ASTRO 517 HW1

A star is observed with the photometric system as shown in Figure 1. Figure 2 is the number of photons incident on the photometric system. Figure 5 is quantum efficiency of the PM tube used. (Dynode gain=10^8). Figure 4 is the spectral characteristics of the PM tube window. Calculate the current at the anode of the PM tube for the B and V filters of Figure 3. Plot anode current as a function of wavelenght and compare with Figure 2. (Area of the photomultiplier tube is $20 cm^2$)

Try to estimate the instrumental magnitude of the star in B and V filters. Can you assign a spectral type to the observed star?

Use data files: BD+28-4211-oke.dta, hama-spec-res.gif.dat, sdsu-qe.dta, window.gif.dat. PM tubes are identical.

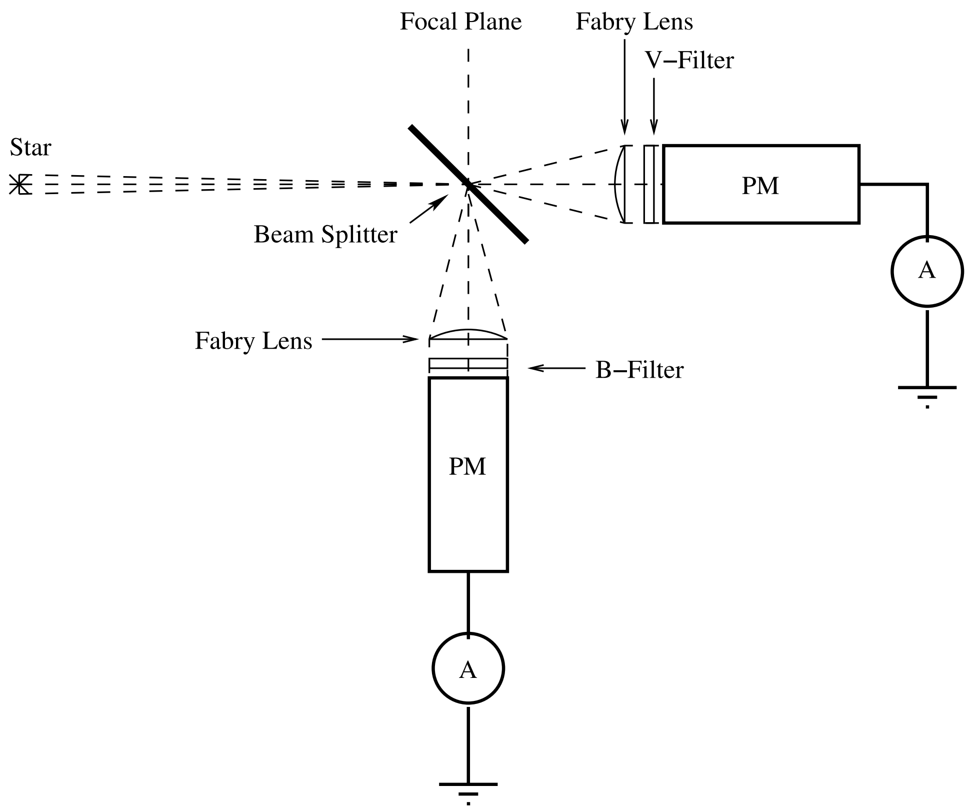

Figure 1: Photometer Layout.

