

Nuclear Lunch: October 17, 2018

Reaction rate for carbon burning in massive stars

Presenter: Irin Sultana

Moderator: Shiv Subedi

Questions:

1. How massive are the stars where carbon burning typically occurs? **(Matt)**
2. What is the point of using the astrophysical S factor instead of the cross section? **(Cole)**
3. Will the sun ever undergo carbon burning? **(Utsav)**
4. How does the coincidence measurement minimize the background? **(Mamun)**
5. In figure 4. of paper, could the hindrance model produce a higher low-energy S factor if data below $E_{cm} = 2.5$ MeV were included? **(Kaelyn)**
6. What is the limiting factor for performing lower E_{cm} measurements? **(Yenuel)**
7. In figure 4. of paper, they have fitted only the hindrance model with data. Could any other model have better agreement with data if they had fitted those models as well with the data points? **(Ibrahim)**
8. Why the word 'hindrance' in the hindrance model? How does it differ from sudden and standard cc models? **(Kristyn)**
9. For the fit parameters (σ_s , E_s , A_0 and B_0) in equation 1 of paper, do they use the same fit parameters for every fit in figure 5? **(Abinash)**
10. What are the free parameters to the other models (Sudden and Standard CC)? **(Bishnu)**
11. How many γ -rays does someone need to be exposed to until he becomes the Hulk?
(Group discussion)