

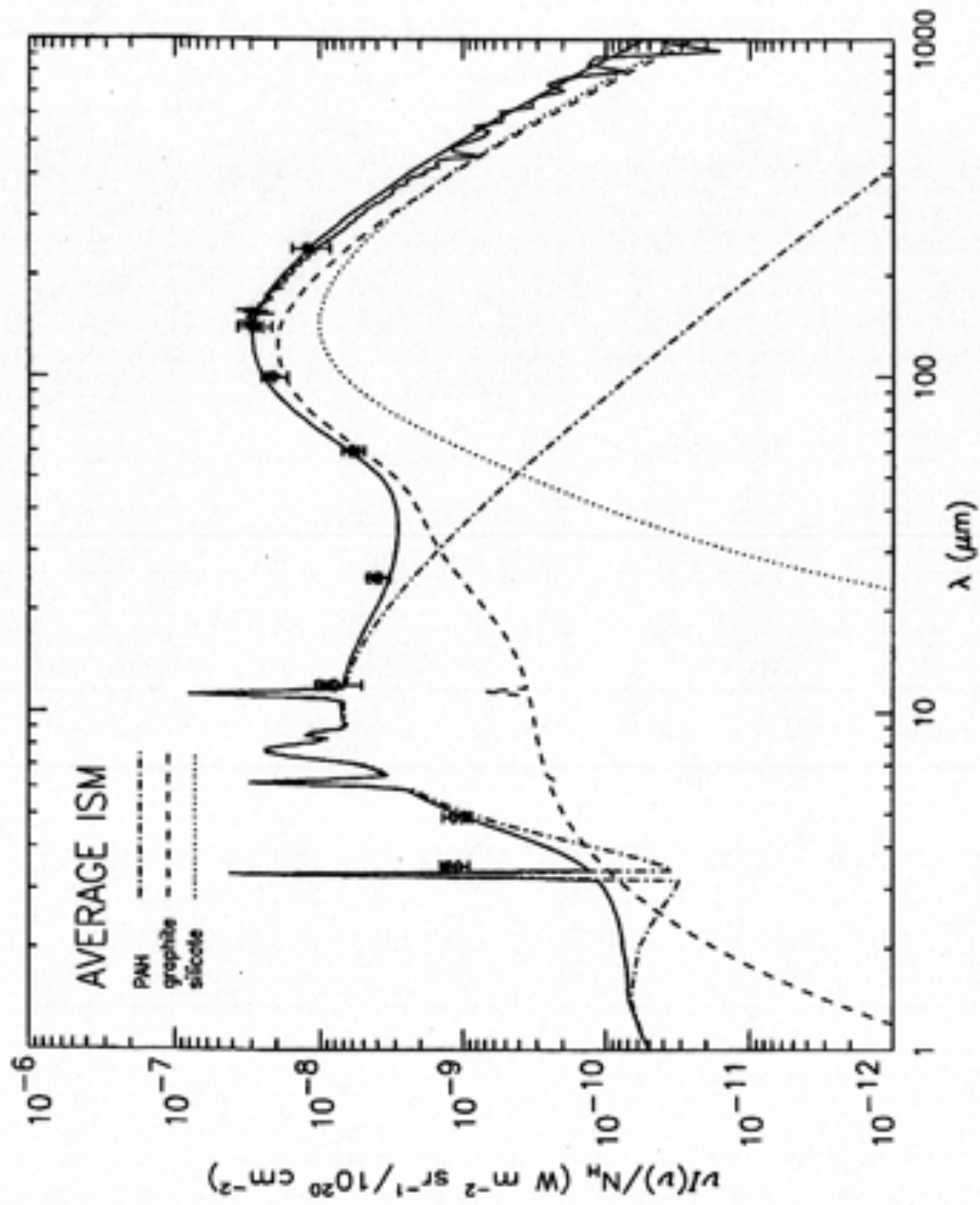
**AST 250 – Spring 2019**  
**Homework Due: Monday March 18**

22. An observer studies several Sun-like (G2V) stars in a cluster.
- (a) If an extinction of  $A_V = 2$  mag is measured toward the cluster and the Sun-like stars have an apparent magnitude of  $m_V = +12.0$  mag, what is the true distance to the cluster (in pc)?
  - (b) Compare your answer to the distance to the cluster (in pc) if there was no dust extinction,  $A_V = 0$  mag.



The Hyades Cluster of stars in Taurus

23. The spectrum on the back page shows the average emission from dust grains in the diffuse interstellar medium of the Milky Way. It has a thermal peak in the far-infrared. Assuming the dust grains emit like blackbodies (they actually don't exactly...), estimate their temperature.



**Figure 6.3.** The average spectral energy distribution of diffuse emission from the diffuse ISM. The points and jagged curve represent COBE data obtained with the Diffuse Infrared