ASTR 400B In Class Lab 4

Figure 1 illustrates the color magnitude diagram (CMD) for the Carina Dwarf along with the interpreted star formation history from isochrone fitting to the CMD.

1 Get Set Up

1. Update your clone of the Class GitHub Repo (git pull)
2. Under InClassLabs/InClassLab4/ you should find a template Jupyter notebook and .py file along with a series of .txt files.
3. Copy these files into your own repository, following a similar folder naming convention.

    - The text files are isochrones for a single age population, the age is indicated by the number in the file name.
    - The Isochrones come from http://stellar.dartmouth.edu/models/isolf_new.html They assume [Fe/H] = -2.0, α/Fe=-0.2.
    - The template code sets up an example of reading in one of the isochrone files and plotting it.

2 Q1

Modify the template file of your choice to plot isochrones that correspond to the inferred star formation episodes (right panel of Figure 1) to recreate the dominant features of the CMD of Carina (left panel of Figure 1).

3 Q2

From the data could there be younger populations than what the Tolstoy review article suggests?

4 Q3

What do you think could cause these bursts of star formation?

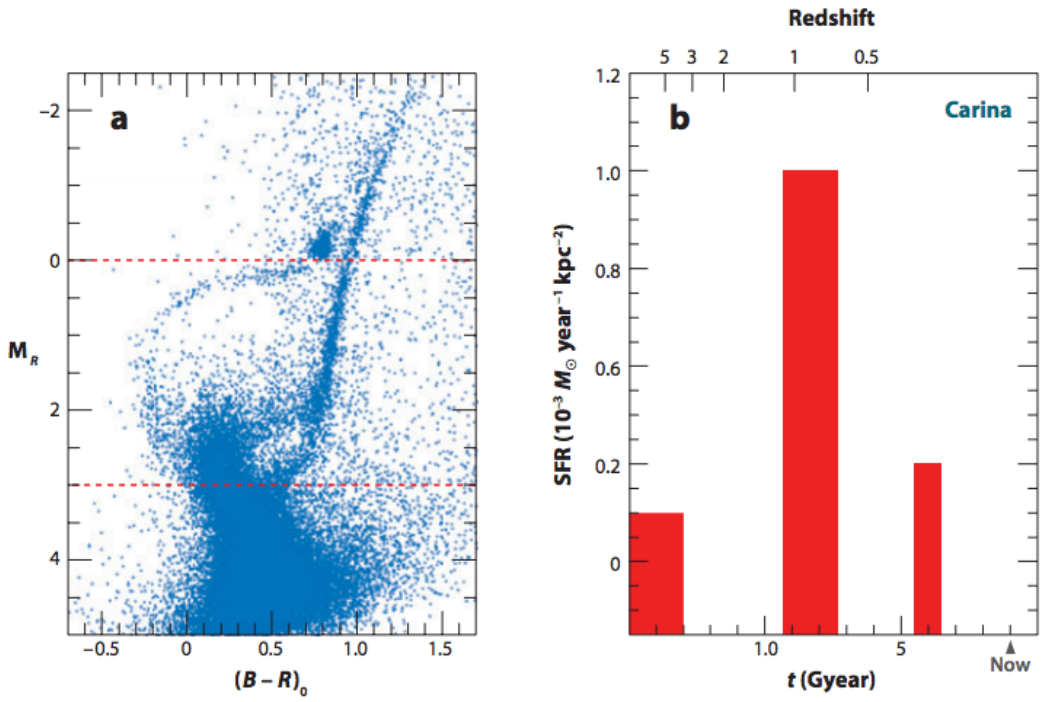

Figure 4

(*a*) A color-magnitude diagram of the Carina dwarf spheroidal (obtained by M. Mateo with the CTIO 4-m and MOSAIC camera, private communication) in the central 30′ of the galaxy. This clearly shows the presence of at least three distinct MSTOs. (*b*) The star-formation history of the central region of Carina determined by Hurley-Keller, Mateo & Nemec (1998), showing the relative strength of the different bursts. The ages are also shown in terms of redshift.

Figure 1: From Tolstoy+2009 ARA&A 47 review paper about dwarf galaxies.