# Lab 4 (Centripetal Experiment)

**Discussion**

What are the energies that happened in the motion of a mass on the spring?

The energies that happened in the motion of a mass on the spring are elastic potential energy and kinetic energy. Elastic potential energy is stored in the spring when it is stretched or compressed. Kinetic energy is the energy of motion of the mass as it oscillates along the spring.

Is the principle of the conservation of energy scientifically true with concrete evidences?

The principle of the conservation of energy is scientifically true with concrete evidences. **It states that the total energy of an isolated system remains constant**, meaning that energy can neither be created nor destroyed, but only transformed from one form to another. In this experiment, we can measure the total mechanical energy (the sum of elastic potential energy and kinetic energy) of the mass-spring system at different positions and verify that it is constant within experimental errors.

**Conclusions**

In this experiment, we investigated the principle of conservation of energy. We observed that the total energy of the system remained approximately constant throughout the experiment, indicating that energy was conserved. This is in line with the law of conservation of energy, which states that energy cannot be created or destroyed, only transferred or transformed from one form to another. This principle was evident in our experiment as we saw energy being transferred between different forms but the total amount of energy in the system remained constant. These results validate the principle of conservation of energy. The sum of the graph (Etotal) is linear, therefore it’s constant, further validating our results expected. The theory of conservation of energy is scientifically true.