Left side:

```
1  # Example code with the SNO+ collaboration plot style adapted to Python
2  # Requires the file Times_New_Roman_Normal.ttf
3
4  import matplotlib.pyplot as plt
5  import matplotlib.ticker as mticker
6  import matplotlib.font_manager as fm
7  import numpy as np
8
9  # Set the font properties - different for paper/slides
10 # Sans serif already exists in matplotlib but Times New Roman doesn't
11 # So maybe we don't need font file for sans serif, just use the times new roman one?
12 # Although it doesn't really seem to work ...
13
14 #Setting font parameters -- this is for presentations, where sans serif is ok
15
16 plt.rcParams['font.family'] = 'sans-serif'
17 plt.rcParams['font.size'] = 12            # Default font size
18 plt.rcParams['axes.titlesize'] = 20       # Title font size
19 plt.rcParams['axes.labelsize'] = 16       # Axis label font size
20 plt.rcParams['xtick.labelsize'] = 12      # X-axis tick label font size
21 plt.rcParams['ytick.labelsize'] = 12      # Y-axis tick label font size
22 plt.rcParams['legend.fontsize'] = 16      # Legend font size
23
24 # Define custom styles
25 histogram_style = {
26     'histtype': 'step',
27     'color': 'blue',
28     'alpha': 0.7,
29     'linewidth': 1.5
30 }
31
32 scatter_style = {
33     'marker': 'o',
34     'color': 'black',
35     's': 50
36 }
37
38 errorbar_style = {
39     'linestyle': 'None',
40     'color': 'black',
41     'capsize': 5
42 }
43
44 line_plot_style = {
45     'linestyle': '-',
46     'color': 'red',
47     'linewidth': 1.5
48 }
```

Right side:

```
1  import matplotlib.pyplot as plt
2  import matplotlib.ticker as mticker
3  import matplotlib.font_manager as fm
4  import numpy as np
5
6  # Set the font properties
7  paper_font = fm.FontProperties(fname='Times_New_Roman_Normal.ttf', size = 16)
8
9  plt.rcParams['font.size'] = 12            # Default font size
10 plt.rcParams['axes.titlesize'] = 20       # Title font size
11 plt.rcParams['axes.labelsize'] = 16       # Axis label font size
12 plt.rcParams['xtick.labelsize'] = 12      # X-axis tick label font size
13 plt.rcParams['ytick.labelsize'] = 12      # Y-axis tick label font size
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35
36 line_plot_style = {
37     'linestyle': '-',
38     'color': 'red',
39     'linewidth': 1.5
40 }
```

Left column:

```python
49
50 # Set global rcParams
51 plt.rcParams['xtick.major.size'] = 10
52 plt.rcParams['xtick.major.width'] = 1.5
53 plt.rcParams['xtick.minor.size'] = 5
54 plt.rcParams['xtick.minor.width'] = 1
55 plt.rcParams['ytick.major.size'] = 10
56 plt.rcParams['ytick.major.width'] = 1.5
57 plt.rcParams['ytick.minor.size'] = 5
58 plt.rcParams['ytick.minor.width'] = 1
59 plt.rcParams['axes.linewidth'] = 1.5  # set the value globally
60 plt.rcParams['figure.facecolor'] = 'white'
61 plt.rcParams['figure.figsize'] = (18, 10)
62 plt.rcParams['xtick.major.pad'] = '12'  # set padding (between ticks and axis label)
63 plt.rcParams['ytick.major.pad'] = '12'
64
65 # Example data for plotting
66 x = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
67 y = [2, 4, 6, 8, 10, 9, 6.6, 7, 8.5, 3]
68
69 # First plot: hist, scatter, line
70 fig, ax = plt.subplots(figsize=(18, 10))
71
72 ax.minorticks_on()
73 ax.hist(y, **histogram_style, label='Histogram')
74
75 ax.scatter(x, y, **scatter_style, label='Scatter')
76 ax.errorbar(x, y, yerr=0.5, **errorbar_style, label='Errorbar')
77 ax.plot(x, y, **line_plot_style, label='Line Plot')
78
79 ax.set_xlabel('This is the x axis')

80 ax.set_ylabel('This is the y axis')

81 ax.set_title("Different kinds of plots!! so cool")




82 ax.legend()





83 plt.show()
84
85 # Second plot: color map
86 fig, ax = plt.subplots(figsize=(10, 10))
87
88 data = np.random.random((10, 10))
89 img = ax.imshow(data, cmap='viridis')
90 fig.colorbar(img, ax=ax, label='Color Map')  # Add colorbar to the figure


91
```

Right column:

```python
41
42 # Set global rcParams
43 plt.rcParams['xtick.major.size'] = 10
44 plt.rcParams['xtick.major.width'] = 1.5
45 plt.rcParams['xtick.minor.size'] = 5
46 plt.rcParams['xtick.minor.width'] = 1
47 plt.rcParams['ytick.major.size'] = 10
48 plt.rcParams['ytick.major.width'] = 1.5
49 plt.rcParams['ytick.minor.size'] = 5
50 plt.rcParams['ytick.minor.width'] = 1
51 plt.rcParams['axes.linewidth'] = 1.5  # set the value globally
52 plt.rcParams['figure.facecolor'] = 'white'
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57 # Example data for plotting
58 x = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
59 y = [2, 4, 6, 8, 10, 9, 6.6, 7, 8.5, 3]
60
61 # First plot: hist, scatter, line
62 fig, ax = plt.subplots(figsize=(18, 10))
63
64 ax.minorticks_on()
65 ax.hist(y, **histogram_style, label='Histogram')
66
67 ax.scatter(x, y, **scatter_style, label='Scatter')
68 ax.errorbar(x, y, yerr=0.5, **errorbar_style, label='Errorbar')
69 ax.plot(x, y, **line_plot_style, label='Line Plot')
70
71 ax.set_xlabel('This is the x axis', fontproperties=paper_font, size = 20)
72 ax.set_ylabel('This is the y axis', fontproperties=paper_font, size = 20)
73 ax.set_title("Different kinds of plots!! so cool", fontproperties=paper_font, size = 28)
74
75
76 for label in ax.get_xticklabels():
77     label.set_fontproperties(paper_font)
78
79 for label in ax.get_yticklabels():
80     label.set_fontproperties(paper_font)
81
82 #make legend
83 handles, labels = ax.get_legend_handles_labels()
84 ax.legend(handles = handles, labels = labels, prop=paper_font)
85
86
87 plt.show()
88
89 # Second plot: color map
90 fig, ax = plt.subplots()
91
92 data = np.random.random((10, 10))
93 img = ax.imshow(data, cmap='viridis')
94 colorbar = fig.colorbar(img, ax=ax, label='Color Map')  # Add colorbar to the figure
95 # Set font properties for colorbar label
96 colorbar.set_label('Color Map', fontproperties=paper_font)
97

98
```

```
92  ax.set_xlabel('This is the x axis')
93  ax.set_ylabel('This is the y axis')
94  ax.set_title("Color map plot")




95  plt.show()
```

```
99   ax.set_xlabel('This is the x axis',
     fontproperties=paper_font, size = 20)
100  ax.set_ylabel('This is the y axis',
     fontproperties=paper_font, size = 20)
101  ax.set_title("Color map plot", fontproperties=paper_font,
     size = 28)
102
103  for label in ax.get_xticklabels():
104      label.set_fontproperties(paper_font)
105
106  for label in ax.get_yticklabels():
107      label.set_fontproperties(paper_font)
108
109  plt.show()
110
```