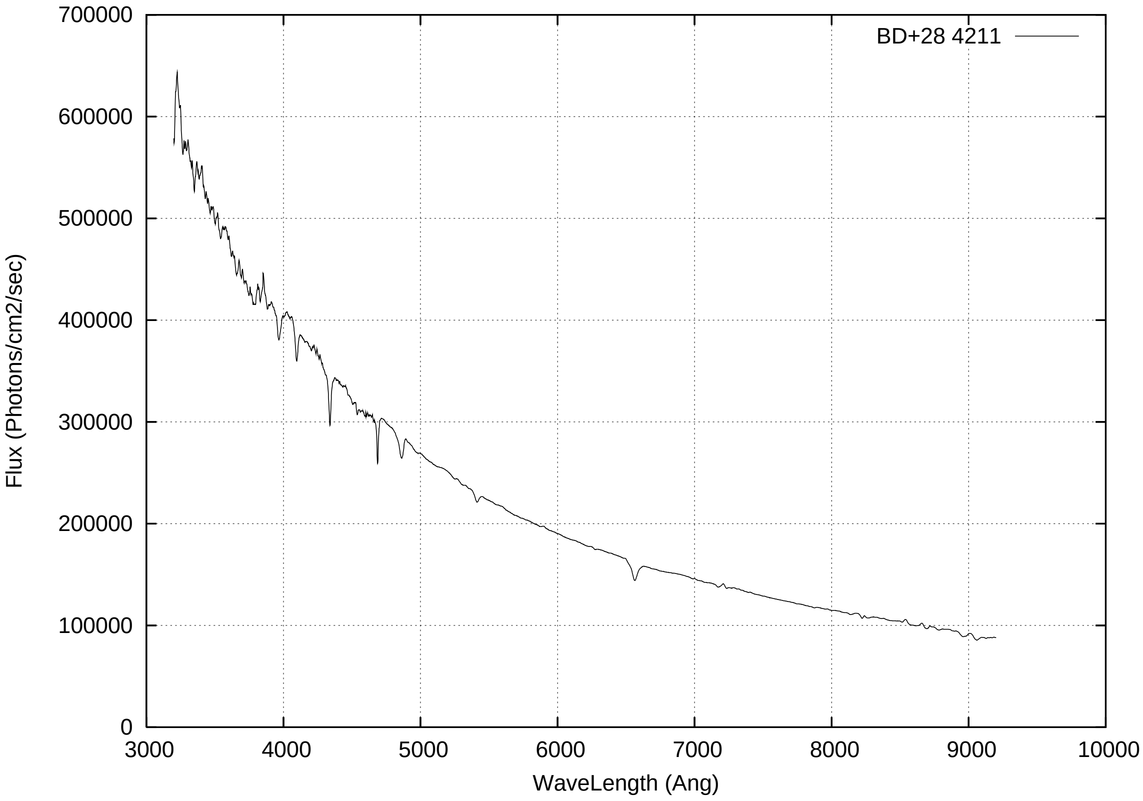

Figure 2: B Star (BD+28 4211) Flux.

