2	1968	New York	W.A. Benjamin	p	fair, wear
Bohm, David	*Quantum Theory*	1	1989	New York	Dover Pub.	p	good, reprint
Cohen-Tannoudji, Claude & Bernard Liu & Franck Laloë	*Quantum Mechanics, Vols. 1 & 2*	1, trans	1977	New York	Wiley	p	good
♠Dirac, P.A.M.	*The Principles of Quantum Mechanics*	4, rev	1996	Oxford	OUP	p	good, water damage, reprint
Fermi, Enrico	*Notes on Quantum Mechanics*	2	1995	Chicago	UCP	p	good
Landé, Alfred	*Principles of Quantum Mechanics*	1	1937	Cambridge	CUP	H	poor, heavy foxing
Liboff, Richard L.	*Introductory Quantum Mechanics*	3	1998	Reading, MA	Addison-Wesley	H	very good, torn spine
Merzbacher, Eugen	*Quantum Mechanics*	3	1998	New York	Wiley	H	very good, scratches on cover
Messiah, Albert	*Quantum Mechanics, Vols. 1 & 2*	1, trans	1966	Amsterdam	North Holland Pub. Co.	p	poor, water damage, heavy foxing
Morrison, Michael A.	*Understanding Quantum Mechanics*	1	1990	Englewood Cliffs, NJ	Prentice-Hall	H	good, remainder
Rojansky, Vladimir	*Introductory Quantum Mechanics*	1	1949	New York	Prentice-Hall	H	good, foxing, minor water damage on cover
¶Sakurai, J.J.	*Modern Quantum Mechanics*	2, rev	1994	Reading, MA	Addison-Wesley	H	very good, scratched cover
Schiff, Leonard I.	*Quantum Mechanics*	3, int	1968	Auckland	McGraw-Hill	p	good, reprint
Sokolov, A.A. & I.M. Ternov & V. Ch. Zhukovskii	*Quantum Mechanics*	1, trans	1994	Moscow?	URCC Publishers	H	good, torn dust jacket
Winter, Rolf G.	*Quantum Mechanics*	1	1979	Belmont, CA	Wadsworth	H	very good, very light foxing

Topics in Quantum Mechanics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
♠Bell, J.S.	*Speakable and unspeakable in quantum mechanics: Collected papers on quantum philosophy*	1	1997	Cambridge	CUP	p	good, reprint
♠Bub, Jeffrey	*Interpreting the Quantum World*	1	2000	Cambridge	CUP	p	mint
Dirac, P.A.M.	*Lectures on Quantum Mechanics*	1	2001	Mineola, NY	Dover Pub.	p	very good, reprint
Edmonds, A.R.	*Angular Momentum in Quantum Mechanics*	2, rev, corr	1996	Princeton	PUP	p	very good, reprint
Jackson, J.D.	*Mathematical Background to Quantum Mechanics*	1	1961	Urbana	UIP	p	good, original copy of notes
♠Rose, M.E.	*Elementary Theory of Angular Momentum*	1	1995	New York	Dover Pub.	p	fair, water damage, reprint
Van der Waerden, B.L.	*Sources of Quantum Mechanics*	1	1968	New York	Dover Pub.	p	good, reprint
♠Von Neumann, John	*Mathematical Foundations of Quantum Mechanics*	1, trans	1996	Princeton	PUP	p	very good, reprint

Statistical Mechanics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Baierlein, Ralph	*Atoms and Information Theory: An Introduction to Statistical Mechanics*	1	1971	San Francisco	W.H. Freeman	H	very good, torn dust jacket
Bloch, Felix & John Dirk Walecka	*Fundamentals of Statistical Mechanics: Manuscript and Notes of Felix Bloch*	1	2001	Singapore	World Scientific	p	mint
Ma, Shang-Keng	*Modern Theory of Critical Phenomena*	1	2000	Cambridge, MA	Perseus	p	good, faded cover, reprint
♠Pathria, R.K.	*Statistical Mechanics*	2	1996	Oxford	Butterworth-Heinemann	p	good, crease in cover
Tolman, Richard C.	*The Principles of Statistical Mechanics*	1	1979	New York	Dover Pub.	p	very good, reprint
Wilde, Richard E. & Surjit Singh	*Statistical Mechanics: Fundamentals and Modern Applications*	1	1998	New York	Wiley	H	mint, signed by coauthor (my dad)

