Asteroseismology

DOWNLOAD HERE

1 Introducing Asteroseismology.- 1.1 Introduction.- 1.2 1-D Oscillations.- 1.3 2-D Oscillations in a Drum Head.- 1.4 3-D Oscillations in Stars.- 1.5 An Asteroseismic HR Diagram for p-Mode Pulsators.- 1.6 A Pulsation HR Diagram.- 2 Stellar Oscillations across the Hertzsprung-Russell Diagram.- 2.1 Stellar Evolution in a Nutshell.- 2.2 Variability Studies from Large-Scale Surveys.- 2.3 Oscillations Near the Main Sequence.- 2.4 Oscillations in Pre-Main-Sequence Stars.- 2.5 Pulsations in Evolved Stars with M 9M.- 2.6 Pulsations in Evolved Stars with M 9M.- 2.7 Compact Oscillators.- 2.8 Pulsations in Binaries.- 2.9 Conclusions.- 3 Theory of Stellar Oscillations.- 3.1 General Hydrodynamics.- 3.2 Equilibrium Stellar Structure.- 3.3 Equations of Linear Stellar Oscillations.- 3.4 Asymptotic Theory of Stellar Oscillations.- 3.5 Computed Properties of Modes of Oscillation.- 3.6 Variational Properties of Stellar Adiabatic Oscillations.- 3.7 Driving Mechanisms.- 3.8 Effects of Rotation.- 4 Observational Techniques.- 4.1 Duty Cycle.- 4.2 Time.- 4.3 Photometry.- 4.4 Spectroscopy.- 5 Frequency Analysis.- 5.1 Harmonic Analysis by Least Squares.- 5.2 Non-parametric Frequency Analysis Methods.- 5.3 Parametric Frequency Analysis Methods.- 5.4 Significance Criteria.- 5.5 Error Estimation of the Derived Frequencies.- 5.6 The use of Weights in Merging different Data Sets.- 5.7 Damped Oscillations.- 5.8 Eliminating Aliases.- 5.9 Conclusions.- 6 ModeIdentification.- 6.1 Mode Identification from Multicolour Photometry.- 6.2 Mode Identification from High-Resolution Spectroscopy.- 6.3 Mode Identification from Combined Photometry and Spectroscopy.- 6.4 Towards Mode Identification from Combined Interferometry and Spectroscopy?.- 6.5 Towards Mode Identification from Eclipse Mapping?.- 7 Applications of Asteroseismology.- 7.1 Helioseismology.- 7.2 Solar-Like Pulsators.- 7.3 Heat Driven Main Sequence Stars.- 7.4 Compact Pulsators.- 8 The Future.- 8.1 Space Missions.- 8.2 Ground-Based Networks and Antarctica.- A Summary of the Different Classes of Stellar Pulsators.- B Properties of Legendre Functions and Spherical Harmonics.- C Mathematical Preliminaries.- D Adiabatic Oscillations in an Isothermal Atmosphere.- E Asymptotic Theory of Stellar Oscillations.- Bibliography.- Subject Index.- Object Index.- Acronym Definition Index. EAN/ISBN : 9781402058035 Publisher(s): Springer Netherlands, Springer, Berlin Format: ePub/PDF Author(s): Aerts, C. - Christensen-Dalsgaard, J. - Kurtz, D. W.

Similar manuals:

Asteroseismology