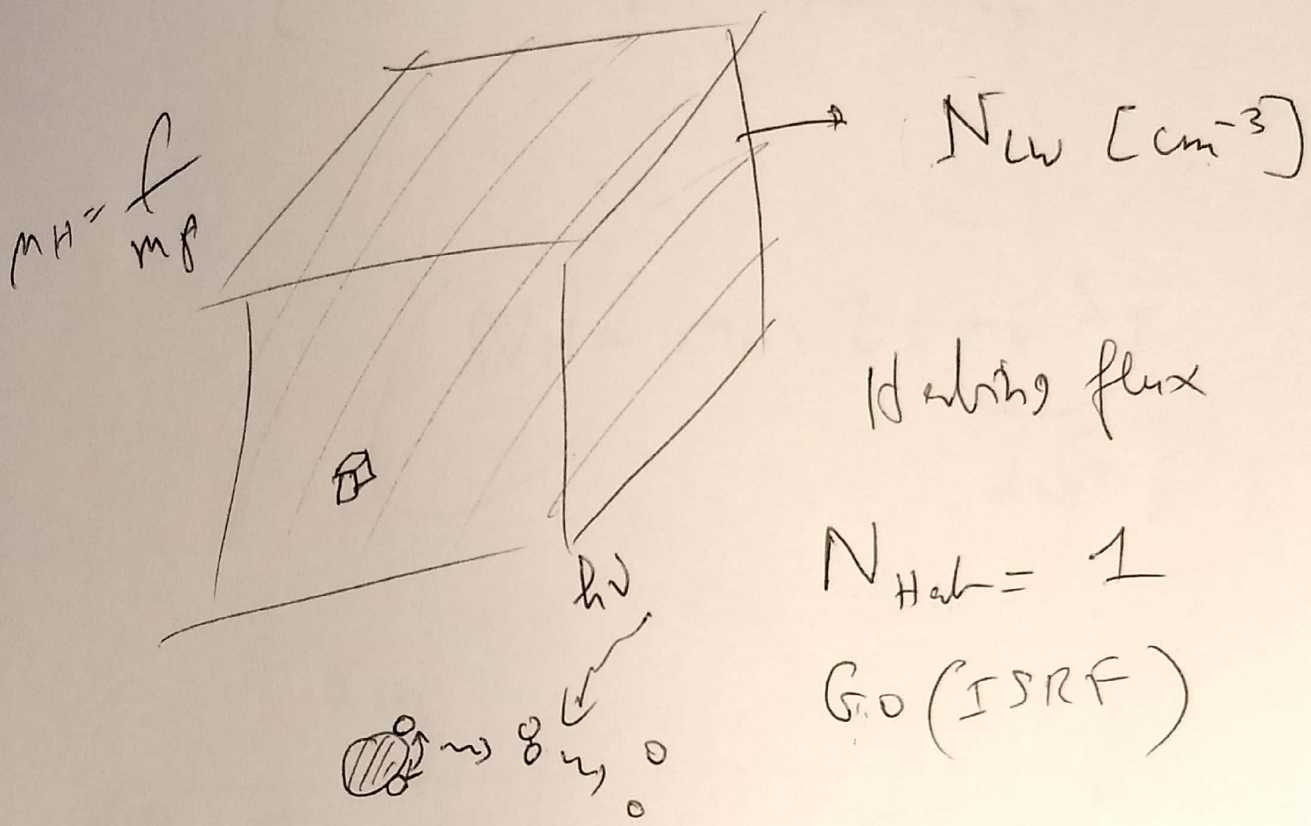
→ Tike's model for

H_2 and CO formation



Incoming flux

$N_{Habs} = 1$

G_0 (ISRF)

~~OLHC~~

$$\frac{dn_{H_2}}{dt} = n_H \mathcal{Z} n_{HI} - \sigma_d n_{H_2} n_{LW} - \tau$$