Thermodynamics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
¶Fermi, Enrico	*Thermodynamics*	1	1956	New York	Dover Pub.	p	good, reprint
Kittel, Charles & Herbert Kroemer	*Thermal Physics*	2	1998	New York	W.H. Freeman	H	poor, broken spine
Maxwell, James Clerk	*Theory of Heat*	9	2001	New York	Dover Pub.	p	very good, reprint
Morse, Philip M.	*Thermal Physics*	2	1969	New York	W.A. Benjamin	H	poor, split spine, water damage
Reif, F.	*Fundamentals of statistical and thermal physics*	1	1965	New York	McGraw-Hill	H	fair, water damage, foxing, uneven pages
Zemansky, Mark W.	*Heat and Thermodynamics*	3	1951	New York	McGraw-Hill	H	very good, minor foxing

Condensed Matter Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Anderson, Philip W.	*Basic Notions of Condensed Matter Physics*	1	1997	Reading, MA	Addison-Wesley	p	very good, slightly warped, reprint
Ashcroft, Neil W. & N. David Mermin	*Solid State Physics*	1	1976	Ft. Worth, TX	Saunders College Pub.	H	very good, light foxing, minor scratches on cover
Guinier, André & Rémi Jullien & W.J. Duffin	*The Solid State:From Superconductors to Superalloys*	1, trans	1989	Oxford	OUP	p	fair, foxing
Inkson, John C.	*Many-Body Theory of Solids: An Introduction*	1	1984	New York	Plenum	H	good, foxing
♠Kittel, Charles	*Introduction to Solid State Physics*	7	1996	New York	Wiley	H	very good, minor scuffing on cover
Kittel, Charles	*Quantum Theory of Solids*	2, rev	1986	New York	Wiley	p	very good, small nicks on cover
Pines, David	*The Many-Body Problem*	1	1997	Reading, MA	Addison-Wesley	p	very good, slightly warped, reprint
Wert, Charles A. & Robb M. Thomson	*Physics of Solids*	2	1970	New York	McGraw-Hill	H	good, dust cover torn

Mathematical Methods

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
¶Arfken, George B. & Hans J. Weber	*Mathematical Methods for Physicists*	4	1995	San Diego	Academic Press	H	fair, broken spine
Butkov, Eugene	*Mathematical Physics*	1	1968	Reading, MA	Addison-Wesley	H	very good, worn spine
Byron, Jr., Frederick W. & Robert W. Fuller	*Mathematics of Classical and Quantum Physics, Vols. 1 & 2*	1, corr	1992	New York	Dover Pub.	p	good, reprint
Courant, R. & D. Hilbert	*Methods of Mathematical Physics, Vols. 1 & 2*	1, trans	1989	New York	Wiley	p	good, reprint
Dennery, Philippe & André Krzywicki	*Mathematics for Physicists*	1, corr	1996	Mineola, NY	Dover Pub.	p	good, reprint
Geroch, Robert	*Mathematical Physics*	1	1985	Chicago	UCP	H	good
Jeffreys, Sir Harold & Bertha Swirles Jeffreys	*Methods of Mathematical Physics*	3	1992	Cambridge	CUP	p	good, reprint
Joos, Georg	*Theoretical Physics*	3	1985	New York	Dover Pub.	p	good, reprint
Mathews, Jon & R.L. Walker	*Mathematical Methods of Physics*	2	1970	Redwood City, CA	Addison-Wesley	H	good, cracked spine
♠Morse, Philip M. & Herman Feshbach	*Methods of Theoretical Physics, Vols. 1 & 2*	1	1953	New York	McGraw-Hill	H	very good, creased spine
Riley, K.F. & M.P. Hobson & S.J. Bence	*Mathematical Methods for Physics and Engineering*	1	1997	Cambridge	CUP	p	very good

Topics in Mathematical Methods

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
¶Abramowitz, Milton & Irene A. Stegun	*Handbook of Mathematical Functions*	1, rev	1972	New York	Dover Pub.	p	good, reprint
Danielson, D.A.	*Vectors and Tensors in Engineering and Physics*	2	1997	Reading, MA	Addison-Wesley	H	very good
Kellogg, Oliver Dimon	*Foundations of Potential Theory*	1	1953	New York	Dover Pub.	p	very good, reprint
Lanczos, Cornelius	*The Variational Principles of Mechanics*	4	1986	New York	Dover Pub.	p	very good, reprint
Ross, Sheldon M.	*Introduction to Probability and Statistics for Engineers and Scientists*	1	1987	New York	Wiley	H	very good
♠Schutz, Bernard F.	*Geometrical methods of mathematical physics*	1	1980	Cambridge	CUP	p	fair, foxing
Spiegel, Murray R.	*Mathematical Handbook of Formulas and Tables*	1	1993	New York	McGraw-Hill	p	fair, torn, abused, written all over, best ten dollars I ever spent
Tikhonov, A.N. & A.A. Samarskii	*Equations of Mathematical Physics*	1, trans	1990	New York	Dover Pub.	p	good, reprint

