**Noteguide for Accelerated Ions - Videos 16J Name**

Suppose we dropped a proton near the + 12 V side. What would be the proton’s velocity when it struck the right side?

q = +1.602x10-19 C, m = 1.673x10-27 kg

1 electron volt is the energy of one electron charge moved through one volt.

An electron accelerated through 12 V has 12 eV of energy

1 eV = 1.602x10-19 J (ΔEp = ΔVq)

An alpha particle (2p2n) accelerated through 12 V has 24 eV of energy (two electron charges)

Whiteboards.

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| 1. Brennan Dondahaus accelerates an electron (m = 9.11x10-31 kg) through a voltage of 1.50 V. What is its final speed assuming it started from rest? (726,000 m/s) | 2. Brynn Iton notices a proton going 147,000 m/s. What is its kinetic energy in Joules, through what potential was it accelerated from rest, and what is its kinetic energy in electron volts? (1 eV = 1.602x10-19 J, mp = 1.673 x 10-27 kg)(1.81x10-17 J = 113 eV, it was accelerated through 113 V) |
| 3. Mark Meiwerds notices that Fe ions (m = 9.287x10-26 kg) are traveling 7193 m/s after accelerating from rest through 5.00 V. What is the charge on this ion, and is it Fe+1, +2, or +3? (4.805x10-19 C which is about 3e, so it is Fe+3) |