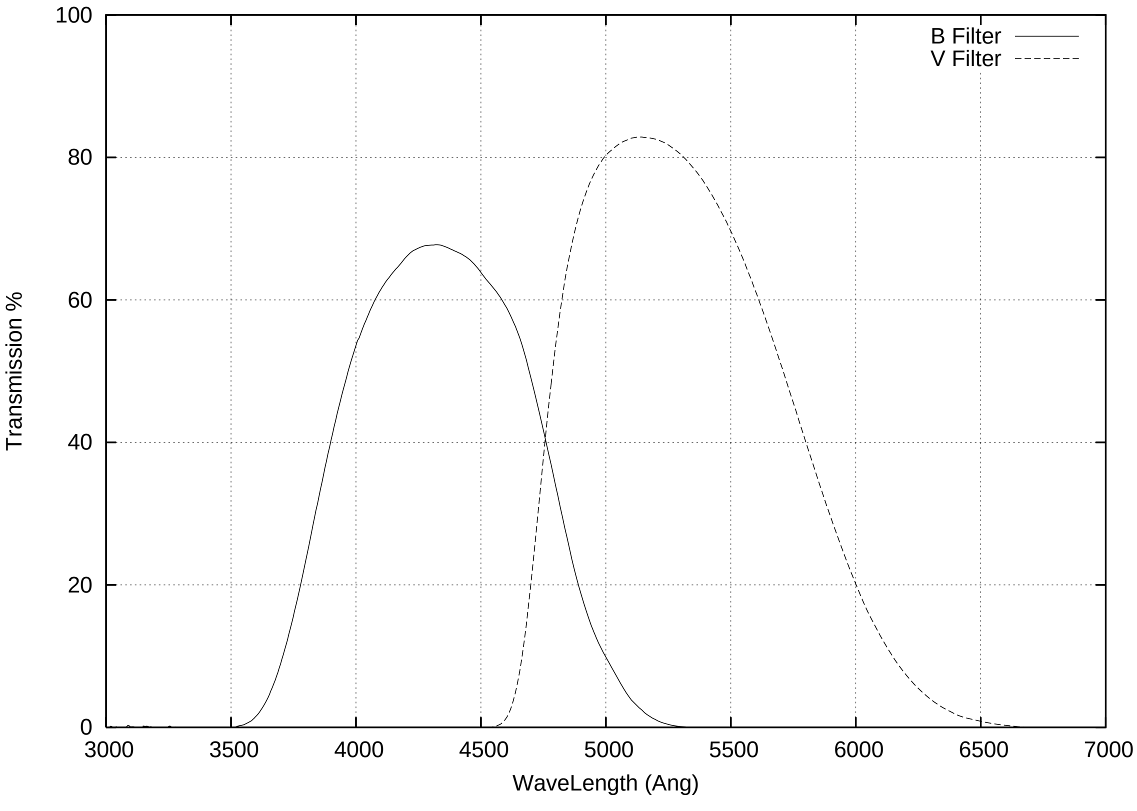

Figure 3: B and V Filter Transmissions.