Atomic Structure & Spectra

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Bethe, Hans A. & Edwin E. Saltpeter	*Quantum Mechanics of One-and Two-Electron Atoms*	1	1977	New York	Plenum/Rosetta	p	good, reprint
Bonin, Keith D. & Vitaly V. Kresin	*Electric-Dipole Polarizabilities of Atoms, Molecules, and Clusters*	1	1997	Singapore	World Scientific	H	good, ex-library
Born, Max	*Atomic Physics*	8, trans	1989	New York	Dover Pub.	p	good, reprint
Cohen-Tannoudji, Claude & Jacques Dupont-Roc & Gilbert Grynberg	*Atoms and Photons: Basic Processes and Applications*	1, trans	1990	New York	Wiley	H	very good, scratches on cover
Condon, E.U. & G.H. Shortley	*The Theory of Atomic Spectra*	1, rev	1964	Cambridge	CUP	p	fair, foxing
Condon, E.U. & Halis Odabaşi	*Atomic Structure*	1	1980	Cambridge	CUP	p	good, foxing
♠Corney, Alan	*Atomic and Laser Spectroscopy*	1	1977	Oxford	OUP	H	good, torn dust jacket
♠Foot, C.J.	*Atomic Physics*	1	2005	Oxford	OUP	p	very good
Harnwell, G.P. & J.J. Livingood	*Experimental Atomic Physics*	1	1933	New York	McGraw-Hill	H	good, wear on cover
Herzberg, Gerhard	*Atomic Spectra and Atomic Structure*	1	1937	New York	Prentice-Hall	H	good, wear to cover and spine
Woodgate, G.K.	*Elementary Atomic Structure*	2, corr	2002	Oxford	OUP	p	very good, remainder

Lasers & Optics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
♠Born, Max & Emil Wolf	*Principles of optics*	7, exp	1999	Cambridge	CUP	H	very good
Davis, Christopher C.	*Laser and Electro-Optics: Fundamentals and Engineering*	1, corr	2002	Cambridge	CUP	p	very good, reprint
Goodman, Joseph W.	*Introduction to Fourier Optics*	3	2005	Englewood, CA	Roberts & Co	H	mint
Goodman, Joseph W.	*Statistical Optics*	1	2000	New York	Wiley	p	very good, minor scuffs, reprint
Hecht, E.	*Optics*	3	1998	Reading, MA	Addison-Wesley	H	good, cracked spine, scratches in cover
Klein, Miles V.	*Optics*	1	1970	New York	Wiley	H	good
Mandel, Leonard & Emil Wolf	*Optical Coherence and Quantum Optics*	1	1995	Cambridge	CUP	H	near mint, minor scuffs to dust jacket
Minnaert, M.	*Light and Color*	1, trans	1954	New York	Dover Pub.	p	good, reprint
Saleh, Bahaa E.A. & Malvin Carl Teich	*Fundamentals of Photonics*	1	1991	New York	Wiley	H	mint
Siegman, Anthony E.	*An Introduction to Lasers and Masers*	1	1971	New York	McGraw-Hill	H	fair, split spine
♠Siegman, Anthony E.	*Lasers*	1	1986	Sausalito, CA	Univ. Science Bks.	H	very good, minor scuff marks on dust jacket
Yariv, Amnon & Pochi Yeh	*Optical Waves in Crystals: Propagation and Control of Laser Radiation*	1	2003	New York	Wiley	p	mint, reprint

Quantum Field Theory

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Bjorken, James D. & S.D. Drell	*Relativistic Quantum Fields*	1	1965	New York	McGraw-Hill	H	good, water damage
Hatfield, Brian	*Quantum Field Theory of Point Particles and Strings*	1	1992	Boulder, CO	Westview	p	good
Itzykson, Claude & Jean-Bernard Zuber	*Quantum Field Theory*	1, rev	2006	New York	Dover Pub.	p	mint
♠Peskin, Michael E. & Daniel V. Schroeder	*An Introduction to Quantum Field Theory*	1	1995	Reading, MA	Perseus	H	good, coffee damage
Ramond, Pierre	*Field Theory: A Modern Primer*	2	2001	Boulder, CO	Westview	p	good, water damage
Ryder, Lewis H.	*Quantum Field Theory*	2	1996	Cambridge	CUP	p	good
Schweber, Silvan S.	*An Introduction to Relativistic Quantum Field Theory*	1	2005	New York	Dover Pub.	p	mint, reprint
Sterman, George	*An Introduction to Quantum Field Theory*	1	1993	Cambridge	CUP	p	good, worn covers
Weinberg, Steven	*The Quantum Theory of Fields Vols. 1-3*	1	1995	Cambridge	CUP	H	mint
Wentzel Gregor	*Quantum Theory of Fields*	1	2003	New York	Dover Pub.	p	mint, reprint
¶Zee, A.	*Quantum Field Theory in a Nutshell*	1	2003	Princeton	PUP	H	good, remainder

