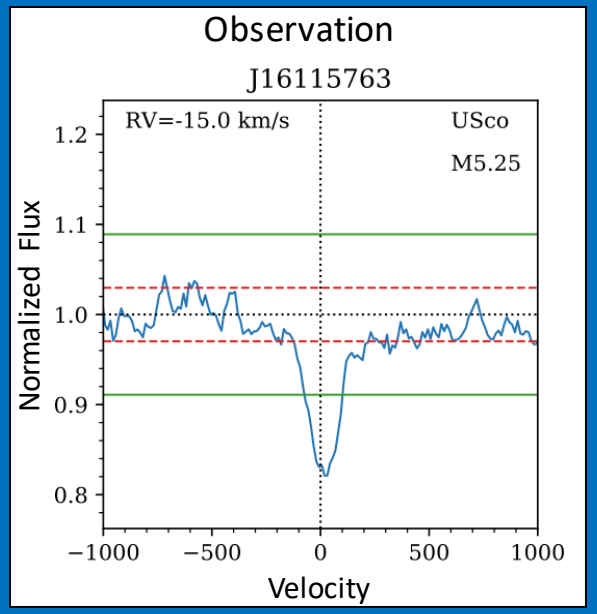
T-ReX T Tauri Ionisation **Re**gion from **X**-Ray

T. Thanathibodee (1), J. Hammill (2)
(1) University of Michigan, (2) Embry-Riddle Aeronautical University

Model

Observation

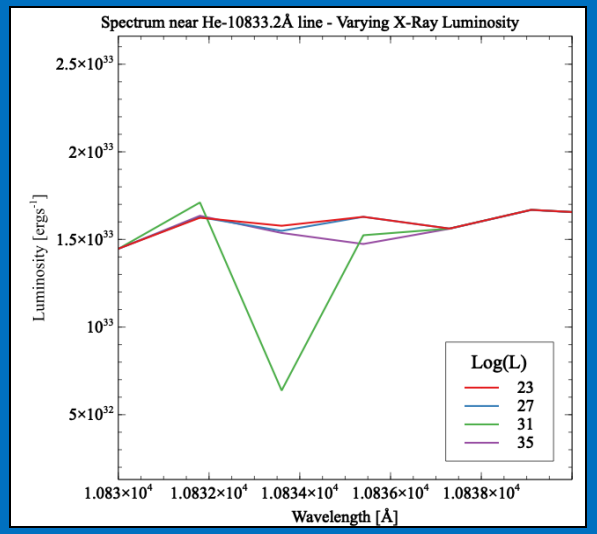


Background

T Tauri stars are young, low-mass, pre-main sequence stars. Their systems include a disk of material that accretes onto the star along stellar magnetic field lines and that may eventually form planets. An x-ray producing shock region is found where the flow meet the photosphere. This emission is necessary to populate the levels of He I to produce the 10833 line.

Methods

By varying parameters of the system we hope to find what configurations produce absorption and emission in the observed Helium 10833Å line. The parameters checked include hydrogen density, x-ray luminosity, cloud thickness, and cloud geometry.



Conclusions

The He absorption line appears at increasing strength when hydrogen density increases. It is likely in this scenario that the Helium is being excited by increased collisions which would not need to produce the recombination emission seen due to photoionisation.

We were not thus far able to produce a strong emission line in the strong member of the multiplet. Some emission can be seen in weaker lines of this triplet, however the factor(s) determining the expression of the Helium line as emission or absorption have not been satisfactorily determined.