

Abstract

This research aimed to compare the Hydrogen to Helium ratio of the main sequence stars in every spectral type. In this research, the Planewave CDK700 telescope at Nakhon Ratchasima observatory was used to observe and capture the spectrum photographs along with the ISIS software to create the spectrum lines. From the observation data, the ratio and the metallic element's absorption intensity of each star were later compared with each other. Type A star has the highest ratio of Hydrogen to Helium and the metallic elements absorption intensity.

Introduction

Stars are formed from large clouds of gas and dust. The gravity of the gas and dust in the clouds causes them to slowly shrink and collapse. There are seven main types of stars which include type O, B, A, F, G, K, and M. Stars are also divided by their Luminosity classes.

Material and methods

Firstly, the main sequence star photographs were taken with the Planewave CDK700 telescope at Regional Observatory for the Public, Nakhon Ratchasima. Secondly, Tungsten and Thorium Argon photographs were taken and used as a navigation line for the spectrum analysis, and the ISIS software was used to calibrate in the analysis. Third, the spectrum lines were made by the calibrated pictures in the ISIS software. Next, find the absorption point for each element in the possible wavelength that we can observe and find the intensity in every star and compare the results with other stars. Finally, find the ratio of Hydrogen to Helium of stars in every spectral type and observe the metallic elements.

Result and Discussion

After finding the ratio of Hydrogen to Helium and the metallic elements, the data were compared to find the difference for each spectral type. Figure 1 shows the ratio of Hydrogen Gamma to Helium which the black graphs are indicating the binary star systems. Moreover, after finding the metallic elements absorption intensity, Type O and B cannot observe Iron and Magnesium and Type A star got the highest metallic elements absorption intensity in all of the spectral types.

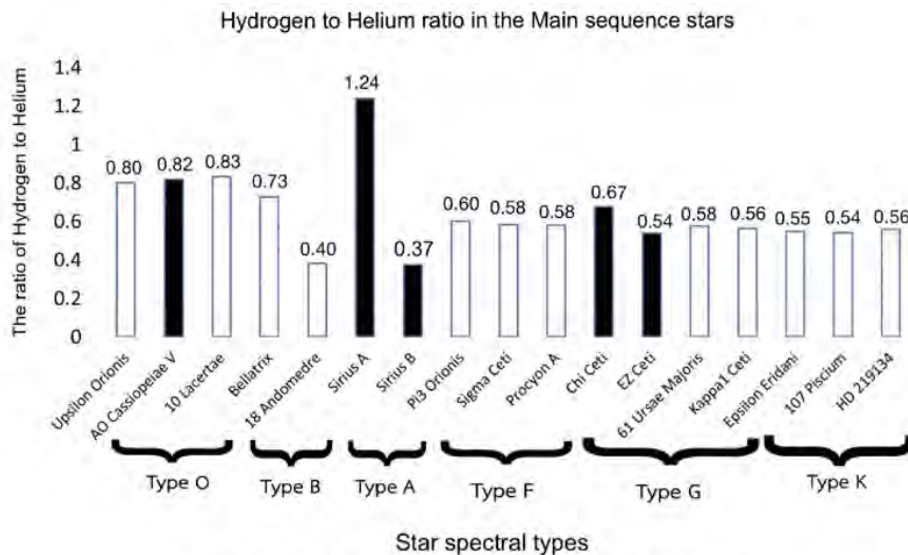


Figure 1. Shows Hydrogen to Helium ratio in every Spectral types

Conclusion

From this spectrum project, every spectral type in the main sequence can be observed except for type M which the instrument does not have the resolution to observe this spectral type star. The ratio of Hydrogen to Helium depends on the star spectral types however there are exceptions for several stars such as AO Cassiopeiae V, Sirius, 18 Andromedre, and Chi Ceti. For other normal Main Sequence stars the ratio of Hydrogen and Helium, Type A star has the highest ratio of Hydrogen to Helium ratio followed by Type O, B, F, G, and K however Sirius B is a white dwarf star which result in the lowest ratio in all of the other stars. Metallic elements that can be observed in every spectral type is Sodium, however, Magnesium and Iron can only be observed in type A, F, G, and K which Type A got the highest absorption intensity followed by type F, G, and K

Acknowledgement

I would like to thank my advisor Mr. Sarawut Pudmale and two two NARIT staffs who helped me improve and develop this project since the start of this project.

References

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