Dense atomic gas at high-z

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Slide-1
J1513+0352-Observation

Slide-2
Theoretical Model

End
Thank you

- **ESDLA with highest H_2 column density (~ 21.3) ever found (Paper accepted - arXiv:1806.07827)**
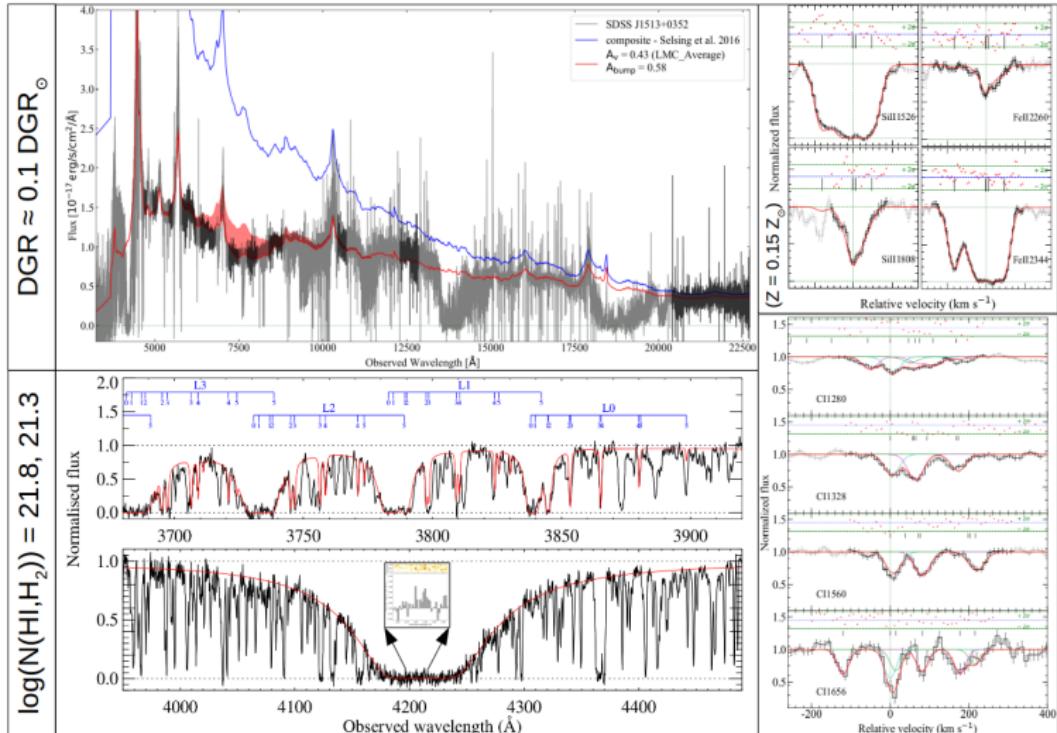
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Thank you

Bialy et. al 2017 created a model to interpret molecular clouds using observable parameters

- $\Sigma_{\mathrm{HI}} = \dfrac{6.71}{\tilde{\sigma}_g} \ln \left(\dfrac{\alpha G}{3.2} + 1 \right) \mathrm{M_\odot \, pc^{-2}}$

- $\alpha G = 0.59 \, I_{UV} \left(\dfrac{100 \, \mathrm{cm^{-3}}}{n_{\mathrm{H}}} \right) \left(\dfrac{9.9}{1 + 8.9 \tilde{\sigma}_g} \right)^{0.37}$
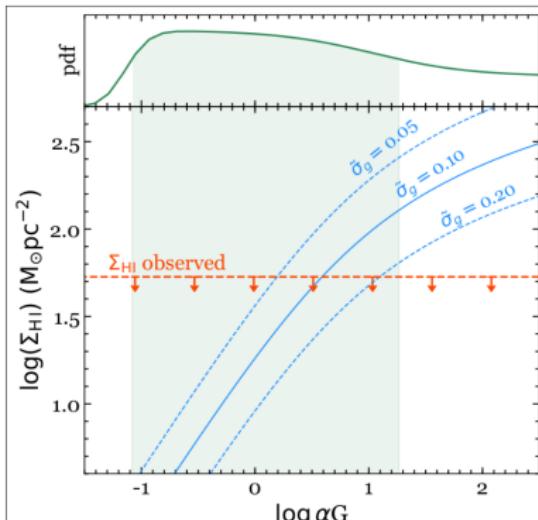
- Σ_{HI} = HI surface mass density of an optically thick uniformly dense two sided slab irradiated by a far-UV flux
- $\tilde{\sigma}_g$ = Dust grain LW photo absorption cross section per hydrogen nucleon normalised to the fiducial Galactic value
- α = Ratio of the unshielded H_2 dissociation rate to H_2 formation rate
- G = average H_2 self-shielding factor in dusty clouds
- I_{UV} = Intensity of radiation field expressed in units of the Draine field
- n_{H} = cloud hydrogen density

Please contact for questions. Thank you...