ASTR 301: Assignment #X

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Part 1

1. Column 1: Wavelength ($\mathring{A}$), Column 2: Relative Flux
2. .

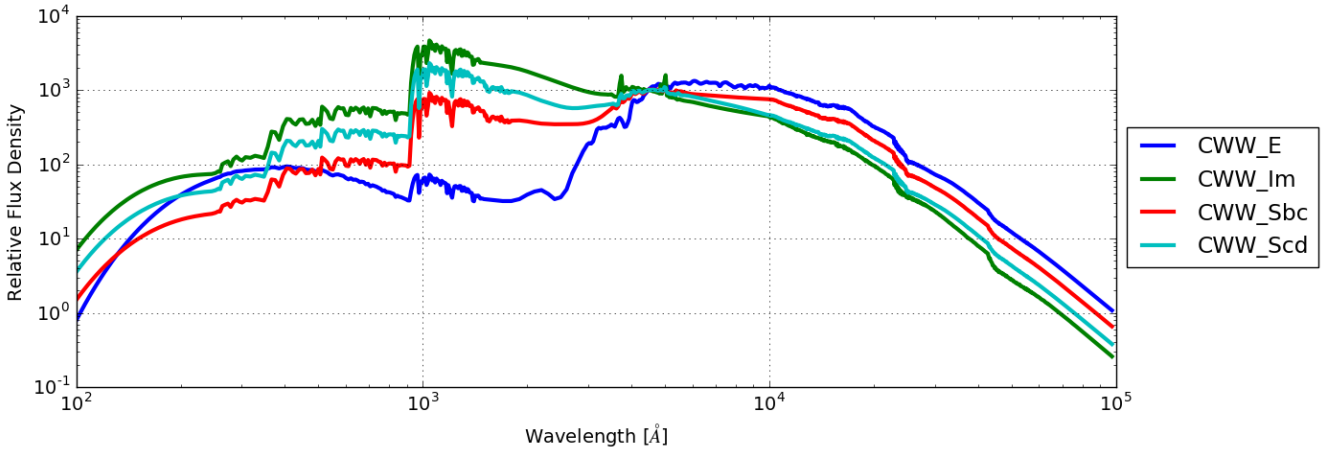

Figure 1: SEDs for various galaxy types, plotted log-log as it is easier to view.

3. Column 1: Wavelength (nm), Column 2: Transmittance %
4. .

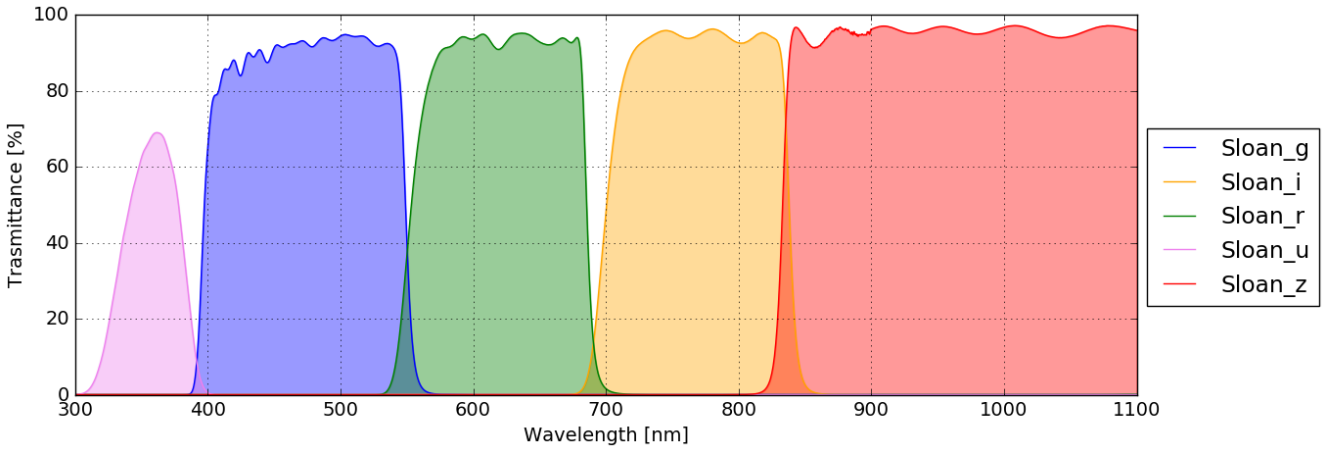

Figure 2: Transmittance curves for Sloan filters: u, g, r, i, and z.

Part 2

1. .

Type	$u-g$	$g-r$	$r-i$	$i-z$	$u-r$
CWW_E	2.693	0.098	-0.024	2.074	2.789
CWW_Im	1.544	-0.521	-0.174	1.739	1.023
CWW_Sbc	2.047	-0.207	-0.041	2.034	1.840
CWW_Scd	1.875	-0.328	-0.192	1.762	1.547

Table 1: Various color combination for each galaxy type.

