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Seeing in the Dark - Timothy Ferris 2012-12-18
In Seeing in the Dark, a poetic love letter to science and to the skies, Timothy Ferris invites us all to become stargazers. He recounts his own experiences as an enthralled lifelong amateur astronomer and reports from around the globe -- from England and Italy to the Florida Keys and the Chilean Andes -- on the revolution that's putting millions in touch with the night sky. In addition, Ferris offers an authoritative and engaging report on what's out there to be seen -- what Saturn, the Ring nebula, the Silver Coin galaxy, and the Virgo supercluster really are and how to find them. The appendix includes star charts, observing lists, and a guide on how to get involved in astronomy. Ferris takes us inside a

major revolution sweeping astronomy, as lone amateur astronomers, in global networks linked by the Internet, make important discoveries that are the envy of the professionals. His ability to describe the wonders of the universe is simply magical, and his enthusiasm for his subject is irresistible.

The Radio Sky and How to Observe - Jeff Lashley 2010-11-19

Radio astronomy is far from being beyond the scope of amateurs astronomers, and this practical, self-contained guide for the newcomer to practical radio astronomy is an ideal introduction. This guide is a must for anyone who wants to join the growing ranks of 21st Century backyard radio astronomers. The first

part of the book provides background material and explains (in a non-mathematical way) our present knowledge of the stronger radio sources - those observable by amateurs - including the Sun, Jupiter, Meteors, Galactic and extra-galactic sources. The second part of the book deals not only with observing, but - assuming no prior technical knowledge of electronics or radio theory - takes the reader step-by-step through the process of building and using a backyard radio telescope. There are complete, detailed plans and construction information for a number of amateur radio telescopes, the simplest of which can be put together and working - using only simple tools - in a weekend. For other instruments, there are full details of circuit-board layouts, components to use and (vitaly important in radio astronomy) how to construct antennae for radio astronomy.

The Amateur's Telescope - William F. A. Ellison 1920

First Light and Beyond - D. A. Jenkins

2015-07-28

Amateur astronomers who have been disappointed by the results of an observing session can take comfort in the guidance of this book, which advises how to still gain useful experience in seemingly "failed" nights at the telescope. In a world with imperfect seeing conditions, incredible observing sessions are often mixed with less inspiring ones, discouraging the amateur observer. This book is designed to minimize subsequent disappointment for astronomers who encounter a few bad observing sessions, helping novice observers take something worthwhile away each and every time they go out under the night sky, regardless of the observations that were originally planned. Almost every observer remembers his first sight of ringed Saturn, hanging in the blackness of space. Practitioners agree that there is something special about visual observing. Real-time observations at the

eyepiece can provide fleeting yet intense feelings that connect us with the universe in unique ways. But when expectations aren't met at the eyepiece, there are other ways to profit from the practice of astronomy. These rewards, though less showy, are well worth cultivating. This is a book that will help the reader see what constitutes a “successful” visual observing session. It explains the nature of the objects that the observer is seeing and advises how best to use their equipment. There are many hints and tips about how best to locate, recall, and record observations, including suggestions for trips to areas where there are dark skies and to public observatories. Amateur astronomy is a journey from the urban backyard all the way to dark rural skies, and with this guide the journey can be smooth.

An Introduction to Astronomical Photometry Using CCDs - W. Romanishin

2014-08-08

An Introduction to Astronomical Photometry

Using CCDs By W. Romanishin

Amateur Telescope Making in the Internet Age - Robert L. Clark 2010-10-14

Building an astronomical telescope offers the amateur astronomer an exciting challenge, with the possibility of ending up with a far bigger and better telescope than could have been afforded otherwise. In the past, the starting point has always been the grinding and polishing of at least the primary mirror, a difficult and immensely time-consuming process. But now that the Internet has brought us together in a global village, purchasing off-the-shelf goods such as parabolic mirrors, eyepieces, lenses, and telescope tubes, is possible. There are also a vast number of used mirrors and lenses out there, and it is now possible to track them down almost anywhere in the world. Online stores and auction houses have facilitated commerce regarding all sorts of useful optical components at a reasonable price. This is a book about making telescopes from available parts. It

provides guidance on where to look and what to look for in selecting items useful for telescope making and explains how to assemble these components to produce an excellent instrument on a tight budget. At one time, many amateurs made their own telescopes from home-made parts. In today's rushed world, that has almost become a lost art. The Internet offers a wonderful alternative to either buying a pricey scope fully assembled or making your own from scratch.