$$n_{LW} = (n_0) e$$

$$\tau = \sigma_{H_2} n_{H_2} \mathcal{Z}$$

$$\tau = \sigma_{H_2} N_{H_2}$$

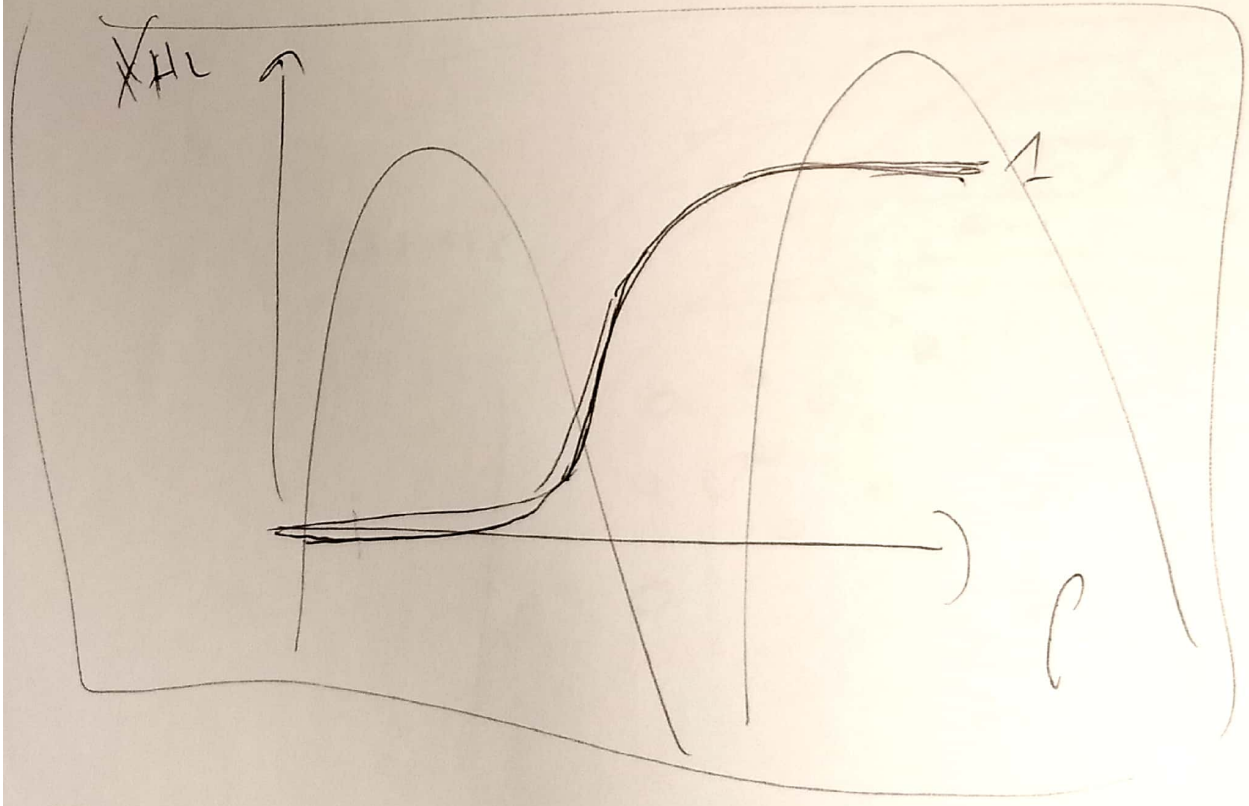
(cm^2) [cm^{-2}]

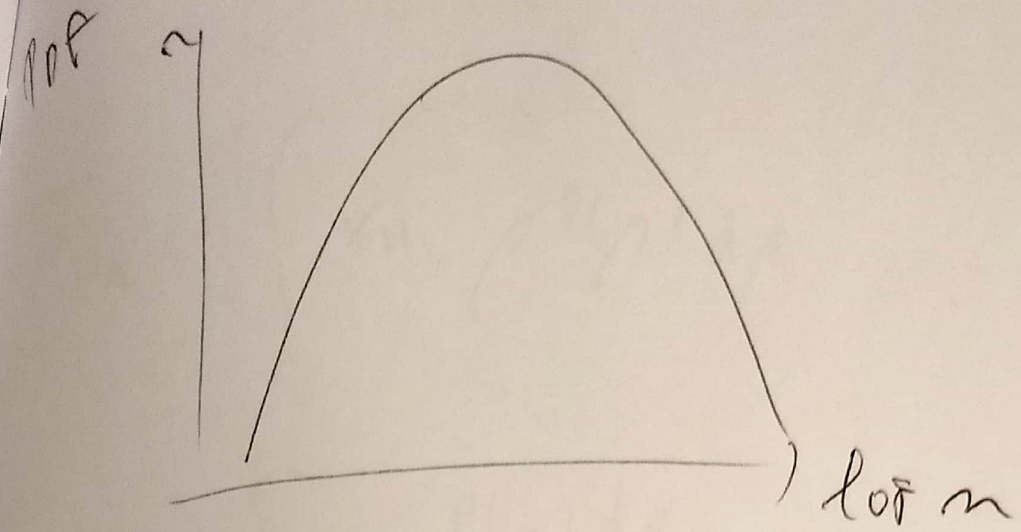
$$\rho \hookrightarrow \lambda_J = \frac{a}{\sqrt{6\rho}}$$