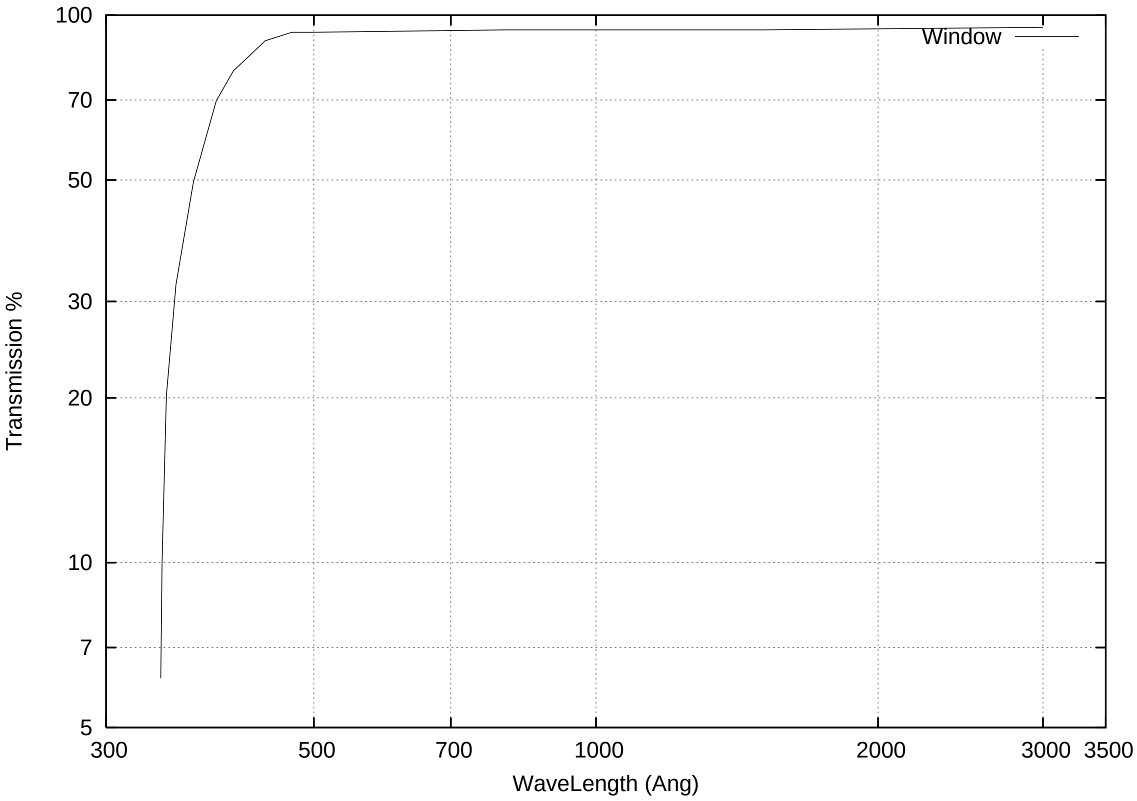

Figure 4: PM Tube Window Transmission.

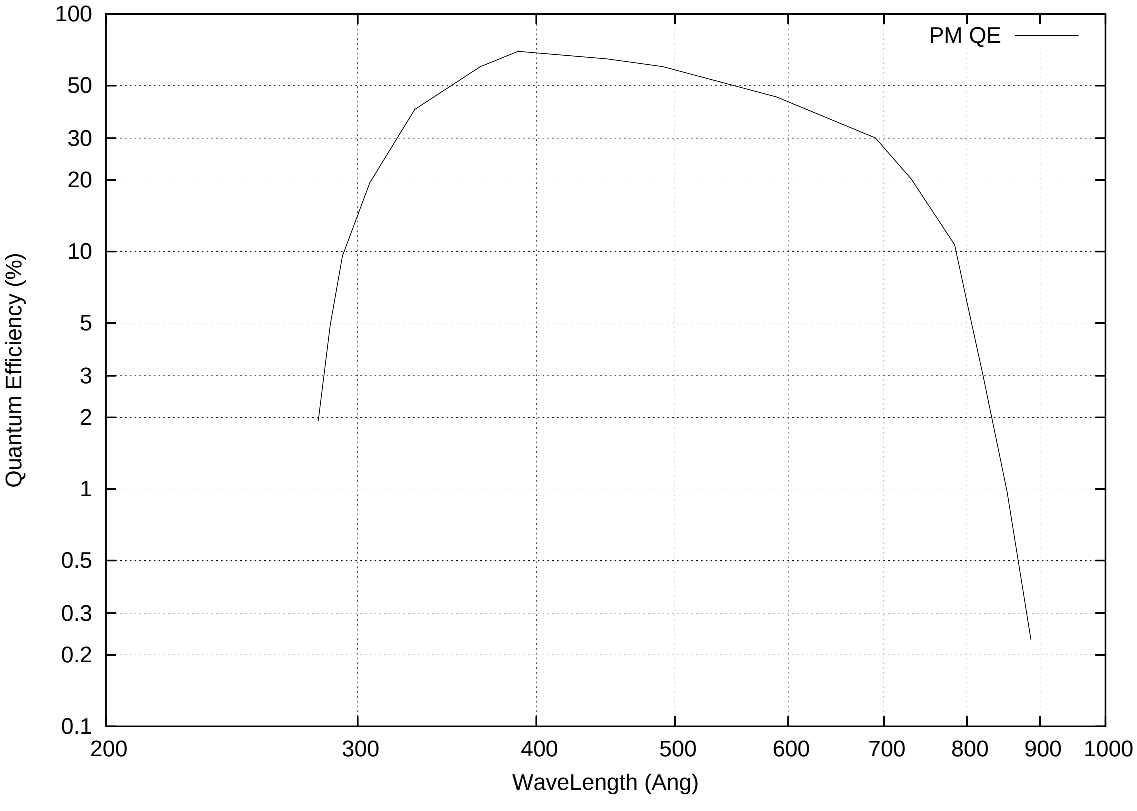

Figure 5: PM Tube Photocathode Quantum Efficiency.