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Titolo	Radio Telescope Reflectors [[electronic resource]] : Historical Development of Design and Construction / / by Jacob W.M. Baars, Hans J Kärcher
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Descrizione fisica	1 online resource (XIV, 275 p. 194 illus., 146 illus. in color.)
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Disciplina	520
Soggetti	Observations, Astronomical Astronomy—Observations Microwaves Optical engineering Lasers Photonics Technology—History History Astronomy, Observations and Techniques Microwaves, RF and Optical Engineering Optics, Lasers, Photonics, Optical Devices History of Technology History of Science
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Introduction -- Evolution of the Telescope -- Birth of Radio Astronomy -- Structural Design of Reflector Antennas - Homology -- Emergence of Millimeter-wavelength Telescopes -- Submillimeter-wavelength Telescopes -- Alternative Reflector Geometries -- Electromagnetic Aspects of the Reflector Antenna -- Design and Optimization methods -- Verification - Surface and Pointing Measurement methods -- Realization.
Sommario/riassunto	This book demonstrates how progress in radio astronomy is intimately

linked to the development of reflector antennas of increasing size and precision. The authors describe the design and construction of major radio telescopes as those in Dwingeloo, Jodrell Bank, Parkes, Effelsberg and Green Bank since 1950 up to the present as well as millimeter wavelength telescopes as the 30m MRT of IRAM in Spain, the 50m LMT in Mexico and the ALMA submillimeter instrument. The advances in methods of structural design and coping with environmental influences (wind, temperature, gravity) as well as application of new materials are explained in a non-mathematical, descriptive and graphical way along with the story of the telescopes. Emphasis is placed on the interplay between astronomical and electromagnetic requirements and structural, mechanical and control solutions. A chapter on management aspects of large telescope projects closes the book. The authors address a readership with interest in the progress of engineering solutions applied to the development of radio telescope reflectors and ground station antennas for satellite communication and space research. The book will also be of interest to historians of science and engineering with an inclination to astronomy.