



Contribution ID: 522

Type: Poster Presentation

Astereoseismology of Beta Cepheid Stars using multicolor photometry: Mode Identification.

Wednesday, 10 July 2013 17:40 (1 hour)

Abstract content
 (Max 300 words)

The thesis involves the study of young population B type Cepheid variable stars using seismic waves to study their oscillation modes. The goal is to identify the modes associated with the frequencies over the ranges of the quantum numbers n and l so that deductions can be made about the internal structure and composition of the star. For the Cepheids there are two types of pulsation modes p , or pressure modes, and g , or gravity modes, each of which penetrate to different depths in the star thus probe conditions in the outer and inner parts of the star. Time series data collected from observations at Sutherland will be Fourier analyzed and modes identified from the frequency peaks in the spectrum. In the theoretical model, the amplitude ratios are calculated for different values of the degree l of the spherical harmonic and wavelength and the computed values then compared with amplitude ratios obtained from observational measurements at the same wavelengths. The theoretical model includes information about metallicity, temperature, density, pressure and the known atmospheric parameters with regards to the hypothetical Cepheid star. Once the theoretical amplitudes are matched with the observational amplitudes, within a certain error bar, then the mode l can be identified. My goals will be to analyze the observed pulsations in certain Cepheid stars to obtain information about their physical parameters such as size and evolutionary state.

Apply to be
 considered for a student
 award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
 PhD)?

MSc

Main supervisor (name and email)
and his / her institution

Professor Medupe

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

Yes

Primary author: Mr KEELEY, LLOYD (NORTH WEST UNIVERSITY)

Presenter: Mr KEELEY, LLOYD (NORTH WEST UNIVERSITY)

Session Classification: Poster2

Track Classification: Track D1 - Astrophysics