

# Using PhysLogger to Investigate Nonlinear Dynamics with a Magnetic Pendulum

## Results

# 1 Parameters

Length of Pendulum: 12 cm

Resonance frequency: 7.3 rad/s

Drive frequency: 5.1 rad/s

Angular displacement:  $50^\circ$

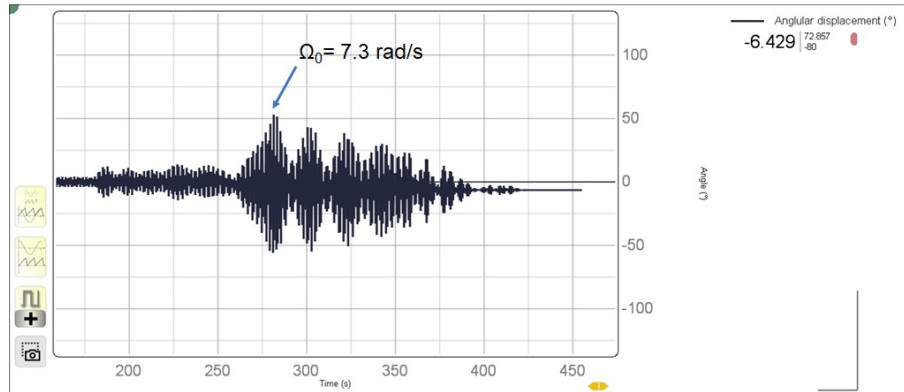
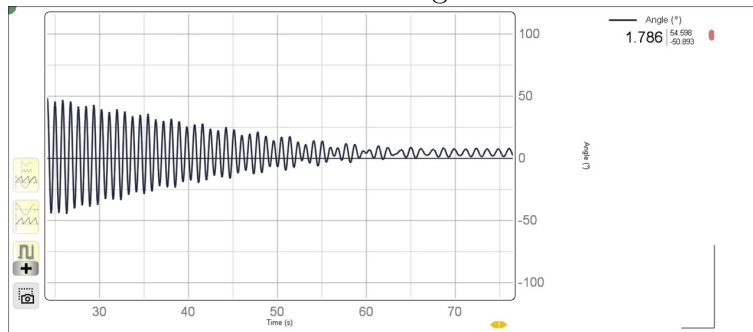


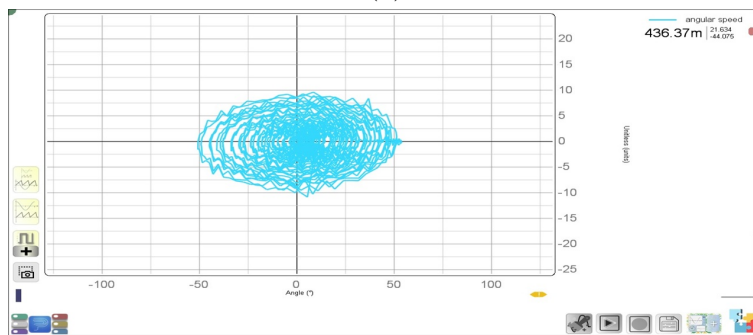
Figure 1: Resonance frequency found using the method explained in the manual.

## 2 Results

Distance between magnets = 10 cm



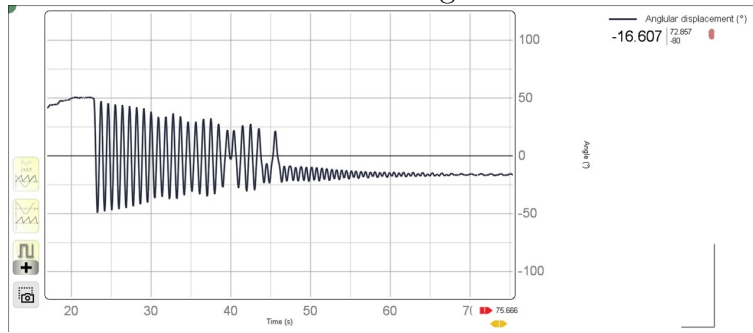
(a)



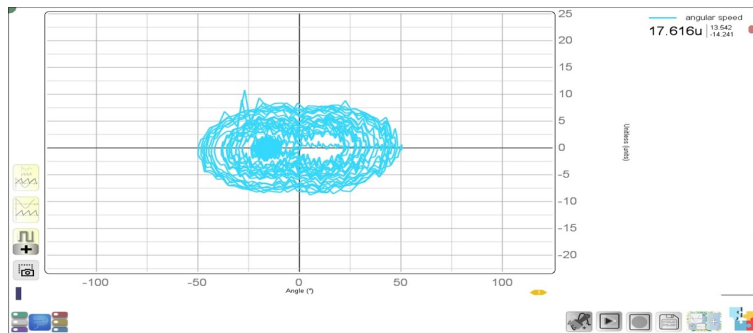
(b)

Figure 2: (a) Time series (b) phase portrait.

Distance between magnets = 5 cm



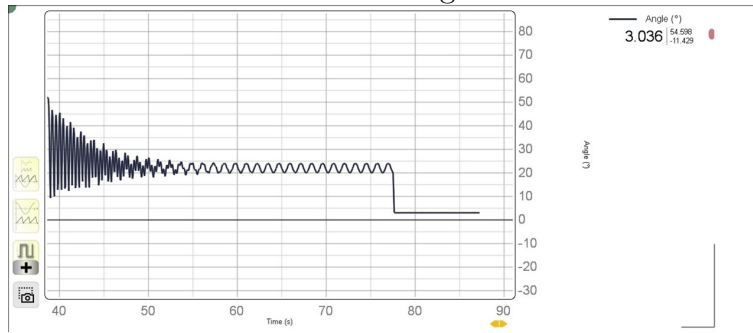
(a)



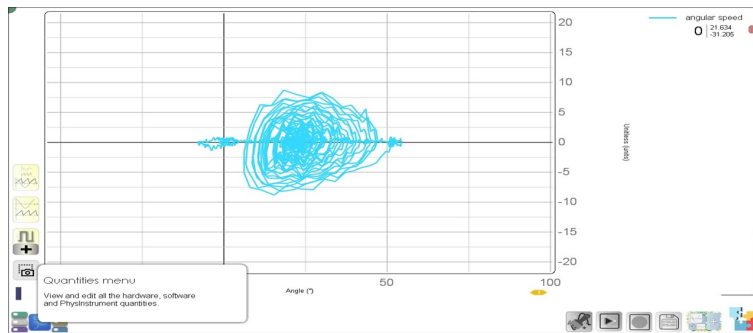
(b)

Figure 3: (a) Time series (b) phase portrait.

Distance between magnets = 2 cm



(a)



(b)

Figure 4: (a) Time series (b) phase portrait.