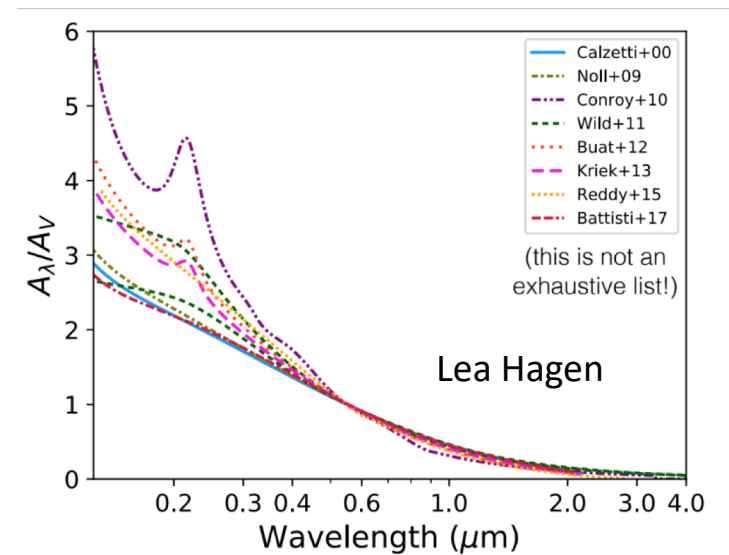
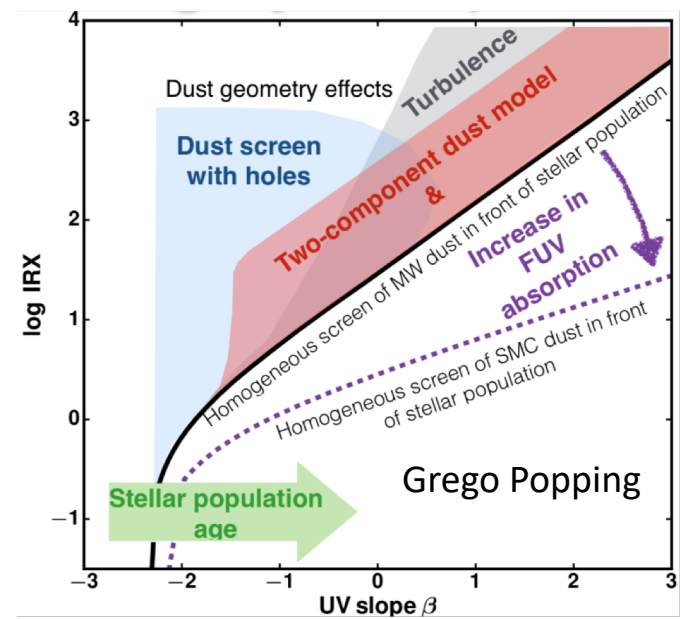


Dust Attenuation/Extinction

- What are we learning from IRX-beta?
 - Geometry, dust composition, size distribution, star formation history, stellar population age, metallicity, inclination, the list goes on!
 - Should we give up on IRX-beta?!
- What are the next steps to constrain the attenuation curve of galaxies? Or are we good by just using flexible curves (Veronique Buat talk)?



Star Formation Rates

- What is the minimum needed data to believe the estimated SFR of a galaxy (to account for their unobscured and obscured stellar population)?
- Are we confident of our SFR calibrations over the wide range of dust content, metallicity, star formation history, etc., that we commonly use them for?
 - UV
 - Mid-IR (PAHs, JD Smith's favorite)
 - Far-IR (evolving IR SEDs?)
 - Nebular lines (which ones)
 - Radio
 - Or the only path to success is full SED modeling?!
- Can we trust the local calibrations at $z > 5$? In ULIRGSs/SMGs?

Dust Masses

- What is the minimum needed data to estimate dust mass of a galaxy?
- How to deal with the uncertainty in “dust temperature”? (evolving IR SED!)
- Can we trust the local calibrations and dust scaling relations at $z > 5$?

The *intentionally* vague title of Dust, Gas, and Metals!

Dust/Gas ratio, Dust/Metal ratio, PAH fraction
(and their variation with metallicity)

- Do we fully understand these at $z=0$?
 - If not where is most work needed?
- Do the $z \sim 0$ relations hold at higher redshifts, given that we know that by cosmic noon:
 - Metallicities are lower (at a given stellar mass)
 - Electron densities are higher, SF clumps are more massive and compact
 - O/Fe is enhanced etc etc (IMF?!)