

```
1: #!/usr/bin/env python3
2: # -*- coding: utf-8 -*-
3: """
4: Created on Mon Mar 31 09:31:36 2025
5: Copyright (C) 2025 under GPL 3.0, Fredrik Jonsson
6: """
7:
8: import numpy as np
9: import matplotlib.pyplot as plt
10: from math import pi
11:
12: """
13: As a global standard, use TeX-style labeling for everything graphics-related.
14: """
15: plt.rcParams.update({
16:     "text.usetex" : True,
17:     "font.family" : "Computer Modern",
18:     "font.size"   : 12
19: })
20:
21: Lambda = 2.0
22: fig, ax = plt.subplots(figsize=(7.0,5.0))
23: z = np.linspace(0.0, 2.0*Lambda, num=10000)
24: s = np.zeros_like(z)
25: for m in range(5):
26:     if m == 0:
27:         s += 0.5*np.ones_like(z)
28:     else:
29:         s += ((2/pi)/(2*m-1))*np.sin((2*pi*(2*m-1)/Lambda)*z)
30:     ax.plot(z, s, label=' $S_m = %d$ ' % m)
31:
32: ax.autoscale(enable=True, axis='x', tight=True)
33: ax.legend(loc='upper right')
34: ax.tick_params(axis="both",direction="in")
35: ax.grid(visible=True, which='major', axis='both')
36: ax.set_xlabel(" $z$ ")
37: ax.set_ylabel(" $S(z)$ ")
38:
39: kwargs={'bbox_inches':'tight', 'pad_inches':0.0}
40: fig.savefig("graphs/boxcar.eps", format='eps', **kwargs)
41: fig.savefig("graphs/boxcar.svg", format='svg', **kwargs)
42: fig.savefig("graphs/boxcar.png", format='png', **kwargs)
```