Dylan Lucko

Blowin' in the Ionic Wind

It is known that charging and acceleration of particles will cause an electromagnetic dipole capable of producing an ion wind sufficient enough to elevate an object off a surface. To understand the effect of accelerating particles and the resulting particle ionization, a lifer was constructed and a high voltage power supply was used to electromagnetically charge particles. At 20 µA power output, the lifter elevated a mean distance of 1.10 cm off the surface. The power supply was then set to the maximum output level of a mean of 26.4 µA. The lifter elevated a mean distance of 3.34 cm off the surface. The ionic wind was measured at a mean of 2.39 mph at the maximum output level. The results of the experiments supported both hypotheses. The first hypothesis stated that if particles are charged and accelerated, the resulting ionization will be sufficient enough to elevate an object off a surface. The second hypothesis stated that varying the amount the particles are charged and accelerated will increase or decrease the height of the lifter because the amount of ionization affects the downward force propelling the lifter upward.

Newton's Second Law was also studied in this experiment. This law states that the rate of change of momentum is proportional to the imposed force and goes in the direction of the force. By determining the mass of the object, acceleration, and weight, the force needed to elevate the lifter was calculated at 0.021 Newtons or 0.005 pounds.