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# -*- coding: utf-8 -*-
"""
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"""

import matplotlib.pyplot as plt
import numpy as np
#Constants
ka = 8*np.pi
#Pressure Response
def P(x):
    return np.abs(np.sin(.5 * ka*x * (np.sqrt(1+ x**(-2))-1)))
#a/r values
aor = np.linspace(0,7,10000)
#Plotting
fig = plt.figure(1,figsize=(10, 5))
my_fig = fig.add_subplot(111)
my_fig.plot(aor, P(aor), color = 'b')
my_fig.set_xlabel('$a/r$')
my_fig.set_ylabel('$P/2p_{0cU_0}$')
my_fig.set_title('Pressure Response')
my_fig.set_ylim(ymin=0)
my_fig.set_xlim(xmin=0)
plt.savefig('Q5.png', dpi=300)

```