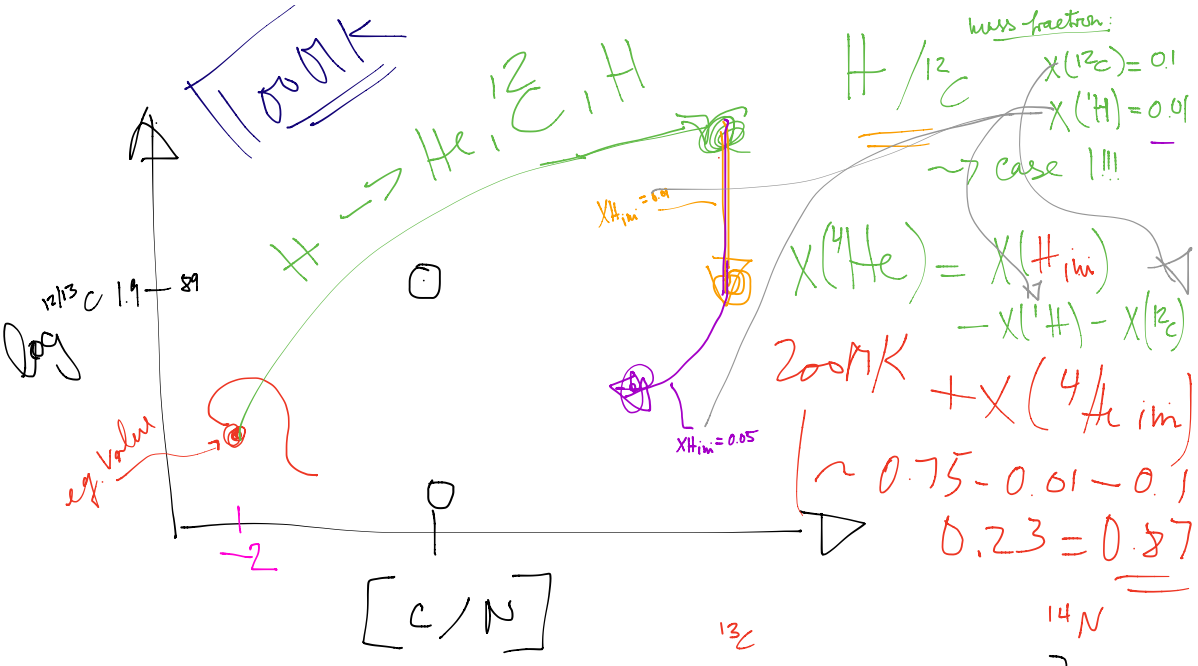


$$^{12}C: \quad X + H \to A \qquad , \qquad ^{13}C: \quad Y + H \to Z$$

$$^{14}N$$

$$\frac{dY}{dt} = \langle \sigma v \rangle_1 \, X \cdot H - \langle \sigma v \rangle_2 \, Y \cdot H$$

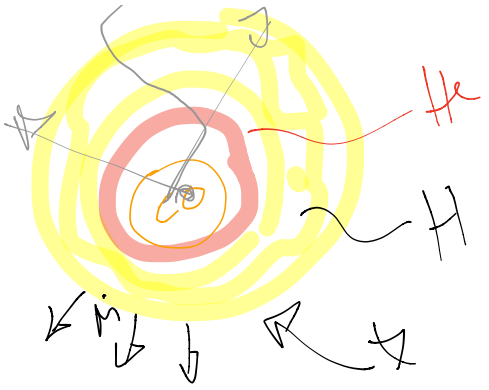
$^{12}C + p \to {}^{13}C$, Production from

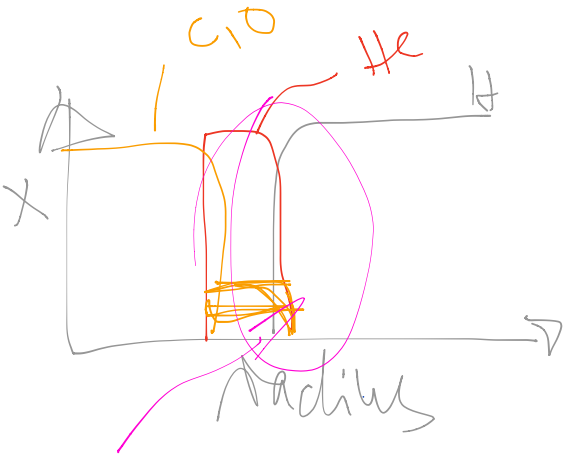
$^{13}C + p \to {}^{14}N$

equilibrium $\quad \frac{dy}{dt} = 0$

$$\langle \sigma v \rangle_x \, X \cdot H = \langle \sigma v \rangle_y \, Y \cdot H$$

$$\frac{\langle \sigma v \rangle_x}{\langle \sigma v \rangle_y} = \frac{Y}{X}$$





H/12C - mixing

Case 1: H into He-shell ⇝ H/12C ≪ 0.1

Case 2: 12C into H-rich envelope ⇝ H/12C ≫ 0.1

intense γ (mode fraction)

Mixing of H with 12C