The Backyard Astronomer's Guide - Terence Dickinson 2021-09-15

The touchstone for contemporary stargazers. This classic, groundbreaking guide has been the go-to field guide for both beginning and experienced amateur astronomers for nearly 30 years. The fourth edition brings Terence Dickinson and Alan Dyer's invaluable manual completely up-to-date. Setting a new standard for astronomy guides, it will serve as the touchstone for the next generation of stargazers

as well as longtime devotees. Technology and astronomical understanding are evolving at a breathtaking clip, and to reflect the latest information about observing techniques and equipment, this massively revised and expanded edition has been completely rebuilt (an additional 48 pages brings the page count to 416). Illustrated throughout with all-new photographs and star charts, this edition boasts a refreshed design and features five brand-new chapters, including three essential essays on binocular, telescope and Moon tours by renowned astronomy writer Ken Hewitt-White. With new content on naked-eye sky sights, LED lighting technology, WiFi-enabled telescopes and the latest advances in binoculars, telescopes and other astronomical gear, the fourth edition of *The Backyard Astronomer's Guide* is sure to become an indispensable reference for all levels of stargazers. New techniques for observing the Sun, the Moon and solar and lunar eclipses are an especially timely addition, given the

upcoming solar eclipses in 2023 and 2024. Rounding out these impressive offerings are new sections on dark sky reserves, astro-tourism, modern astrophotography and cellphone astrophotography, making this book an enduring must-have guide for anyone looking to improve his or her astronomical viewing experience. The Backyard Astronomer's Guide also features a foreword by Dr. Sara Seager, a Canadian-American astrophysicist and planetary scientist at the Massachusetts Institute of Technology and an internationally recognized expert in the search for exoplanets.

Illustrated Guide to Astronomical Wonders -

Robert Thompson 2007

Offers basic information about astronomy, including its terminology, the best equipment to purchase for stargazing, and images of over one hundred objects to view in the night sky such as star clusters, nebulae, and galaxies.

Celestial Objects for Modern Telescopes -

Michael A. Covington 2002-09-26

Based on field notes made by the author during his own career as an amateur astronomer, this unique guide covers both the traditional and novel approaches to studying the night sky. In addition to the more standard techniques, it discusses the latest modern resources available to today's astronomer, such as personal computers, the Internet, and computerized telescopes. It includes practical advice on aspects such as site selection and weather; provides the reader with detailed instructions for observing the Sun, Moon, planets, and all types of deep-sky objects; and it introduces newer specialities such as satellite observing and the use of astronomical databases. The book concludes with detailed information about 200 stars, clusters, nebulae, and galaxies, suitable for viewing with modest-sized telescopes under suburban conditions. Written to complement How to Use a Computerized Telescope, this book will also appeal to astronomers with more traditional equipment.

Biographical Encyclopedia of Astronomers -

Virginia Trimble 2007-09-18

The Biographical Encyclopedia of Astronomers is a unique and valuable resource for historians and astronomers alike. The two volumes include approximately 1550 biographical sketches on astronomers from antiquity to modern times. It is the collective work of about 400 authors edited by an editorial board of 9 historians and astronomers, and provides additional details on the nature of an entry and some summary statistics on the content of entries. This new reference provides biographical information on astronomers and cosmologists by utilizing contemporary historical scholarship. Individual entries vary from 100 to 1500 words, including the likes of the superluminaries such as Newton and Einstein, as well as lesser-known astronomers like Galileo's acolyte, Mario Guiducci. A comprehensive contributor index helps researchers to identify the authors of important scientific topics and treatises.