Quantum Electrodynamics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Bjorken, James D. & S.D. Drell	*Relativistic Quantum Mechanics*	1	1964	New York	McGraw-Hill	H	good, water damage
Cohen-Tannoudji, Claude & Jacques Dupont-Roc & Gilbert Grynberg	*Photons and Atoms: Introduction to Quantum Electrodynamics*	1, trans	1989	New York	Wiley	H	very good, scratches on cover
♠Heitler, W.	*The Quantum Theory of Radiation*	3	1984	New York	Dover Pub.	p	good, reprint
♠Sakurai, J.J.	*Advanced Quantum Mechanics*	1	1967	Reading, MA	Addison-Wesley	H	good, dinged cover
Schwinger, Julian	*Selected Papers on Quantum Electrodynamics*	1	1958	New York	Dover Pub.	p	good, creased cover, reprint

Topics in Quantum Field Theory

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
♠Coleman, Sidney	*Aspects of Symmetry: Selected Erice Lectures*	1	1988	Cambridge	CUP	p	good, bent covers
Dashen, Stephen L. & Roger F. Adler	*Current Algebras: Applications to Particle Physics*	1	1968	New York	W.A. Benjamin	H	good
Le Bellac, Michel	*Thermal Field Theory*	1, corr	2000	Cambridge	CUP	p	very good, scratch on cover
Mattuck, Richard D.	*A guide to Feynman diagrams in the many body problem*	2	1992	New York	Dover Pub.	p	fair, water damage, reprint
♠Quigg, Chris	*Gauge Theories of the Strong, Weak and Electromagnetic Interactions*	1	1997	Reading, MA	Perseus	p	good, reprint
Schwinger, Julian S.	*Particles, Sources, and Fields Vols. 1-3*	1, rev	1998	Boulder, CO	Westview	p	good, reprint

Topics in Strong Interaction Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Barger, V.	*Phenomenological theories of high energy scattering: An experimental evaluation*	1	1969	New York	W.A. Benjamin	p	good, worn
Chew, Geoffrey F.	*S-matrix theory of strong interactions*	1	1962	New York	W.A. Benjamin	p	good
Chew, Geoffrey F.	*The Analytic S Matrix: A Basis for Nuclear Democracy*	1	1966	New York	W.A. Benjamin	p	good, worn
Close, Frank E.	*An Introduction to Quarks and Partons*	1, rev	1980	New York	Academic Press	p	good
Drell, Sidney D. & F. Zachariasen	*Electromagnetic Structure of Nucleons*	1	1965	Oxford	OUP	p	good, worn
Dyson, Freeman	*Symmetry Groups in Nuclear and Particle Physics*	1	1966	New York	W.A. Benjamin	p	good, worn
Eden, R. J., et al.	*The Analytic S-Matrix*	1	1966	Cambridge	CUP	p	good, foxing
Frautschi, Steven C.	*Regge Poles and S-Matrix Theory*	1	1963	New York	W.A. Benjamin	p	good
Gell-Mann, Murray & Yuval Ne'eman	*The Eightfold Way*	1	1964	New York	W.A. Benjamin	p	good, worn
Hofstadter, Robert	*Electron Scattering and Nuclear and Nucleon Structure*	1	1963	New York	W.A. Benjamin	H	good
Horn, David	*Hadron physics at very high energies*	1	1973	New York	W.A. Benjamin	p	good, worn
Jacob, Maurice	*Strong-interaction physics*	1	1964	New York	W.A. Benjamin	p	good, worn
Kokkedee, J.J.J.	*The Quark Model*	1	1969	New York	W.A. Benjamin	p	good, worn
Ne'eman, Yuval	*Algebraic theory of particle physics: Hadron dynamics in terms of unitary spin currents*	1	1967	New York	W.A. Benjamin	p	good, worn
Omnes, R. & M. Froissart	*Mandelstam Theory and Regge Poles: An Introduction for Experimentalists*	1	1963	New York	W.A. Benjamin	p	good
Thomas, Anthony W. & Wolfram Weise	*The Structure of the Nucleon*	1	2001	Weinheim	Wiley-VCH	H	very good