$$\tau = \sigma_{HL}\, n_{HL}\, \lambda_J$$

$$N_H = n_H \cdot \tau = \underbrace{n_H \lambda_J}_{\propto \sqrt{\rho}}$$

X_{HL}

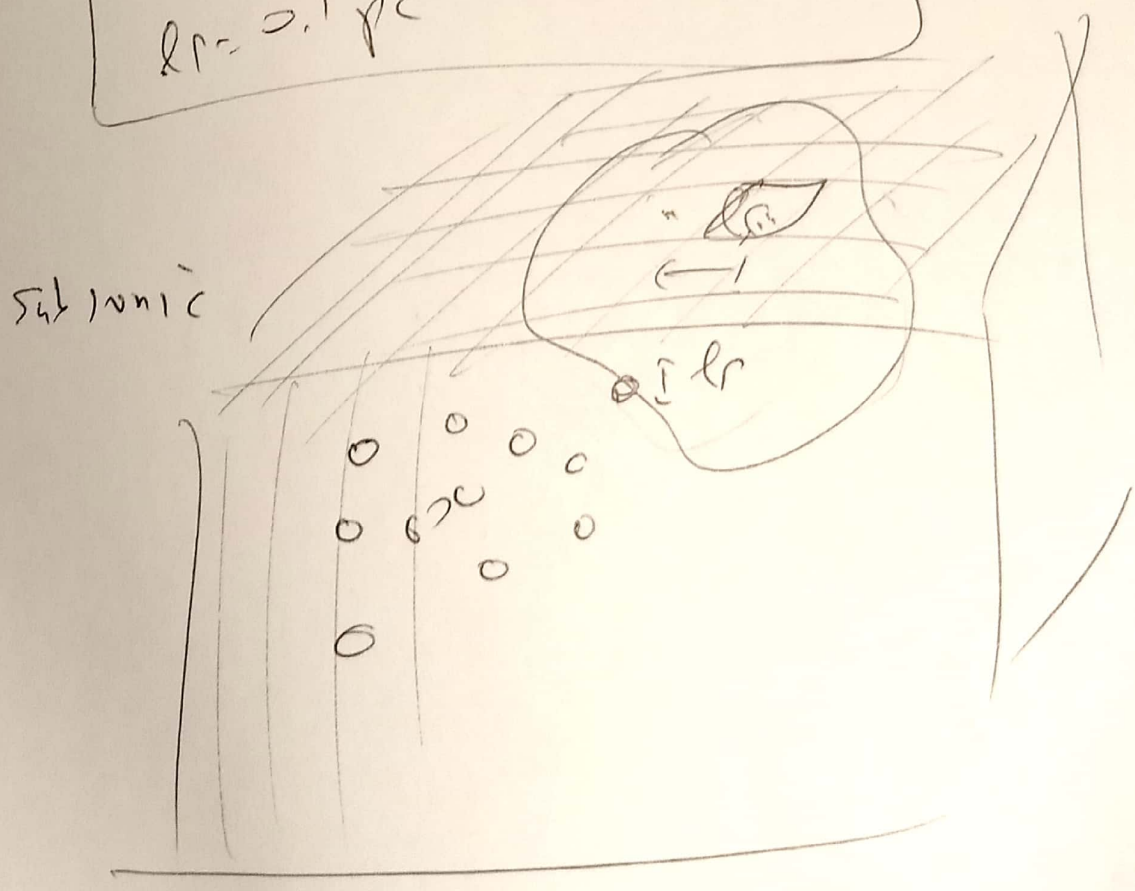




$$\sigma(l) = \sigma(1\times)\left(\frac{l}{1\times}\right)^{0.5} = e_s$$

$$l_s = D\times\left(\frac{c_s}{\sigma(D\times)}\right)^2$$

$$l_s = 0.1\ pc$$



$$\overline{\rho_{H_2}} = \int x_{H_2} \rho(\rho) d\rho$$

$$\overline{\rho} = \int \rho(\rho) d\rho$$

$$\overline{x_{H_2}} = \frac{\overline{\rho_{H_2}}}{\overline{\rho}}$$