New Trends in Astronomy Teaching

International Astronomical Union. Colloquium 1998-10

How do students learn astronomy? How can the World-Wide Web be used to teach? And how do planetariums help with educating the public? These are just some of the timely questions addressed in this stimulating review of new trends in the teaching of astronomy. Based on an international meeting hosted by the University of London and the Open University (IAU Colloquium 162), this volume presents articles by experts from around the world. The proceedings of the first IAU Colloquium (105), *The Teaching of Astronomy*, edited by Percy and Pasachoff, were first published in 1990 and soon became established as the definitive resource for astronomy teachers. Astronomy education has advanced enormously in the intervening 7 years, and this sequel will inspire and encourage teachers of astronomy at all levels and provide them with wealth of ideas and experience on

which to build.

Astro-Imaging Projects for Amateur Astronomers

- Jim Chung 2015-07-09

This is the must-have guide for all amateur astronomers who double as makers, doers, tinkerers, problem-solvers, and inventors. In a world where an amateur astronomy habit can easily run into the many thousands of dollars, it is still possible for practitioners to get high-quality results and equipment on a budget by utilizing DIY techniques. Surprisingly, it's not that hard to modify existing equipment to get new and improved usability from older or outdated technology, creating an end result that can outshine the pricey higher-end tools. All it takes is some elbow grease, a creative and open mind and the help of Chung's hard-won knowledge on building and modifying telescopes and cameras. With this book, it is possible for readers to improve their craft, making their equipment more user friendly. The tools are at hand, and the advice on how to do it is here.

Readers will discover a comprehensive presentation of astronomical projects that any amateur on any budget can replicate - projects that utilize leading edge technology and techniques sure to invigorate the experts and elevate the less experienced. As the "maker" community continues to expand, it has wonderful things to offer amateur astronomers with a willingness to get their hands dirty. Tweaking observing and imaging equipment so that it serves a custom purpose can take your observing options to the next level, while being fun to boot.

CAP2005 Conference Proceedings -

Astrophysical Techniques, Sixth Edition -

C.R. Kitchin 2013-11-18

Long used in undergraduate and introductory graduate courses, *Astrophysical Techniques, Sixth Edition* provides a comprehensive account of the instruments, detectors, and techniques employed in astronomy and astrophysics.

Emphasizing the underlying unity of all astronomical observations, this popular text provides a coherent state-of-the-art account of the instruments and techniques used in current astronomy and astrophysics. As in earlier editions, the author aims to reduce the trend towards fragmentation of astronomical studies. The underlying unity of all of astronomical observation is emphasized by the layout of the book: the pattern of detection → imaging → ancillary techniques has been adopted so that one stage of an observation is encountered together with the similar stages required for all other information carriers. The book is written in a very accessible manner, and most of the mathematics is accessible to those who have attended a mathematics course in their final years at school. Nevertheless, the treatment of the topics in general is at a sufficiently high level to be of use to those professionals seeking technical information in areas of astronomy with which they might not be completely familiar.

Amateur Telescope Making in the Internet Age -
Robert L. Clark 2010-10-26

Building an astronomical telescope offers the amateur astronomer an exciting challenge, with the possibility of ending up with a far bigger and better telescope than could have been afforded otherwise. In the past, the starting point has always been the grinding and polishing of at least the primary mirror, a difficult and immensely time-consuming process. But now that the Internet has brought us together in a global village, purchasing off-the-shelf goods such as parabolic mirrors, eyepieces, lenses, and telescope tubes, is possible. There are also a vast number of used mirrors and lenses out there, and it is now possible to track them down almost anywhere in the world. Online stores and auction houses have facilitated commerce regarding all sorts of useful optical components at a reasonable price. This is a book about making telescopes from available parts. It provides guidance on where to look and what to