Group Theory

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Cornwell, J. F.	*Group Theory in Physics: An Introduction*	1	1997	San Diego	Academic Press	p	good
Fano, U. & G. Racah	*Irreducible Tensorial Sets*	1	1967	New York	Academic Press	H	good, ex-library
♠Hamermesh, Morton	*Group Theory and its Application to Physical Problems*	2, corr	1989	New York	Dover Pub.	p	good, reprint
Heine, Volker	*Group Theory in Quantum Mechanics*	1	1993	New York	Dover Pub.	p	good, reprint
Sternberg, S.	*Group theory and physics*	1	1995	Cambridge	CUP	p	good
Tung, Wu-Ki	*Group Theory in Physics*	1	1985	Philadelphia	World Scientific	p	good
Weyl, Hermann	*The Classical Groups: Their Invariants and Representations*	2	1997	Princeton	PUP	p	mint
Weyl, Hermann	*The Theory of Groups and Quantum Mechanics*	1, trans	1950	New York	Dover Pub.	p	good, reprint
Wigner, Eugene P.	*Group Theory and Its Application to the Quantum Mechanics of Atomic Spectra*	1, exp, trans	1959	New York	Academic Press	H	good, ex-library

Nuclear Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Beiser, Arthur	*Concepts of Modern Physics*	5	1995	New York	McGraw-Hill	H	good, some writing in book
Bethe, Hans A. & Philip Morrison	*Elementary nuclear theory*	2	1961	New York	Wiley	H	fair, loose binding
Blatt, John M. & Victor F. Weisskopf	*Theoretical Nuclear Physics*	1	1991	New York	Dover Pub.	p	good, reprint
Enge, Harald A.	*Introduction to Nuclear Physics*	1	1966	Reading, MA	Addison-Wesley	H	good, light foxing
Fermi, Enrico	*Nuclear Physics*	1, rev	1974	Chicago	UCP	p	good, worn
Frauenfelder, Hans	*The Mossbauer Effect*	1	1962	New York	W.A. Benjamin	p	good
Preston, Rajat K. & M.A. Bhaduri	*Structure of the Nucleus*	1	1976	Reading, MA	Addison-Wesley	p	good
Segrè, Emilio G.	*Experimental Nuclear Physics, Vols. 1-3*	1	1953	New York	Wiley	H	good
¶Segrè, Emilio	*Nuclei and Particles: an Introduction to Nuclear and Subnuclear Physics*	1	1965	New York	W.A. Benjamin	H	good, writing
Wong, Samuel S.M.	*Introductory Nuclear Physics*	2	1999	New York	Wiley	H	good, some pages bound upside down

Particle Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Coughlan, G.D. & J.E. Dodd & B.M. Gripaios	*The Ideas of Particle Physics: An Introduction for Scientists*	2	1991	Cambridge	CUP	p	good
¶Griffiths, David J.	*Introduction to Elementary Particles*	1	1987	New York	Wiley	p	very good
♠Halzen, Francis & Alan D. Martin	*Quarks and Leptons: An Introductory Course in Modern Particle Physics*	1	1984	New York	Wiley	H	very good, scratches in cover
Kane, Gordon	*Modern Elementary Particle Physics: The Fundamental Particles and Forces?*	1, up	1993	Reading, MA	Addison-Wesley	p	very good
Martin, B.R. & G. Shaw	*Particle Physics*	2	1997	New York	Wiley	p	good
Perkins, Donald H.	*Introduction to High Energy Physics*	3	1987	Reading, MA	Addison-Wesley	H	good, writing and highlighting
Rossi, Bruno B.	*High-energy particles*	1	1952	New York	Prentice-Hall	H	fair, very worn
Sakurai, J.J.	*Invariance Principles and Elementary Particles*	1	1964	Princeton	PUP	H	fair, torn dust jacket, loose binding

Magnetic Resonance

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
♠Abragam, A.	*Principles of Nuclear Magnetism*	1, corr	1999	Oxford	OUP	p	mint, reprint
¶Bloembergen, Nicolaas	*Encounters in Magnetic Resonances*	1	1996	Singapore	World Scientific	p	very good, slightly warped
Kopfermann, H.	*Nuclear Moments*	2, trans	1958	New York	Academic Press	p	good, ex-library
Ramsey, Norman F.	*Molecular Beams*	1, corr	1963	Oxford	OUP	H	good, ex-library
Slichter, C.P.	*Principles of Magnetic Resonance*	3, exp, corr	1996	Berlin	Springer	H	mint

Semiconductor Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Datta, Supriyo	*Electronic Transport in Mesoscopic Systems*	1, corr	1999	Cambridge	CUP	p	very good, a few bumps on cover
Davies, John H.	*The Physics of Low-Dimensional Semiconductors: An Introduction*	1	1999	Cambridge	CUP	p	very good, slightly warped
Herring, Conyers	*Magnetism , A Treatise on Modern Theory and Materials, Vol. IV: Exchange Interactions among Itinerant Electrons*	1	1966	New York	Academic Press	H	good, torn dust cover
Navon, David H.	*Semiconductor Microdevices and Materials*	1	1986	New York	Holt, Rinehart & Winston	H	good, damaged corners
Skomski, R. & J.M.D. Coey	*Permanent Magnetism*	1	1999	Bristol, PA	Taylor & Francis	H	very good, writing in book
Sze, S.M.	*Physics of Semiconductor Devices*	2, int	1999	New York	Wiley	p	good
Yariv, Amnon	*Quantum Electronics*	3	1989	New York	Wiley	H	very good, scratches on front cover

