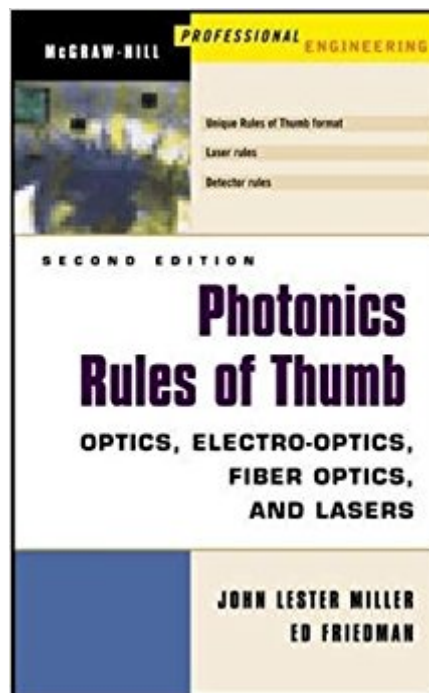




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Photonics Rules Of Thumb: Optics, Electro-Optics, Fiber Optics And Lasers



Synopsis

Here is a handy compilation of 300 cost-saving, think-on-your-feet photonics rules of thumb designed to save you hours of design time and a world of frustration. Within seconds you can accurately gauge the impact of a suggested design change on your project. It is the premiere collection of these valuable rules in a single, quick look-up reference.

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QUICKLY AND EASILY ESTIMATE THE IMPACT OF CHANGE WITH 300 PROVEN PHOTONICS CALCULATIONS! UPDATED WITH 100 COMPLETELY NEW AND IMPROVED RULES AND ORGANIZED INTO 18 CHAPTERS THAT INCLUDE LASERS, DETECTORS, OPTICS OF THE ATMOSPHERE, AND MANY MORE! Here is a handy compilation of 300 cost-saving, think-on-your-feet photonics rules of thumb designed to save you hours of design time and a world of frustration. Within seconds you can accurately gauge the impact of a suggested design change on your project. It is the premiere collection of these valuable rules in a single, quick look-up reference. These simple-to-implement calculations allow you to rapidly pinpoint trouble spots, ask the right questions at meetings, and are perfect for quick sanity checks of last-minute specifications or performance feature additions. Offering a convenient alphabetical arrangement according to specialty, this unique reference spans the entire spectrum of photonics, including: * Eighteen chapters covering optics, electro-optics, optics of the atmosphere, radiometry, technologies related

to security and surveillance systems, lasers, and many others. * If you want to develop a sense of what will work and what won't and want the calculations to keep things real, Photonics Rules of Thumb belongs on your desk or in your pocket.

Ed Friedman earned a B.S. in physics at the University of Mary in 1966 and a Ph.D. in cryogenic physics from Wayne State University in 1972. He started his career in the field of ocean optics and subsequently developed system concepts for remote sensing of the atmosphere and oceans. After completing studies related to the design of spacecraft and instruments for the measurement of the radiation balance of the Earth, he was appointed a visiting scientist in the climate program at the National Center for Atmospheric Research (NCAR). Subsequent employers included The Mitre Corporation, Martin Marietta (where he met the co-author), Ball Aerospace and Technologies Corporation, and the Boeing Company, where he currently serves as a Technical Fellow in the Lasers and Electro-Optics Division. In the last ten years, he has concentrated on the development of mission concepts and technologies for astrophysics and space science. While at Ball, he was Chief Technologist of the Civil Space business unit. Recent areas of interest include the use of space-based interferometers to create detailed maps of stellar positions and the use of coronagraphic methods for detection of planets in distant solar systems. In 2001, he was awarded a patent for a novel method of alignment and phasing of large, deployed Earth-viewing optics. He has been a patent reviewer for the journal Applied Optics and an editor for the journal Optical Engineering. Dr. Friedman has published more than 10 peer-reviewed papers on remote sensing, diffractive beam propagation, and ocean optics. Early in his career, he published a book and approximately ten articles on electronics. While a visiting scientist at NCAR, he published five articles on the role of remote sensing in detecting human influences on climate. He is the coauthor of the two previous editions of this book. Ed recently retired after two seasons as a member of the National Ski Patrol. He and his wife Judith Friedman live in the mountains west of Boulder, Colorado. John Lester Miller earned a B.S. in Physics at the University of Southern California in 1981, participated in physics, math, and engineering graduate studies at Cal State Long Beach and the University of Hawaii, then earned an M.B.A. from Regis University in 1989. He chairs the SPIE session of advanced infrared technology, co-chairs the session on homeland security, and referees papers for several electro-optical journals. He has held positions as Chief Scientist, Director of Advanced Technologies, Program Director, Functional Manager, Lead Engineer, and Electro-Optical Engineer with FLIR Systems (Portland, Oregon), the Research Triangle Institute (Lake Oswego, OR), Martin Marietta/Lockheed Martin (Denver, Colorado; Utica, New York; and

Orlando, Florida), the University of Hawaii's NASA IRTF (Hilo, Hawaii), Rockwell International (Seal Beach, California), Mt. Wilson and Palomar Observatories (Pasadena, California), and Griffith Observatory (Los Angeles, California). While at Martin Marietta in Denver, he met Ed Friedman. He has published more than 40 papers on optical sciences and is the author of Principles of Infrared Technology and the co-author of the two previous editions of this book. John has several patents pending in electro-optical technologies. His experience includes leading integrated research, design, and marketing efforts on advanced security systems, active imagers, infrared sensors, space sensors, helmet-mounted systems, scientific instrumentation, homeland security surveillance systems, radiometric test facilities, aviation enhanced vision systems, and environmental and weather monitoring sensors. John is Vice President of Advanced Technology for FLIR Systems, Inc., in Portland, Oregon. He and his wife, Corinne Foster, split their time between Lake Oswego and Bend, Oregon.

This is a useful and practical work for the practicing EO engineer.

Very good book, with a lots of "short cuts" and good "back of an envelop" estimations. However, high degree of subject understanding is required when practicing these short cuts. So be careful! One topics omitted is that of Microscopy (one entry). There are a lots of Rules of Thumb that can help with resolution, magnification, NA or f/#, field of view, depth of field, depth of focus, working distance, etc. Perhaps these can be added to a subsequent edition of the book.

Easy to use and practical for the engineer and physicist involved in optics projects. Will save you the embarrassment of not knowing the limits of many common optical devices and systems.

Pricey consultants won't like this book! The authors have provided the photonics system design engineer with both knowledge and wisdom. This is a very rare in technical books, it is clearly a labor of love.

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