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Understanding Foucault - David Harbour

2013-07-22

David A. Harbour presents a brilliant narrative for the Amateur Telescope Maker (ATM), on exactly how the "Foucault Test" for telescope mirrors is interpreted. Through a series of "foundation lessons" Mr. Harbour ensures the ATM understands what the Foucault Test is revealing, and what to do about it as he figures the telescope mirror to achieve the perfect paraboloid. Imagine if the makers of the Hubble Space Telescope had used this book as a guide

to test the HST's primary before launch! The savings would have been in the millions! Well, that may be a stretch, but for the ATM, who has taken on the delightful but challenging task of making his own telescope mirror, how nice it would be to have a guide to ensure success! Success is at hand. Dave Harbour presents a thorough and informative instruction on just how to be sure the mirror is perfect! This book is for the ATM bookshelf to accompany the classics of Porter, Texereau and others.

Monthly Notes of the Astronomical Society of Southern Africa - Astronomical Society of Southern Africa 2007

Turn Left at Ori ØGuy Consolmagno

2000-10-19

A guidebook for beginning amateur astronomers, *Turn Left at Orion* provides all the information you need to observe the Moon, the planets and a whole host of celestial objects. Large format diagrams show these objects

exactly as they appear in a small telescope and for each object there is information on the current state of our astronomical knowledge. Revised and updated, this new edition contains a chapter describing spectacular deep sky objects visible from the southern hemisphere, and tips on observing the upcoming transits of Venus. It also includes a discussion of Dobsonian telescopes, with hints on using personal computers and the internet as aids for planning an observing session. Unlike many guides to the night sky, this book is specifically written for observers using small telescopes. Clear and easy-to-use, this fascinating book will appeal to skywatchers of all ages and backgrounds. No previous knowledge of astronomy is needed.

The Guide to Amateur Astronomy - Jack Newton 1995-01-19

Featuring new chapters on astro-software and CCD-imaging techniques, a book for amateur astronomers covers astrophotography, telescope construction, planetary observing, comet

hunting, variable star recording, and nova discovery, and features both novice and advanced techniques. UP.

A Question and Answer Guide to Astronomy

- Carol Christian 2017-03-23

Contains 250 questions and answers about astronomy, particular for the amateur astronomer.

Care of Astronomical Telescopes and Accessories - M. Barlow Pepin 2006-03-30

Commercially-made astronomical telescopes are better and less expensive than ever before, and their optical and mechanical performance can be superb. When a good-quality telescope fails to perform as well as it might, the reason is quite probably that it needs a little care and attention! Here is a complete guide for anyone who wants to understand more than just the basics of astronomical telescopes and accessories, and how to maintain them in the peak of condition. The latest on safely adjusting, cleaning, and maintaining your equipment is combined with

thoroughly updated methods from the old masters. Here, too, are details of choosing new and used optics and accessories, along with enhancements you can make to extend their versatility and useful lifetime. This book is for you. Really. Looking after an astronomical telescope isn't only for the experts - although there are some things that only an expert should attempt - and every serious amateur astronomer will find invaluable information here, gleaned from Barlow Pepin's many years' experience working with optical instruments.

The Best American Science and Nature Writing 2017 - Hope Jahren 2017

"Undeniably exquisite . . . Reveals not only how science actually happens but also who or what propels its immutable humanity." --Maria Popova
"An excellent introduction to the key issues in science today." --P. D. Smith, Guardian
"A stellar compendium . . . Delightful to read." -- Publishers Weekly, starred review
A renowned scientist and the best-selling author of Lab Girl,

Hope Jahren selects the year's top science and nature writing from writers who balance research with humanity and in the process uncover riveting stories of discovery across disciplines.