Topics in Experimental Methods

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Ewing, J.A.	*Magnetic Induction in Iron and Other Metals*	3, rev	1900	London	The Electrician Printing and Publishing Co.	H	poor, broken spine, heavy foxing
¶Horowitz, Paul & Winfield Hill	*The Art of Electronics*	2	1998	Cambridge	CUP	H	good
♠Leo, William R.	*Techniques for Nuclear and Particle Physics Experiments: A How-to Approach*	2, rev	1994	Berlin	Springer-Verlag	p	good, cracked spine
Green, Dan	*The Physics of Particle Detectors*	1	2005	Cambridge	CUP	H	mint
Pellegrini, Claudio & Andrew M. Sessler	*The Development of Colliders*	1	1995	New York	A.I.P.	H	very good, scratched cover
Richardson, Robert C. & Eric N. Smith	*Experimental Techniques in Condensed Matter Physics at Low Temperature*	1	1998	Reading, MA	Addison-Wesley	p	good, reprint

General & Conceptual Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Baierlein, Ralph	*Newton to Einstein: The Trail of Light*	1	1992	Cambridge	CUP	H	good
Bailey, John M.	*Liberal Arts Physics: Invariance and Change*	1	1974	San Francisco	W.H. Freeman	H	very good
Burns, Desmond M. & Simon G.G. MacDonald	*Physics for Biology and Pre-Medical Students*	1	1970	Reading, MA	Addison-Wesley	p	good, light foxing
Glashow, Sheldon L.	*From Alchemy to Quarks: The Study of Physics as a Liberal Art*	1	1994	Pacific Grove, CA	Brooks/Cole	H	mint
¶Hewitt, Paul G.	*Conceptual Physics*	2	1992	Reading, MA	Addison-Wesley	H	good, ex-library
Lehmann, Walter J.	*Atomic and Molecular Structure: The Development of Our Concepts*	1	1972	New York	Wiley	H	very good, scuff marks on cover
March, Robert H.	*Physics for Poets*	3	1992	New York	McGraw-Hill	p	good, examination copy
Marion, Jerry B.	*A Universe of Physics: A Book of Readings*	1	1970	New York	Wiley	p	good
Wilson, Jerry D.	*Physics: A Practical and Conceptual Approach*	2	1989	Philadelphia	Saunders College Pub.	H	good, bent cover

History & Philosophy of Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Born, Max	*Experiment and Theory in Physics*	1	1956	New York	Dover Pub.	p	fair
Crowe, Michael J.	*Theories of the World from Antiquity to the Copernican Revolution*	1	1996	New York	Dover Pub.	p	good
Cushing, James T.	*Theory Construction and Selection in Modern Physics: The S Matrix*	1	2005	Cambridge	CUP	p	very good, bent cover
Einstein, Albert & Max Born	*The Born-Einstein Letters*	1	1971	New York	Macmillan	H	good
♠Galison, Peter	*How Experiments End*	1	1987	Chicago	UCP	p	very good
Heisenberg, Werner	*The Physical Principles of The Quantum Theory*	1, trans	1949	New York	Dover Pub.	p	good, reprint
Kaiser, David	*Drawing Theories Apart: The Dispersion of Feynman Diagrams in Postwar Physics*	1	2005	Chicago	UCP	p	mint
¶Kuhn, Thomas S.	*The Structure of Scientific Revolutions*	3	1996	Chicago	UCP	p	very good
Magie, William Francis	*A Source Book in Physics*	1	1935	New York	McGraw-Hill	H	good, bookplate
♠Pickering, Andrew	*Constructing Quarks : A Sociological History of Particle Physics*	1	1999	Chicago	UCP	p	very good
Planck, Max	*Eight Lectures on Theoretical Physics*	1, trans	1998	New York	Dover Pub.	p	fair, water damage, reprint
Shamos, Morris H.	*Great Experiments in Physics: Firsthand Accounts from Galileo to Einstein*	1, corr	1987	New York	Dover Pub.	p	good, reprint
Trigg, George L.	*Landmark Experiments in Twentieth Century Physics*	1	1995	New York	Dover Pub.	p	fair, water damage, reprint
♠Weyl, Hermann	*Space, Time, Matter*	4, trans	1952	New York	Dover Pub.	p	good, reprint
¶Whittaker, Sir Edmund	*A History of the Theories of Aether and Electricity, Vols. 1 & 2*	1, rev, exp	1960	New York	Harper	p	good, foxing

