Discussion II: LAE Models and Observational Tests

Three (or more) levels of modeling:

- **Stellar Population** (SFR, SFH, IMF, Z, ...)
- **ISM** (dust extinction, $f_{\text{escape}}$ of ionizing photons, Lya rate, galactic wind, Lya RT, ...)
- **CGM & IGM** (Lya RT, ...)

[Uncertainties in the upper level propagate to the lower level.]

- How to proceed in each level of modeling?
- How reliable can we determine the stellar population and ISM properties from observations?
- How to make a fair comparison between models and observations, given that there are many uncertainties?
- Lya RT is definitely an important process. How dominant is it in shaping Lya emission, compared to effect of dust, SFH, etc? Can we break the degeneracy, if there is any?
- What observations do we need to test the Lya RT model of LAEs? What observations do we have and will we have?
- What is a sensible way to model clustering of LAEs and to infer the connection to halos?
- What predictions from models (e.g., Lya RT) are needed in guiding observations?
- What information is encoded in the polarization of Lya emission? Can we detect Lya polarization in the near future?