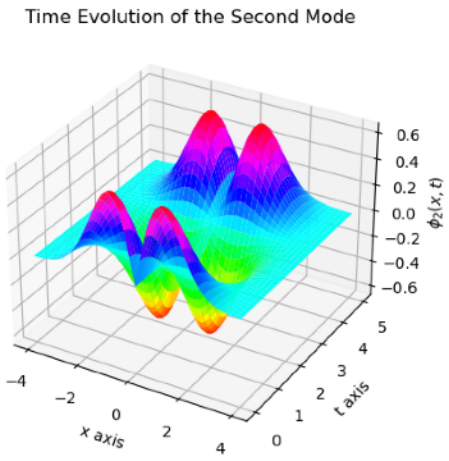

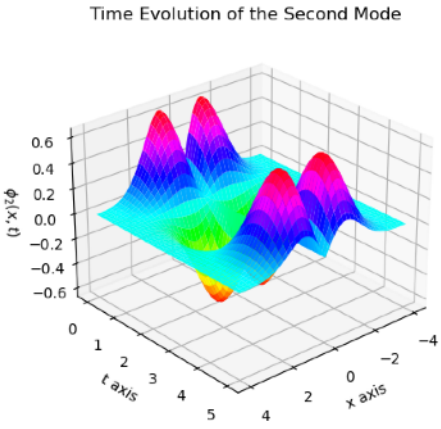

Here we have a plot of the time evolution of the second mode of the probability function in a one-dimensional harmonic trapping potential. The x axis represents the shape of the mode, and the t axis represents how the shape of the mode changes over time. A colormap has been added that colors the output surface according to its height.

Appendix:

```
import matplotlib.pyplot as plt
from mpl_toolkits import mplot3d
from matplotlib import cm

x = np.linspace(-L, L, 20 * L + 1)
t = np.array([np.linspace(0, 5, 100)])

phi2 = np.array([solshoot[1][1]]).T
E2 = solshoot[0][0, 1]

psi2 = np.outer(phi2, np.cos((E2 / 2) * t))

fig1 = plt.figure()
ax1 = plt.axes(projection = '3d')
X, T = np.meshgrid(x, t)

ax1.plot_surface(X, T, psi2.T.real, cmap = cm.hsv)
ax1.set_xlabel('x axis')
ax1.set_ylabel('t axis')
ax1.set_zlabel('$\phi_2(x,t)$')
ax1.set_title('Time Evolution of the Second Mode')
plt.show()
```