Lectures on Physics by Wolgang Pauli, paperback reprints by Dover Publications (New York)			
TITLE	EDITION	YEAR	CONDITION
Vol. 1: Electrodynamics	1, trans	2000	mint
Vol. 2: Optics and the Theory of Electron	1, trans	2000	mint
Vol. 3: Thermodynamics and the Kinetic Theory of Gases	1, trans	2000	mint
Vol. 4: Statistical Mechanics	1, trans	2000	mint
Vol. 5: Wave Mechanics	1, trans	2000	mint
Vol. 6: Selected Topics in Field Quantization	1, trans	2000	mint

Problem Sets in Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Budak, B.M. & A.A. Samarskii & A.N. Tikhonov	*A Collection of Problems in Mathematical Physics*	1, trans	1988	New York	Dover Pub.	p	good, reprint
♠Budker, Dmitry & Derek F. Kimball & David P. Demille	*Atomic Physics: An Exploration Through Problems and Solutions*	1	2004	Oxford	OUP	p	good, smells like cat urine
Chen, Min	*University of California, Berkeley Physics Problems with Solutions*	1, int	1992	New Delhi	Prentice-Hall	p	good, reprint
Constantinescu, F. & E. Magyari	*Problems in Quantum Mechanics*	1	1971	Oxford	Pergamon	H	fair, torn spine
Cronin, Jeremiah A. & David F. Greenburg & Valentine L. Telegedi	*University of Chicago Graduate Problems in Physics with Solutions*	1	1979	Chicago	UCP	p	very good
Epstein, Lewis Carroll	*Thinking Physics is Gendanken Physics*	2	1985	San Francisco	Insight Press	p	good, cracked spine
Gol'dman, I.I. & V.D. Krivchenkov	*Problems in Quantum Mechanics*	1	1993	New York	Dover Pub.	p	very good, reprint
Goldsmid, H.J.	*Problems in Solid State Physics*	1	1968?	New York	Academic Press	H	good, worn dust jacket
Johnson, Jr. Charles S.	*Problems and Solutions in Quantum Chemistry and Physics*	1	1986	New York	Dover Pub.	p	good, reprint
Lim, Yung-Kuo	*Problems and Solutions on Electromagnetism*	1	2000	Singapore	World Scientific	p	good, reprint
Lim, Yung-Kuo	*Problems and Solutions on Mechanics*	1	1994	Singapore	World Scientific	p	good, reprint
Lim, Yung-Kuo	*Problems and Solutions on Thermodynamics and Statistical Mechanics*	1	2001	Singapore	World Scientific	p	good, reprint
♠Newbury, Nathan & et al.	*Princeton Problems in Physics*	1	1991	Princeton	PUP	p	good
Thompson, N.	*Thinking Like A Physicist*	1	1987	Bristol	I.o.P.	p	good
Tribble, Alan C.	*Princeton Guide to Advanced Physics*	1	1996	Princeton	PUP	p	good
Vekstein, G.E.	*Physics of Continuous Media: A Collection of Problems with Solutions for Physics Students*	1	1992	Bristol	Adam Hilger	p	good

Computational Methods for Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Acton, Forman S.	*Numerical Methods that Work*	1, rev	1990	Washington, D.C.	Mathematical Association of America	p	mint, reprint
¶Acton, Forman S.	*Real Computing Made Real: Preventing Errors in Scientific and Engineering Calculations*	1	2005	New York	Dover Pub.	p	mint
Hastings, Jr., Cecil	*Approximations for Digital Computers*	1	1970	Princeton	PUP	H	fair, heavy foxing
♠Press, William H., et al.	*Numerical Recipes in C: The Art of Scientific Computing*	1	1988	Cambridge	CUP	H	good

Data Analysis for Experimental Physics

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
♠Bevington, Philip & D. Keith Robinson	*Data Reduction and Error Analysis for the Physical Sciences*	2	1992	New York	McGraw-Hill	p	good, heavy use
Rabinovich, Semyon G.	*Measurement Errors and Uncertainties: Theory and Practice*	2, trans	1999	New York	A.I.P.	p	mint
¶Taylor, John R.	*An Introduction to Error Analysis: The Study of Uncertainties in Physical Measurements*	2	1997	Sausalito, CA	Univ. Science Bks.	p	good

