

# Infrared Spectra of Young Planetary Mass Objects Models vs. Standard Spectra

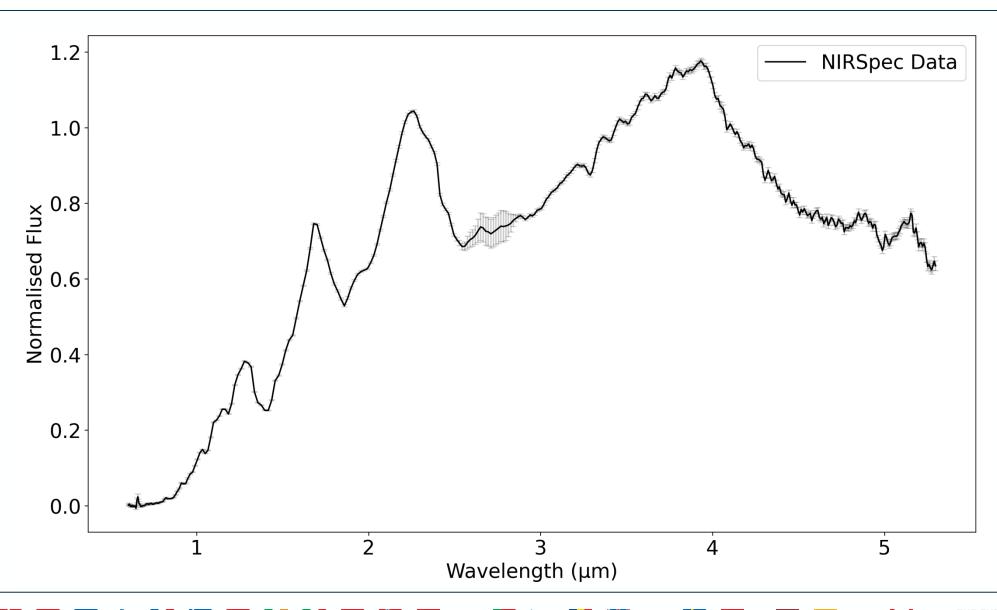
Samuel Pearson Mark McCaughrean





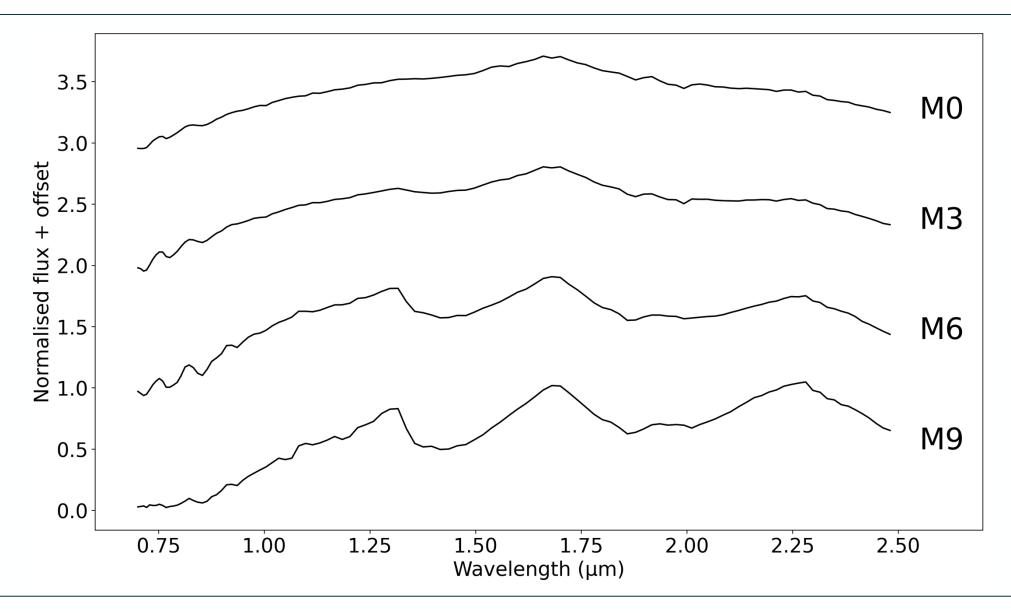
### NIRSpec MOS prism spectrum





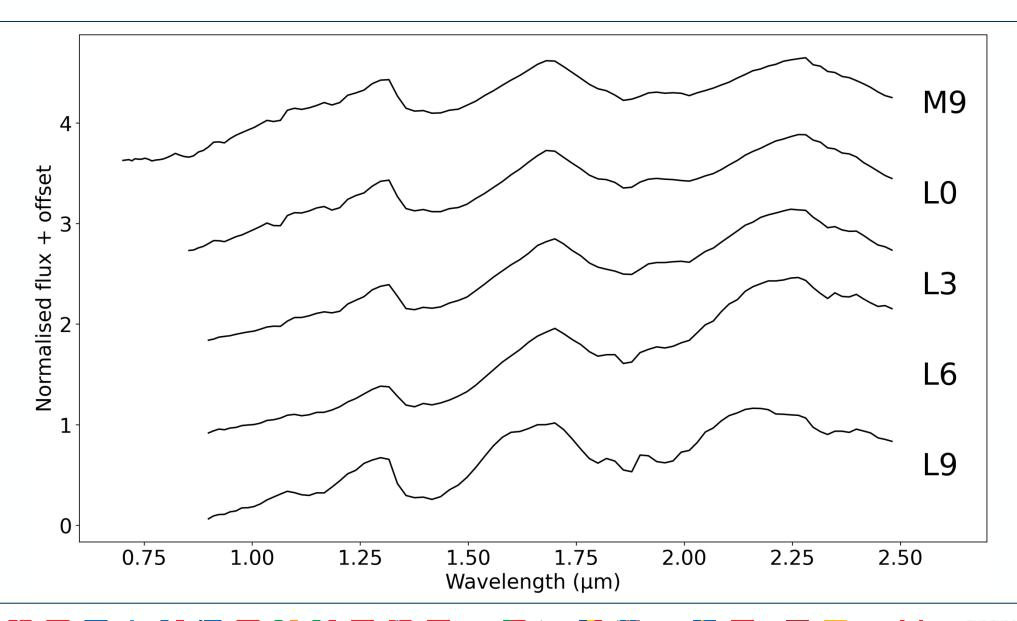