Astrophotography for the Amateur - Michael A. Covington 1999-05-03

First published in 1999, this is an expanded and updated edition of the best-selling, standard handbook on astrophotography for amateurs.
Popular Telescopic Astronomy Alfred Fowler 1896

See It with a Small Telescope - Will Kalif 2017-12-26

Have fun exploring the stars with close-up views of space objects right from your own backyard! Take the mystery and struggle out of discovering new worlds. With hands-on tips, tricks, and instructions, this book allows you to unleash the full power of your small telescope and view amazing space objects right from your own

backyard, including: • Saturn's Rings • Jupiter's Moons • Apollo 11's Landing Site • Orion Nebula • Andromeda Galaxy • Polaris Double Star • Pegasus Globular Cluster • and much, much more! "An observation guide, mentor, and historical tour all in one." —Space.com

Yearbook of Astronomy 2022 - Brian Jones
2021-10-30

The Yearbook of Astronomy 2022 is the Diamond Jubilee edition of this iconic publication, the annual appearance of which has been eagerly anticipated by astronomers, both amateur and professional, ever since this invaluable book first appeared in 1962. As the preface to the 1962 edition informed its readers, the post-war years had seen a tremendous growth of interest in astronomy and space research. Doubtless fueled by the dawn of the Space Age, the launch of Sputnik 1 in October 1957 marked a significant change in the course of history. This epoch-making event, coupled with the subsequent flights of Soviet cosmonaut Yuri Gagarin (April

1961) and American astronaut Alan Shepard (May 1961), served to engender a public interest in astronomy and space that has continued to grow and expand to this day. Maintaining its appealing style and presentation, the Yearbook of Astronomy 2022 contains comprehensive jargon-free monthly sky notes and an authoritative set of sky charts to enable backyard astronomers and sky gazers everywhere to plan their viewing of the year's eclipses, comets, meteor showers and minor planets as well as detailing the phases of the Moon and visibility and locations of the planets throughout the year. To supplement all this is a variety of entertaining and informative articles, a feature for which the Yearbook of Astronomy is known. In the 2022 edition, the reader is presented with articles covering a wide range of topics including "A History of the Amateur Astronomical Society: 1962 to 2022"; "Expanding Cosmic Horizons"; "Frank Drake and His Equation"; "Remote Telescopes"; "Skies Over

Ancient America" and others. The Yearbook of Astronomy continues to be essential reading for anyone lured and fascinated by the magic of astronomy. It remains an inspiration to amateur and professional astronomers alike, and warrants a place on the bookshelf of all stargazers and watchers of the Universe.

Amateur Telescope Making - Stephen Tonkin
2012-12-06

This book provides an introduction to the design of a variety of telescopes, mounts, and drives suitable for the home-constructor. Projects include instruments that range from a shoestring budget to specialist devices that are not commercially available. The skill level of each project is indicated and advice is provided as to what is sensible to construct, given what is commercially available. Hints and tips are included, as well as listings of reputable mail order sources of materials and components.

[Choosing and Using a New CAT](#) - Rod Mollise
2009-02-28

Choosing and Using the New CAT will supersede the author's successful Choosing and Using a Schmidt-Cassegrain Telescope, which has enjoyed enthusiastic support from the amateur astronomy community for the past seven years. Since the first book was published, a lot has changed in the technology of amateur astronomy. The sophistication and variety of the telescopes available to amateurs has increased dramatically. Computerized SCTs, Maksutov-Cassegrains, and most recently Meade's new and acclaimed Ritchey-Chrétien have come to dominate the market. That means that all amateurs considering the purchase of a new telescope (not only a SCT, and not just beginners) will benefit from this detailed guide. Choosing the right telescope for particular kinds of observation (or even for general work) is far from easy - but Rod Mollise gives invaluable advice and guidance.

