

1. Record Nr.	UNINA9910139614603321
Autore	De Grijis Richard <1969->
Titolo	An introduction to distance measurement in astronomy [[electronic resource] /] / Richard de Grijis
Pubbl/distr/stampa	Chichester, West Sussex ; ; Hoboken, N.J., : John Wiley & Sons, 2011
ISBN	1-119-97980-3 1-283-20454-1 9786613204547 1-118-30307-5 1-119-97817-3 1-119-97818-1
Descrizione fisica	1 online resource (327 p.)
Disciplina	522/.87
Soggetti	Cosmological distances - Measurement Astronomy - Methodology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	<p>           ""An Introduction to Distance Measurement in Astronomy"";            ""Contents""; ""Preface""; ""1 The Importance of Astrophysical Distance Measurements""; ""1.1 The Distance to the Galactic Centre""; ""1.1.1 Early Determinations of R0""; ""1.1.2 Modern Results""; ""1.2 The Distance to the Large Magellanic Cloud""; ""1.3 Benchmarks Beyond the Magellanic Clouds: the 3D Universe on Large(r) Scales""; ""Bibliography""; ""2 The Solar Neighbourhood""; ""2.1 Geometric Parallax Measurements""; ""2.1.1 Trigonometric Parallax""; ""2.1.2 Astrometric Advances: Space-Based Missions and Interferometry""; ""2.1.3 Secular and Statistical Parallaxes: Moving Groups Method""; ""2.2 Dynamical Parallax""; ""2.2.1 Mass and Luminosity Relations""; ""2.3 Spectroscopic and Photometric Parallaxes""; ""Bibliography""; ""3 From the Milky Way to the Local Group""; ""3.1 Basic Stellar Physics as the Key to Understanding Distance Measurements to Local Group Galaxies""; ""3.1.1 Stellar Evolution Through the Hertzsprung-Russell Diagram""; ""3.1.2 From Two to Multiple Stellar Populations""; ""3.2 Open and Globular Cluster Hertzsprung-Russell Diagrams""; ""3.2.1 Main-         </p>

## Sequence and Subdwarf Fitting

3.2.2 Red Clump Stars; 3.2.3 The (Zero-Age) Horizontal Branch Level; 3.3 Giants and Supergiants as Standard Candles; 3.3.1 The Tip of the Red Giant Branch; 3.3.2 The Red Giant Branch Bump; 3.3.3 Supergiants as Standard Candles; 3.4 White Dwarf Sequences; 3.5 Periodic Density Relations; 3.5.1 The Baade-Wesselink Method; 3.5.2 Classical Cepheid Variables; 3.5.3 Mira Variables; 3.5.4 W Virginis and Other Population II Cepheids; 3.5.5 RR Lyrae Stars; 3.5.6 Dwarf and Anomalous Cepheids; 3.6 Novae as Standard Candles; 3.7 Geometric Methods; 3.7.1 Planetary Nebula Expansion Parallaxes; 3.7.2 Supernova Light Echoes; 3.7.3 Eclipsing Binary Stars; 3.7.4 Maser-Based Distance Determinations; 3.8 Pulsars: Distance Measurements Outside the Classical Wavelength Range; Bibliography; 4 Reaching Virgo Cluster Distances and Beyond; 4.1 The Hubble Space Telescope Key Project; 4.2 Surface Brightness Fluctuations; 4.3 The Globular Cluster Luminosity Function; 4.3.1 Elliptical Versus Spiral Galaxy GCLFs; 4.3.2 The Stellar Population Mix; 4.3.3 GCLF and GCMF Universality Through Dynamical Evolution; 4.4 The Planetary Nebulae Luminosity Function; 4.4.1 Applicability; 4.4.2 Physical Basis; 4.5 The Tully-Fisher Relation; 4.5.1 Wavelength Dependence; 4.5.2 The Scatter in the Tully-Fisher Relation; 4.6 Distance Indicators Specific to Elliptical Galaxies; 4.7 The Colour-Magnitude Relation; 4.8 HII Regions as Distance Indicators; Bibliography; 5 From Nearby Galaxy Clusters to Cosmological Distances; 5.1 Cosmological Redshifts; 5.1.1 Determination of the Current Expansion Rate of the Universe

### Sommario/riassunto

Distance determination is an essential technique in astronomy, and is briefly covered in most textbooks on astrophysics and cosmology. It is rarely covered as a coherent topic in its own right. When it is discussed the approach is frequently very dry, splitting the teaching into, for example, stars, galaxies and cosmologies, and as a consequence, books lack depth and are rarely comprehensive. Adopting a unique and engaging approach to the subject *An Introduction to distance Measurement in Astronomy* will take the reader on a journey from the solar neighbourhood to the edge of the Universe, dis