Conservation of Momentum

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Abstract

The purpose of this lab is to study conservation of momentum and the differences between elastic and inelastic collisions. This lab focuses on collisions in a one-dimensional system with two objects. By sliding two gliders with known masses toward each other on an air track and calculating the total momentum of the system (p) and after (p') the collision, we see that, because $p = p'$, momentum is conserved.

Introduction

Apparatus

- Air track
- Two gliders
- Two photo gates
- Computer with timing and analysis software

Procedure

The air track and compressor were set up by the lab instructors prior to our experiment. We ensured that the track was level by adjusting the base support screws until a glider in the middle of the track remained stationary. We then placed a photogate 30 cm from each end of the track and placed a rubber band bumper on each end of the track, to prevent the gliders from colliding harshly into the ends of the track after colliding with one another.

Data

Calculations and Graphs

Discussion of Results and Error Analysis

Conclusion