Astronomy with a Budget Telescope - Patrick Moore
2012-03-01

Astronomy with a Budget Telescope, 2nd Edition is a complete introduction to buying and using a low-cost amateur astronomical telescope. It provides essential hints and tips about what to look for when buying on a budget - the best are now excellent value, but they all lack an astronomer's advice about setting them up and using them. Astronomy with a Budget Telescope was first published in 2003, since then technology has moved on substantially. The main factors are first the availability of fairly inexpensive computer-controlled "go-to" telescopes which after setting up can automatically locate any celestial objects with reasonable accuracy. Second, digital cameras have now almost completely displaced "wet" film cameras, and some of them are particularly well-suited to astronomical use. Third, prices are down and quality is up! This new edition is revised and extended to include using a low-cost "go-to" telescope - there are various pitfalls to be avoided - and how this class of instrument can

make amateur astronomy more accessible to those with limited time at their disposal. It also discusses the new breed of mid-range digital cameras that include powerful on-board processing and image enhancement software that used to be available only to people with advanced astronomical CCD cameras. Finally, there are detailed reviews and test reports on some of the budget telescopes that are available on Main Street and by mail order.

Coloring the Universe - Travis Rector
2015-11-15

With a fleet of telescopes in space and giant observatories on the ground, professional astronomers produce hundreds of spectacular images of space every year. These colorful pictures have become infused into popular culture; we find them on billboards, in commercials, and on our computers. But they also invite questions: Is this what outer space really looks like? Are the colors real? How are these images made? "Coloring the Universe"

uses accessible language to describe how these giant telescopes work, what scientists learn with them, and how they are used to make color images. Both informative and beautiful, this book is filled with brilliant images of deep space as well as an insider's perspective by the people who make them."

Keep Watching the Skies! - W. Patrick McCray 2021-08-10

When the Soviets launched Sputnik in 1957, thousands of ordinary people across the globe seized the opportunity to participate in the start of the Space Age. Known as the "Moonwatchers," these largely forgotten citizen-scientists helped professional astronomers by providing critical and otherwise unavailable information about the first satellites. In *Keep Watching the Skies!*, Patrick McCray tells the story of this network of pioneers who, fueled by civic pride and exhilarated by space exploration, took part in the twentieth century's biggest scientific endeavor. Around the world, thousands

of teenagers, homemakers, teachers, amateur astronomers, and other citizens joined Moonwatch teams. Despite their diverse backgrounds and nationalities, they shared a remarkable faith in the transformative power of science--a faith inspired by the Cold War culture in which they lived. Against the backdrop of the space race and technological advancement, ordinary people developed an unprecedented desire to contribute to scientific knowledge and to investigate their place in the cosmos. Using homemade telescopes and other gadgets, Moonwatchers witnessed firsthand the astonishing beginning of the Space Age. In the process, these amateur scientists organized themselves into a worldwide network of satellite spotters that still exists today. Drawing on previously unexamined letters, photos, scrapbooks, and interviews, *Keep Watching the Skies!* recreates a pivotal event from a perspective never before examined--that of ordinary people who leaped at a chance to take

part in the excitement of space exploration.

Asteroids and Dwarf Planets and How to

Observe Them - Roger Dymock 2010-11-01

Dwarf planets (which were formerly called asteroids except for the planet Pluto), and the smaller Solar System bodies still called asteroids today, are making front page news, particularly those that are newly discovered and those that might present a hazard to life on Earth by impacting our planet. In this age of giant telescopes and space probes, these small Solar System bodies have advanced from being tiny points of light to bodies worthy of widespread study. This book describes the dwarf planets and asteroids themselves, their origins, orbits, and composition, and at how amateur astronomers can play a part in their detection, tracking, and imaging. The book is divided into two parts. Part I describes physical properties (including taxonomic types) of dwarf planets and asteroids, how they formed in the early life of the Solar System, and how they evolved to their present

positions, groups, and families. It also covers the properties used to define these small Solar System bodies: magnitude, rotation rates (described by their light-curves), and orbital characteristics. Part II opens with a description of the hardware and software an amateur or practical astronomer needs to observe and also to image asteroids. Then numerous observing techniques are covered in depth. Finally, there are lists of relevant amateur and professional organizations and how to submit your own observations to them.

