

Physics 1111: Lab 07

Momentum

Suppose you are standing on a frictionless sled ($M_{you+sled} = 100$ kg) moving at 0.5 m/s. You also have 22 blocks of mass 12 kg (i.e. $M_{total} = M_{you+sled} + 22(12 \text{ kg})$). You can boost your velocity by throwing the blocks horizontally at velocity 11 m/s in the opposite direction of your motion. Create the following two plots: velocity vs the number of blocks thrown, and momentum vs the number of blocks thrown.

Run the following simulation to test your results:

- Make sure you have Java JDK 1.8 installed
- Download rocket-app.zip from <https://github.com/naharrison/discrete-rocket/releases>
- Unzip the file and open rocket.jar
- Click the green button to throw a block