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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-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