Astronomy Now - 2008

A History of Optical Telescopes in

Astronomy - Wilson Wall 2018-10-01

This book is uniquely about the relationship between the optical telescope and astronomy as they developed together. It covers the time between the telescope's pivotal invention in the 1600's up to the modern era of space-based telescopes. Over the intervening centuries, there

were huge improvements in the optical resolution of telescopes, along with changes in their positioning and nature of application that forever altered the course of astronomy. For a long time, the field was an exclusive club for self-motivated stargazers who could afford to build their own telescopes. Many of these leisure-time scholars left their mark by virtue of their meticulous observations and record keeping. Although they would now be considered amateurs, these figures and their contributions were pivotal and are covered in this book alongside professionals, for the first time giving a complete picture of the history of telescopic science.

Make Time for the Stars - Antony Cooke

2009-04-09

Many amateur astronomers are short of time. A full-time career usually takes up most waking hours, and often there simply isn't time for leisurely observing. Fortunately, modern technologies such as computer-controlled

telescopes, GPS, north-seeking and level detection, have made telescope set-up much quicker. Today's imaging systems enable astronomers to take excellent astrophotographs without the hours-long exposures. *Make Time for the Stars* explains what to try on a tight schedule, and how to use today's equipment to get the most astronomy out of the least time. This book showcases a wide array of quickly performed astronomical projects, including various novel or new approaches to observing. There are also practical tips for maximizing time at the telescope, extracting optimal performance, quick and efficient set-up, and easily carried out optical maintenance. Significantly, the book features detailed information on alternative imaging techniques with simple and less time-consuming efforts.

Jupiter - Fran Bagenal 2007-03-05

This comprehensive volume authoritatively describes our understanding of the complex and fascinating jovian system. Written by a team of

world experts, it brings together every aspect of the giant planetary system, from the deep interior of Jupiter to the distant tiny satellites and swarms of escaping gas and dust. Chapters present a synthesis of experimental data from the Voyager, Galileo and Cassini missions, from telescopes on the ground and in space, and from theoretical models on the different components that make up the Jupiter system. This book is a valuable introduction for graduate students and an indispensable resource for all researchers in planetary science.

A Grand and Bold Thing - Ann K. Finkbeiner
2010-08-17

LATE IN THE TWENTIETH CENTURY, what had been a fevered pace of discovery in astronomy for many years had slowed. The Hubble Space Telescope continued to produce an astonishing array of images, but the study of the universe was still fractured into domains: measuring the universe's expansion rate, the evolution of galaxies in the early universe, the life and death

of stars, the search for extrasolar planets, the quest to understand the nature of the elusive dark matter. So little was understood, still, about so many of the most fundamental questions, foremost among them: What was the overall structure of the universe? Why had stars formed into galaxies, and galaxies into massive clusters? What was needed, thought visionary astronomer Jim Gunn, recently awarded the National Medal of Science, was a massive survey of the sky, a kind of new map of the universe that would be so rich in detail and cover such a wide swath of space, be so grand and bold, that it would allow astronomers to see the big picture in a whole new way. So was born the Sloan Digital Sky Survey, a remarkable undertaking bringing together hundreds of astronomers and launching a new era of supercharged astronomical discovery, an era of "e-science" that has taken astronomy from the lonely mountaintop observatory to the touch of your fingertips. Critically acclaimed science writer Ann

Finkbeiner tells the inside story of the Sloan and how it is revolutionizing astronomy. The Sloan stitched together images of deep space taken over the course of five years, providing a remarkably detailed, three-dimensional map of a vast territory of the universe, all digitized and downloadable for easy searching on a personal computer, and available not only to professional astronomers but to the public as well. Bringing together for the first time images of many millions of galaxies—including the massive structure known as the Sloan Great Wall of galaxies, never seen before—the Sloan is allowing astronomers and armchair enthusiasts alike to watch the universe grow up, providing so many discoveries at such a fast pace that, as one astronomer said, it's like drinking out of a fire hose. They are watching galaxies forming and galaxies merging with other galaxies, seeing streams of stars swirling out from galaxies, and forming a new understanding of how the smooth soup of matter that emerged from the Big Bang

evolved into the universe as we know it. Ann Finkbeiner brings the excitement and the extraordinary potential of this new era of astronomy vividly to life and allows all readers to understand how they, too, can become part of the discovery process. A Grand and Bold Thing is vital reading for all.

