Eclipsing Binary Properties

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Introduction

Binary Stars: Systems with two stars that revolve around a common centre of mass

Eclipsing Binaries: Those systems where periodically, one of the two stars passes in front of the other(from our perspective).

Why Eclipsing Binaries?

- Insight into properties of stars:
  - How big, How hot, How far
- The structure of the galaxy: Distance measurements to these, helps map the galaxy

What was the project about?

- Method to determine physical
- Properties(temperature, distance, size from
- observational data
- Classify Star-types

Method

- **Brightness Measurements in 5 wavelengths**
- **Find Temperatures from these Measurements by fitting black-body curve**
- **Find distances and actual brightness's**
- **Classify stars**

Results and Discussion

Eclipsing Binary Plot

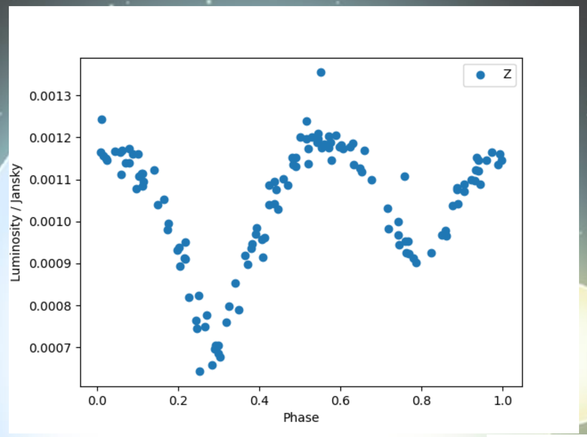
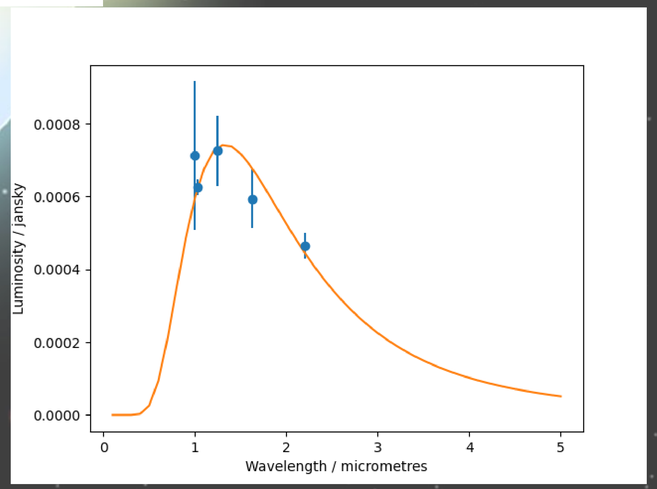


Figure 1: Data

Two dips seen:
One larger, one smaller, short constant part between(non-eclipsing)



Black-body curve fitted to the star above. This can be used to Determine Temperature and other physical properties
Data used had limitation:
Only infrared.
Same method can be used with optical data for further study

Conclusions

- Described a method for determining various physical properties of stars in an eclipsing binary system.
- Encountered the issue of limitations of only using infrared data.
- Better results can be obtained by using optical data too.

References

Background image:
https://www.news.ucsb.edu/file/3927/download?token=5b43ABw8

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