Most of the site, though, is devoted to the 86 women from subfields such as astrophysics, atomic physics, crystallography, education, fluid dynamics, mathematical physics, and nuclear physics. Physicists profiled include Marie Curie, Helen Edwards, Shirley Jackson, Maria Mayer, and Vera Rubin. Each biography page contains a photograph of the physicist, her major contributions and publications, honors, employment, education, additional information, and recommended reading. Factual information is brief but correct. These pages are most useful for providing starter bibliographies for high school or undergraduate students. There are several spelling errors on some pages. Although the site has not been updated since the initial project ended, all links within the site and to external materials appear to be operational. Perhaps someday new funding could be secured to permit physicists and professional historians of science to enlarge the site and incorporate recent research on the history of women in physics. **Summing Up:** Recommended. General users; lower-division undergraduates through graduate students.—*A. K. Ackerberg-Hastings, University of Maryland University College*

44-6287 QC20 MARC
Fecko, Marián. **Differential geometry and lie groups for physicists.** Cambridge, 2006. 697p bibl index ISBN 0521845076, $75.00

Advanced books usually get written either when someone (but usually not the "fearless leader") gets tapped to scribe the testament for an emerging subject, or when some professor who has taught an old subject year after year grows irritated with existing books and decides to can his or her own particularities. This volume seems the latter; one even hears the stern professorial voice reading the reader the riot act: Study my 700-page book cover-to-cover and work all 1000 exercises! Among Fecko's particulars, he eschews the mathematical definition-theorem-proof format. Sadly, he has not invented an effective apparatus to replace it and has thus made his book most unsuitable for browsing. Though this book will doubtless find its partisans in the classroom (especially because the author casts most of his exposition in the form of problems for the reader), the author's chosen organization makes it poorly adapted for reference, and the typical student who would learn this subject from a library copy would have to hoard that copy for upwards of a year. With so many good books available already, even books pitched to physicists (by C. Isham, S. Sternberg, and many others), smaller libraries may want to pass this one by. **Summing Up:** Optional. Upper-division undergraduates through professionals.—*D. V. Feldman, University of New Hampshire*

44-6288 QC855 2006-45098 CIP
Intimate universality: local and global themes in the history of weather and climate, ed. by James Rodger Fleming, Vladimir Jankovic, and Deborah R. Coen. Science History Publications, 2006. 264p bibl index afp (Science-history studies on atmospheres, 1) ISBN 0881353671, $39.95

Fleming (Colby College), Jankovic (Univ. of Manchester, UK), and Coen (Columbia Univ.) assert that through the history of meteorology, it is possible to recognize "confrontations with the randomness of material life across cultures, spaces, and epochs," which reveal human efforts to rationalize the personal and geopolitical effects of the weather. Organized chronologically, the volume's eight essays cover the period from the 1700s to the present. First, Jankovic reveals how the Enlightenment's efforts to "engineer the environment" engendered "new forms of discipline [for] the intimate conduct of human bodies." Good and Anderson delineate the connections among imperialist expansion, empirical science, and meteorology. Staley explicates the connection between laboratory experimentation and the domestication of the environment. While Coen provides a genealogy of the decline of meteorology in Vienna, Turner provides an explanation of its rise in the US. Cushman makes connections between neocolonialism and Euro-American meteorology. Finally, Fleming traces the development of the awareness of anthropogenic causes of climate change and the emergence of technocratic policies for "maintaining" the environment. Erudite and well researched, a valuable addition to the growing canon of historical and philosophical studies of science, technology, and society. **Summing Up:** Highly recommended. All levels.—*H. Doss, Malcolm X College, City Colleges of Chicago*

44-6289 QC20 MARC
Kelly, James J. **Graduate mathematical physics: with MATHEMATICA supplements.** Wiley-VCH, 2006. 466p bibl index CD-ROM ISBN 3527406379 pbk, $75.00: ISBN 9783527406371 pbk, $75.00

Kelly has designed this book for typical first-year graduate students in mathematical physics, but it could be used by an advanced undergraduate. He found that current course resources covered too much material or were better suited for undergraduates. The author believes, and this reviewer agrees, that the theory of analytic functions is the most important topic to be covered in this study. Kelly develops this first and bases the rest of the book on it. Chapters are titled "Functions of a Complex Variable," "Integration," "Asymptotic Series," "Generalized Functions," "Integral Transforms," "Analytic Continuation and Dispersion Relations," "Sturm-Liouville Theory," "Legendre and Bessel Functions," "Boundary-value Problems," and "Group Theory." These chapters cover the topics well and include everything one would expect for this area of study. Each chapter has a good range of about 30 associated homework problems. The assumed preparation for using this book easily includes what is part of a typical undergraduate physics program. Kelly has been successful in creating a narrowed and focused book, with an accompanying student CD-ROM with notebook files, selected solutions, and an introduction to Mathematica. **Summing Up:** Recommended. Graduate students.—*E. Kincanon, Gonzaga University*

44-6290 QC174 2006-17029 CIP
Lindley, David. **Uncertainty: Einstein, Heisenberg, Bohr, and the struggle for the soul of science.** Doubleday, 2007. 257p bibl index: ISBN 9780385515061, $26.00

Astrophysicist and popularizer of physics Lindley has discussed aspects of this story in previous books. In this one, he shows that uncertainty did not arise with Heisenberg in the 1920s. Brownian motion, a kinetic theory of heat, and Poincaré's theorem were examples from the 1800s, but none of them at the time seemed to challenge the general understanding of causality. Radioactive decay of elements did challenge general understanding at the empirical level in the early 1900s, but Bohr's first theory of the hydrogen atom in 1913 initiated a theoretical debate on causality that has not been laid to rest and provides the theme of this book. Einstein, a radical on relativity, was conservative on quantum mechanics and never accepted Bohr's and Heisenberg's science as more than an interim report. Lindley brings in interesting personal details about the participants in this struggle, and he skillfully carries along the narrative down to the deaths of the protagonists. In science, Heisenberg's uncertainty principle prevailed. In philosophy, Einstein's discontent had a following that outlived him. Suitable as a course resource in history or philosophy of science. **Summing Up:** Recommended. General readers; lower-division undergraduates through faculty.—*F. N. Egerton, emeritus, University of Wisconsin—Parkside*

44-6291 [Internet Resource]
Physics Hypertextbook
URL: http://hypertextbook.com/physics/

[Visited Apr'07] Glenn Elert, a physics teacher at Midwood High School, part of Brooklyn College, is authoring a Web-based physics textbook. It is a work in progress displaying the disclaimer "under construction." Elert plans seven books with seven chapters per book and seven sections per chapter. The books so far on the site are Mechanics, Matter, Thermal Physics, Waves and Optics, Electricity and Magnetism, and Modern Physics. There are two supplements: Foundations and Problem Sets. Each topical section has or will have a discussion of the conceptual, historical, and mathematical aspects of the topic, a summary of the key concepts, problems to work on, and hyperlinked resources to follow for further information. Some sections are complete, some have no content at all, and many of the topical sections are somewhere in between.

The target audience is anyone interested in learning physics, but knowing calculus is a must for some sections. Many images on the Web site require an SVG (scalable vector graphics) viewer to be installed in one's Web browser, which may deter some readers. Links out to videos from *Learner.org* <http://www.learner.org/> are provided with a "login required" disclaimer.