2. When analyzing the various color combinations from each galaxy, it is apparent that the combination of u and r yields discrete values that are easily distinguishable from each other—see Table 1. Therefore for distinguishing galaxy types, it would be useful to analyze the $(u-r)$ color.

3. In essence, the "bluer" the galaxy is the younger it is, therefore "bluer" galaxies are locations of high stellar formation. And—for the sake of completeness—"redder" galaxy is older, therefore locations of low stellar formation activity.

Part 3

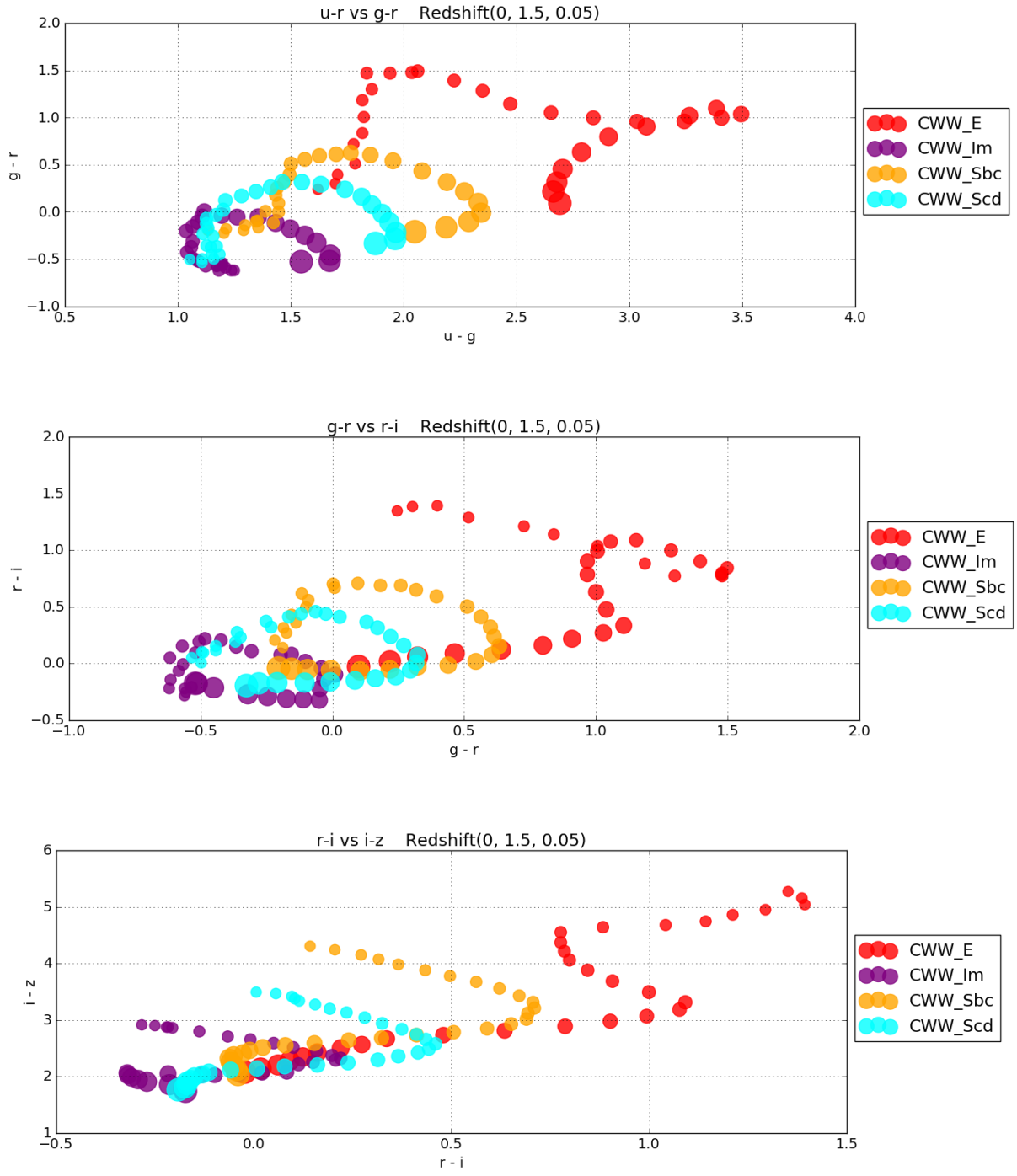

Figure 3: Color-Color plots for each galaxy type across a red shift range of 0 to 1.5 in increments of 0.05. The magnitude of the red shift is visualized as the thickness of the point, where a large point corresponds to a smaller red shift value (think observationally closer). **(top)** U-R vs G-R, **(middle)** G-R vs R-I, **(bottom)** R-I vs I-Z.