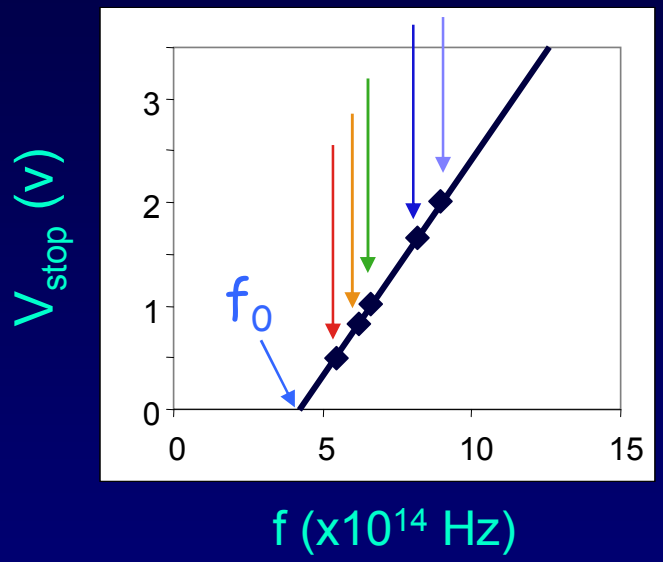
# Photoelectric Effect (3)

Experiment 2: Measure $V_{stop}$ *vs* f




$$KE_{max} = e \cdot V_{stop} = h(f - f_0) = hf - \Phi$$

The slope: h, is Planck's constant.

h = 6.626 x $10^{-34}$ J•s

The -y intercept: $\Phi$, is the work function.

Note that $\Phi = hf_0$. $\Phi$ is positive.

The results:

The stopping voltage $V_{stop}$ (the maximum kinetic energy of electrons) increases linearly with frequency.

Below a certain frequency $f_o$, no electrons are emitted, even for intense light! This makes no sense classically. Increasing the electric field should have an effect.