Classic Telescopes Neil English 2012-08-30
Classic telescopes are of interest to amateur astronomers for a variety of reasons. There are the dedicated collectors, but there are also many amateurs who love the nostalgia they inspire. These telescopes "feel" different from any contemporary telescope and perhaps have a unique ability to reconnect the owner to a bygone age of craftsmanship. This book takes a look at traditional telescopes built by the great instrument makers of the 18th and 19th centuries, particularly the dynastic telescope makers, including Dollond, Alvan Clark, Thomas Cooke & Sons, and Carl Zeiss. Also included are lesser luminaries such as John Brashear, John

Calver, William Wray, Henry Fitz, and William Henry Mogey. 'Classic Telescopes' covers the key features of the telescopes designed by these manufacturers, and shows how a heady combination of market trends, instrument condition, and pedigree will dictate their prices at auction. 'Classic Telescopes' also shows the reader how to find real bargains! Interviews with top classic telescope collectors (and users) provide the best tips of prospecting for a genuine acquisition.

The Silicon Web - Michael G. Raymer
2009-06-23

The technology behind computers, fiber optics, and networks did not originate in the minds of engineers attempting to build an Internet. The Internet is a culmination of intellectual work by thousands of minds spanning hundreds of years. We have built concept upon concept and technology upon technology to arrive at where we are today, in a world constructed of silicon pathways and controlled by silicon processors.

From computers to optical communications, *The Silicon Web: Physics for the Internet Age* explores the core principles of physics that underlie those technologies that continue to revolutionize our everyday lives. Designed for the nonscientist, this text requires no higher math or prior experience with physics. It starts with an introduction to physics, silicon, and the Internet and then details the basic physics principles at the core of the information technology revolution. A third part examines the quantum era, with in-depth discussion of digital memory and computers. The final part moves onto the Internet era, covering lasers, optical fibers, light amplification, and fiber-optic and wireless communication technologies. The relation between technology and daily life is so intertwined that it is impossible to fully understand modern human experience without having at least a basic understanding of the concepts and history behind modern technology, which continues to become more prevalent as

well as more ubiquitous. Going beyond the technical, the book also looks at ways in which science has changed the course of history. It clarifies common misconceptions while offering insight on the social impacts of science with an emphasis on information technology. As a pioneering researcher in quantum mechanics of light, author Michael Raymer has made his own significant contributions to contemporary communications technology

Astronomy for Older Eyes James L. Chen

2017-03-15

This book is for the aging amateur astronomy population, including newcomers to astronomy in their retirement and hobbyists who loved peering through a telescope as a child. Whether a novice or an experienced observer, the practice of astronomy differs over the years. This guide will extend the enjoyment of astronomy well into the Golden Years by addressing topics such as eye and overall health issues,

recommendations on telescope equipment, and astronomy-related social activities especially suited for seniors. Many Baby-Boomers reaching retirement age are seeking new activities, and amateur astronomy is a perfect fit as a leisure time activity. Established backyard astronomers who began their love of astronomy in their youth, meanwhile, may face many physical and mental challenges in continuing their lifelong hobby as they age beyond their 55th birthdays. That perfect telescope purchased when they were thirty years old now suddenly at sixty years old feels like an immovable object in the living room. The 20/20 eyesight has given way to reading glasses or bifocals. Treasured eyepieces feel all wrong. Growing old is a natural process of life, but astronomy is timeless. With a little knowledge and some lifestyle adjustments, older astronomers can still enjoy backyard observing well into their seventies, eighties and even into their nineties.