#### **Spectral Series**





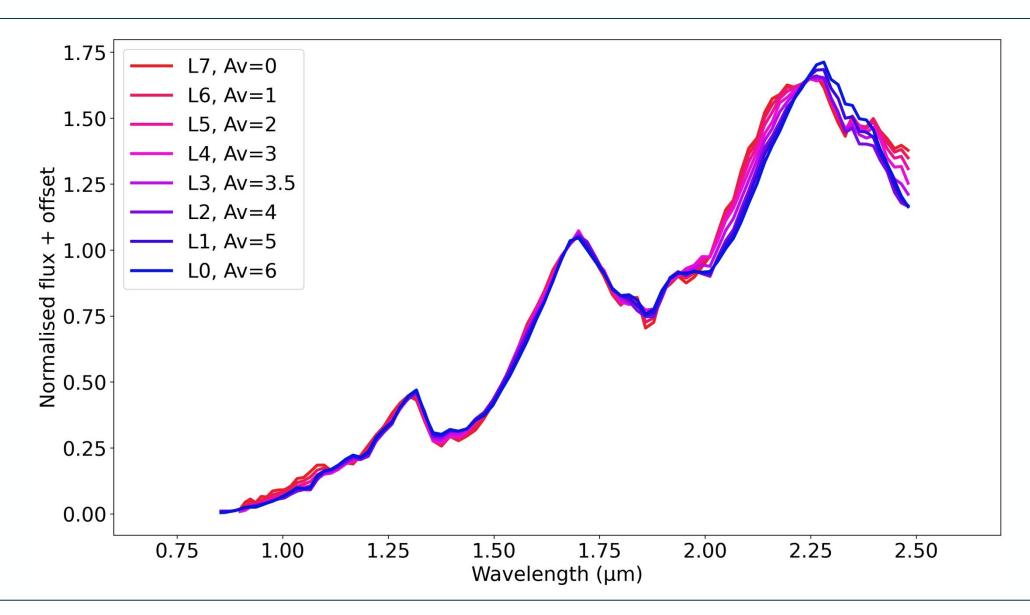
### **Spectral Series**





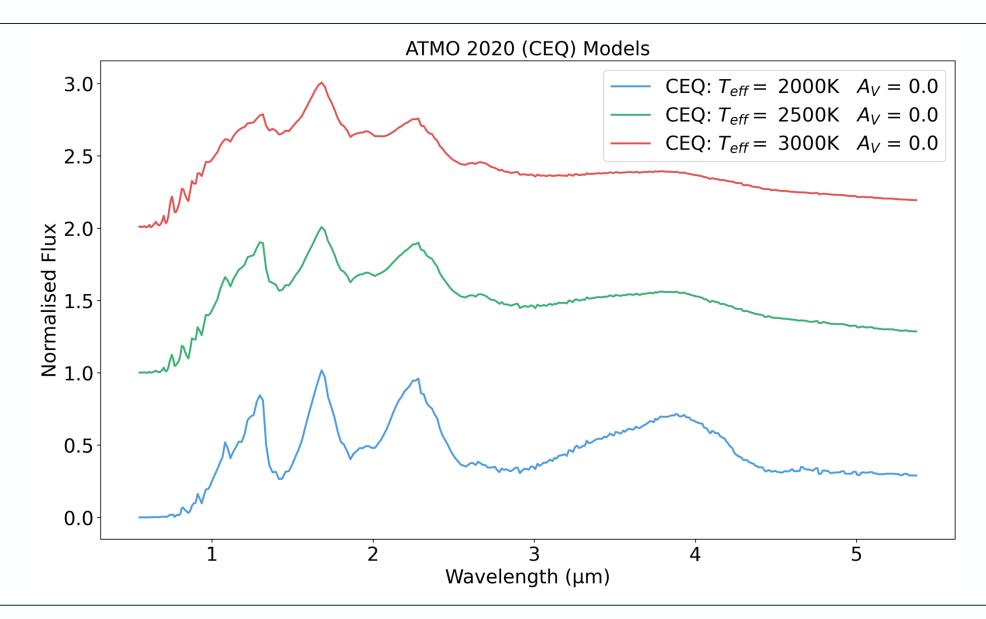
### **Young L-type Standard Spectra**





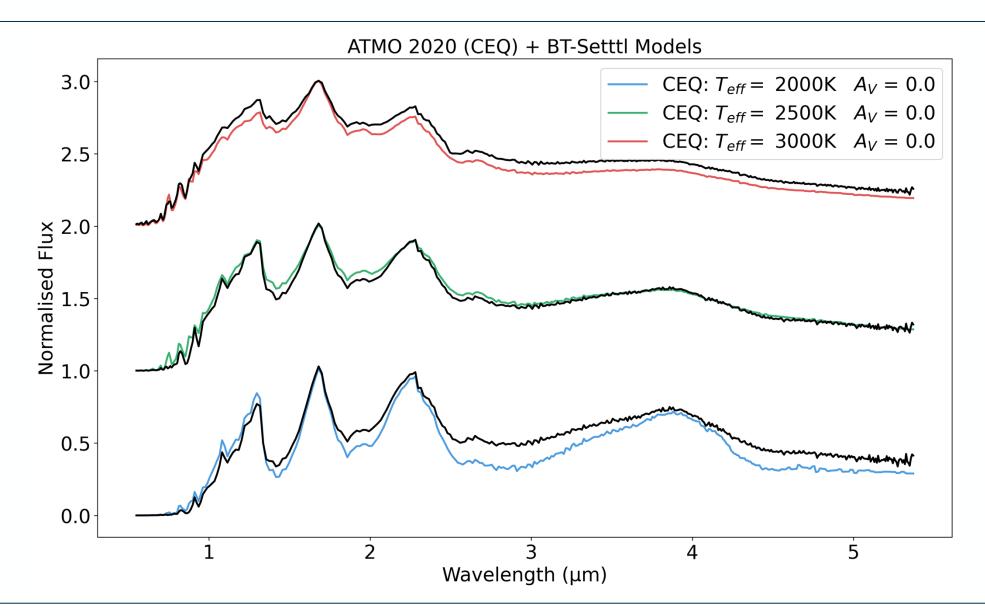
#### **Models**





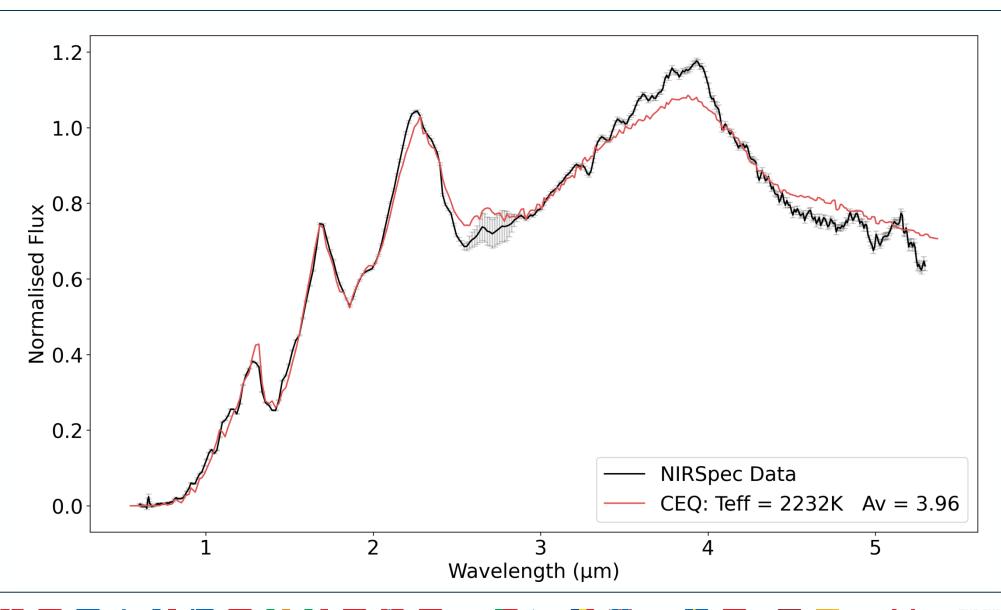
