Measurements for HH 7-11: extinguished line plus continuum at four wavelengths. Label wavelengths 1-4: 0.656, 1.26, 1.28, 1.64 microns, and call the measurements (pixel values, fluxes) .

Take as priors: zero-reddening flux ratios 

Assume that

1. the extinction is all foreground, and described by the Draine and Weingartner calculations. The extinction factor is of the form , where



1. the scattered light continuum is characterized by a single blackbody temperature *T,* that we can determine by fitting to non-line emitting regions. It will be a pretty low temperature as there’s no continuum evident in the Hα image.   
     
   **TASK 1:** Determine a good value for *T* by fitting to to the fluxes of the continuum filament by HH 8.

Then for each pixel we have four equations in four unknowns: the extinction-corrected fluxes and  of the longer-wavelength [Fe II] and H I lines; the extinction , and the scale factor *C* that multiplies the blackbody function for the continuum:



**TASK 2:** Write code for solving the nonlinear four equation/four unknown system.

**TASK 3:** Use the code to generate images in ; that is, extinction-corrected [Fe II]1.64 and Paβ.

As a sanity check, bounds on the Fe+/H relative abundance can be derived from , independent of models. For example, in the low-density limit,



Where χ , α is the effective recombination coefficient, γ is the collisional excitation coefficient, and A is the spontaneous radiation rate (aka the Einstein A coefficient)

So therefore, the γ is for Fe, the α is for H, and the Einstein coefficients…are also for H??