¶Data Presentation Techniques

AUTHORS	TITLE	EDITION	YR	CITY	PUBLISHER	H/p	CONDITION
Cleveland, William S.	*The Elements of Graphing Data*	1, rev	1994	Summit, NJ	Hobart Press	H	near mint, minor scuff marks on dust jacket
Cleveland, William S.	*Visualizing Data*	1	1993	Summit, NJ	Hobart Press	H	near mint, minor scuff marks on dust jacket
Tufte, Edward R.	*Beautiful Evidence*	1	2006	Cheshire, CT	Graphics Press	H	mint
Tufte, Edward R.	*Envisioning Information*	1	1990	Cheshire, CT	Graphics Press	H	mint
Tufte, Edward R.	*The Visual Display of Quantitative Information*	2	2001	Cheshire, CT	Graphics Press	H	mint
Tufte, Edward R.	*Visual Explanations*	1, rev	2003	Cheshire, CT	Graphics Press	H	mint

Optional Material

A note about books absent from my collection

The most common question I've gotten is why I don't have any "old" physics books (pre-1870) such as Newton's *Principia*. The answer could be that they are rare and expensive; however, books over 100 years old are usually not that useful to learn from. They have antiquated notation and are often speculative or just plain wrong. This is not surprising since three of the four major subjects (Electromagnetism, Statistical Mechanics, & Quantum Mechanics) didn't find their modern form until the turn of the 20th century (give or take 30 years). The only "old" books worth having are by James Maxwell (for example *A Treatise on Electricity and Magnetism*). His physical intuition and grasp of the subject matter compensate for the outdated mathematical notation that he uses.

Another glaring omission are the Quantum Field Theory and Classical Theoretical Physics series by Walter Greiner. He is a German author with a fine reputation; however, something is definitely lost in the translation to English. I am optimistic that revised and updated editions of his books in English will be worth adding to my collection.

Finally, the biggest thing I'm missing, besides Feynman's book, is the optics kit that used to come with Crawford's *Waves*. The problems at the end of each chapter include at least one or two at-home hands-on experimental problems to be worked out using the parts of the optics kit. McGraw-Hill stopped making these kits a long time ago, and I can't find them anywhere.

A note about quantum mechanics books

Books on quantum mechanics trace the changing attitude towards the field. Older books, produced during the early part of the 20th century, always present the material within historical context. They emphasize the failings of the classical theory to explain physical phenomena. Quantum mechanical principles are introduced only when necessary and in contrast to classical ones, almost apologetically. At the same time, an unnecessary and convoluted effort is made to preserve or reinterpret classical concepts in the quantum spirit. The examples and problems discussed in these books tend to be the same ones whose solutions finally convinced physicists of both the necessity and correctness of quantum mechanics. The older books use mathematical methods developed originally for classical mechanics.

In contrast, modern quantum mechanics books start by simply stating the postulates of the theory. In these books, there is no argument or hedging about the correctness of quantum mechanics. It is simply accepted as fact. The examples and problems are taken from its wildly successful modern applications. The mathematical formulation used to describe quantum principles are more abstract and powerful than those used in older books. What's fascinating, to me, is to see this change in perspective in how material is presented in textbooks. It's not a discontinuous jump, but instead, is a gradual transition from begrudging & hesitant acceptance to warm embrace over several decades. This is one reason why it's important to have a look at the older texts. It reminds one of how surprising, unexpected, and utterly bizarre quantum effects are.

A note about physics books being published now

Looking to future additions to my collection, the most exciting development over the past 10 years is the advent of undergraduate level texts on General Relativity (GR). Until the late 1990's, there were only about 5 good books on GR, the most famous being the "phone book" classic *Gravitation*. The earlier books were meant for specialized and advanced elective graduate courses. However, because of the remarkable experimental advances in Cosmology and theoretical advances in String Theory over the past 20 years, there is now a move towards introducing the basic concepts and mathematical structure of GR to more students earlier in their studies. I'm waiting to see which (or maybe both, lucky me!) book, Sean Carroll's *Spacetime and Gravity*or James Hartle's *Gravity*, becomes the standard. More then likely, I'll end up getting both. In parallel with this development, there are now, finally, half a dozen new *actual* textbooks, as opposed to monographs, on String Theory.

Books on Electromagnetism don't change much these days. The basic format and presentation is the same for most new books, the only difference is the discussion of the applications of the theory. There really is no challenger to Jackson, and I can't imagine seeing one for the foreseeable future. Classical Mechanics textbooks have the same "problem." The only major change in the last 30 years has been the addition of Nonlinear Dynamics/Chaos Theory to the list of applications presented in the books. The big change in books on Statistical Mechanics in a trend towards introducing mathematical techniques developed in the 1970's for particle physics. These quantum field theoretical tools should become standard in the advanced study of statistical mechanics, and the new textbooks are slowly starting to reflect this fact.