Step-by-Step Guide to Plot Spin-Texture Using QE Data

1. Parse bands data (.dat) will be written in the format of kx ky kz nbnd_1 nbnd_2 ……[in the nbnd column there will be energy].

   band_data_parser.ipynb

2. Parse spin data(.dat.1,.dat.2,.dat.3) will be written in the format of kx ky kz nbnd_1 nbnd_2 ……[in the nbnd column there will be expectation value of spin operator].

   band_data_parser.ipynb

3. To plot the individual band's spin texture make an Excel file of kx, ky,sx,sy and sz for a particular band from the previously generated .csv file.

4. To plot the spin texture of individual bands with sz as background and sx,sy as vector arrow in the kx-ky plane.

   background_sz_arrow_sx_sy.ipynb

5. To plot the spin texture of individual bands with sz as the colour of the (sx,sy) vector arrow in the kx-ky plane.

   spin_texture_with_sz_color_arrow_sx_sy.ipynb

6. To make the bands parse data [$E-E_f$]

   fermi_energy_subtracted_band_data.ipynb

7. To make the bands parse data [$E-E_f$] and up to three-digit precision

   band_data_fermi_subtracted_with_three_digit_prec.ipynb

8. To find the considerable bands that are cutting an iso-energy surface with the whole kx,ky range and plot them.

   isosurface_band_plot_for_fix_kx_ky.ipynb

9. To find the considerable bands which are cutting an iso-energy surface with varying kx,ky range.

   isosurface_band_plot_changing_kx_ky_range.ipynb

10. To get the data of bands that are cutting the iso-energy surface and the plot

    crssing_band_filtered.ipynb

11. To get the kx, ky value where particular bands are crossing the iso-energy surface and with a data file [kx_nbnd_ ky_nbnd_ nbnd_energy]

    kx_ky_data_of_each_particular_interested_band.ipynb

12. Extract the sx,sy and sz values of a particular band three .csv file for three spin projection.

    to_extract_partcular_band.ipynb

13. Find the sx,sy,sz value of the particular band at those kx,ky point where bands are crossing the isosurface.

    collecting_intersecting_band_kx_ky_and_s.ipynb

14. Make an excel with the kx,ky,s file from the previous .csv data file

15. To plot them separately

    spin-texture_plot_for_two_band.ipynb

16. To plot the spin-texture combined

    spin-texture_plot.ipynb