

Reading and plotting of FITS images

This exercise will teach you how to plot astronomical images in FITS file format.

In the following we will use data from the *Sloan Digital Sky Survey* (read more here https://en.wikipedia.org/wiki/Sloan_Digital_Sky_Survey). Specifically, we would like to plot u , g , r , i and z band images, which are centered on a wavelength of 354 nm, 475 nm, 622 nm, 763 nm and 905 nm, respectively. As an example we will plot NGC 7317, which is a member of *Stephan's Quintet*.



Figure 1: An SDSS image of Stephan's Quintet.

Exercise:

- Here is a link to the SDSS imaging archive, <https://skyserver.sdss.org/dr18/VisualTools/explore/summary> Download the u , g , r , i and z band images of the galaxy, NGC 7317 (perform a search, and then click download on u , g , r , i and z . Start with plotting r because it is less noisy than e.g. u).
- Read them into python with the `getdata` function from the `astropy.io.fits` package.
- Create a multi-panel plot (use `plt.subplot`) showing the u , g , r , i and z band images.