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# -*- coding: utf-8 -*-
"""
Cap 1
Created on Wed Sep  7 17:24:15 2022

@author: campioni
"""
# -*- coding: utf-8 -*-
"""
Created on Wed Sep  7 12:58:39 2022

@author: campioni
"""
import numpy as np

from bokeh.plotting import figure, output_file, show

t = np.linspace(0, 7, 2000)
y1 = np.exp(-0.864*t)*np.sin(t*15.19+10512)
y2 = np.exp(-0.864*t)
y3 = -np.exp(-0.864*t)
p = figure(x_axis_label="Tempo (s)", y_axis_label="Risposta nel tempo",
          background_fill_color='gray',
          background_fill_alpha=0.1,
          border_fill_color='green',
          border_fill_alpha=0.25)
p.title.text = "Oscillatore armonico smorzato"
p.title.align = "center"
p.circle(t, y1, legend_label="spostamento", size=1.5)
p.line(t, y1, legend_label="spostamento", line_color="blue")
p.line(t, y2, legend_label="attenuazione", line_dash=[4, 4], line_color="orange",
       line_width=2)
p.line(t, y3, legend_label="attenuazione", line_dash=[4, 4], line_color="orange",
       line_width=2)
p.legend.location = "top_center"

show(p)

```