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Autore	Rector Travis A (Travis Arthur)
Titolo	Coloring the Universe : An Insider's Look at Making Spectacular Images of Space // Dr. Travis A. Rector, Kimberly Arcand, and Megan Watzke
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Descrizione fisica	1 online resource (265 p.)
Altri autori (Persone)	WatzkeMegan K ArcandKimberly K
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Formato	Materiale a stampa
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Foreword / by David Malin -- Preface -- Human versus telescope : comparing telescopic vision with human vision. Seeing is believing ; Three things a telescope does -- This is not a selfie : how telescopes and their cameras work. How a "visible-light" telescope works ; Starlight, camera, action! ; Calibrating the camera -- Coloring the universe : broadband images, and how we use color. Show your true colors ; Making color in photography ; Putting color into astronomical images ; Broadband filters -- Color is knowledge : what scientists learn from color with broadband filters. Stars in living color ; Diamonds and dust ; The colors of galaxies -- A brief history of astronomical images : the history of how (and why) images are made. The era of photographic plates ; Astronomy for everyone ; The rise of the electronic camera ; The year that was 1994 ; Onward to the future ; The time is now -- The marvel of hydrogen : the most important element and how we see it. Element number one ; The birth of stars ; Jets from forming stars ; Choosing the colors -- Seeing red : how we see color, and how we use it. How our eyes see color ; Interpretation of color ; Perception of temperature ; Here and far ; Not paint by numbers -- Narrowband imaging : addition by subtraction. The spaces between the notes ; Give me oxygen ; When a star hits empty ; Fifty shades of red ; The "hubble palette" and beyond ; Big stars go bang -- A night in the life : observing with the world's largest telescopes. These are professional

grade ; Reservations required? ; Working dusk till dawn ; Remote control -- Outside the rainbow : the electromagnetic spectrum, different kinds of light. The electromagnetic spectrum ; Radio, radio ; Microwaves : more than the oven ; Infrared : can you feel the heat? ; Visible : the tiny slice you can see ; Ultraviolet : light my way ; X-rays : beyond the dentist's office ; Gamma rays : light to the extreme ; The visible made visible -- Photoshopping the universe : what do astronomers do? What do astronomers not do? From data to an image ; Enter photoshop ; Cleaning the image ; What not to do -- The aesthetics of astrophysics : principles of composition applied to the universe. The sharpness of an image ; Color contrasts ; The composition of an image ; Structure and detail ; The natural and supernatural ; Anatomy of an image : breakdown of the pillars of creation ; Scientific and beautiful -- Epilogue: Seeing the eye (and hand) of god : pareidolia, or seeing faces/objects in astronomical imagery.

Sommario/riassunto

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 and can found everywhere, from advertising to television shows to memes. But they also invite questions: Is this what outer space really looks like? Are the colors real? And how do these images get from the stars to our screens? 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. It talks about how otherwise un-seeable rays, such as radio waves, infrared light, X-rays, and gamma rays, are turned into recognizable colors. And it is filled with fantastic images taken in far-away pockets of the universe. Informative and beautiful, Coloring the Universe will give space fans of all levels an insider's look at how scientists bring deep space into brilliant focus.
