

Python Workshop – Exercises Session 5

6.

- A. Use spline interpolation to interpolate the SED for the first object and overplot the interpolated SED in pink on the plot you just created.
- B. Integrate the flux from 0.5um to 2um (caution the flux is in F_{ν} , while we are plotting lambda on the x-axis). That means you'll have to convert 0.5um and 2um to Hz. F_{ν} is in mJy while one Jy is $1.e-23$ erg/(s*cm²*Hz). Express the integral in erg/(s*cm²).
- C. Write a BB function to fit the W2, W3 and W4 bands to the third object (which should be '0105m016') with a blackbody. Free parameters should be T and normalization. Give initial guesses for T and norm of 30K and $1.e-33$.

$$B_{\nu}(\nu, T) = \frac{2h\nu^3}{c^2} \frac{1}{e^{\frac{h\nu}{k_B T}} - 1}$$

- D. Integrate the BB flux between 1 and 1000 um.