#### **Models**





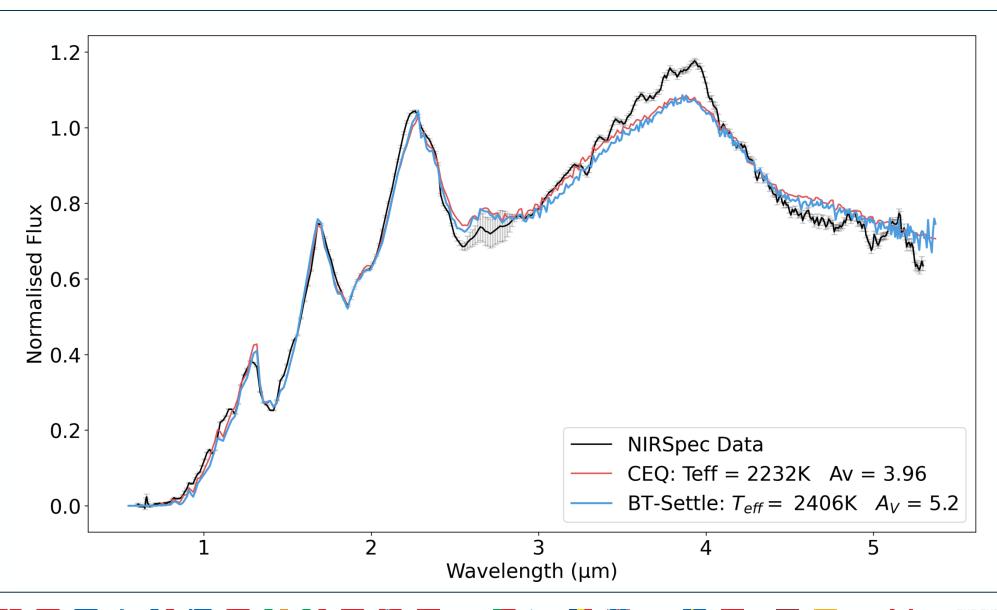
#### NIRSpec MOS prism spectrum - fitting





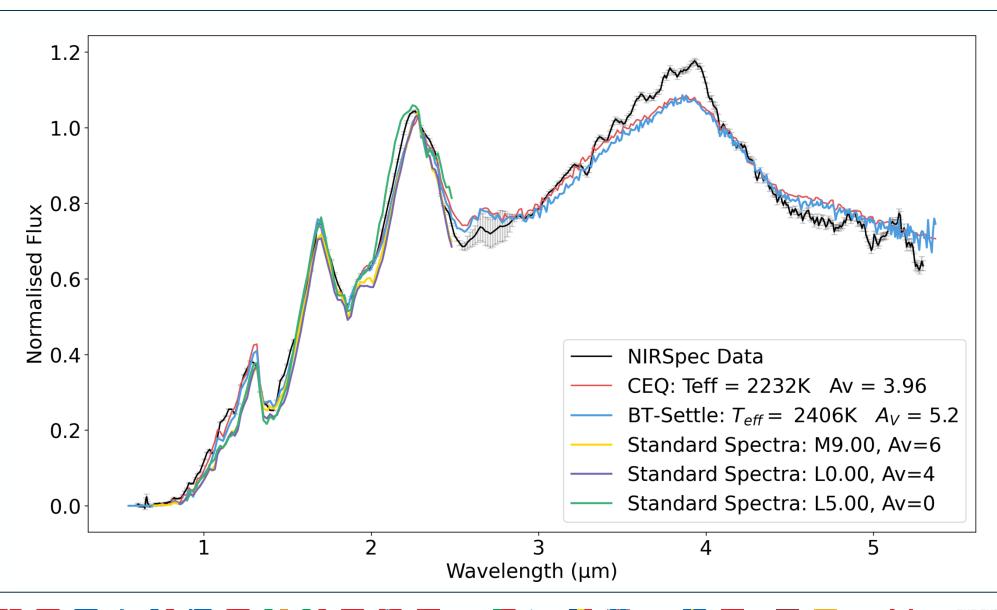
#### NIRSpec MOS prism spectrum - fitting





#### NIRSpec MOS prism spectrum - fitting





#### Summary of the "puzzle"



## Whats the best way to determine the mass of PMOs?

- Standard spectra? probably not without a better sample of standards
- Models? Which one? Many and take an average?

# How well do you want to know the opacity limit for fragmentation?

"it's more than 0 and less that 5 M<sub>Jup</sub>"



#### Spectral Standards – ATMO 2020 (CEQ) Model Fits



