

## Franck-Hertz Experiment

This was one of the first experiments which showed the effect of quantized energy levels. The goal of the experiment is to measure the current vs. the applied voltage for a tube containing low-pressure mercury vapor, and to determine from this curve the energy difference between the ground state and the first excited state of the Hg atom.

In this experiment, a glass tube containing low-pressure Hg vapor is heated in an oven. The tube has a **cathode**, which is an electrically heated filament, an **anode** which collects electrons produced by the cathode, and a **grid** which is between the two.

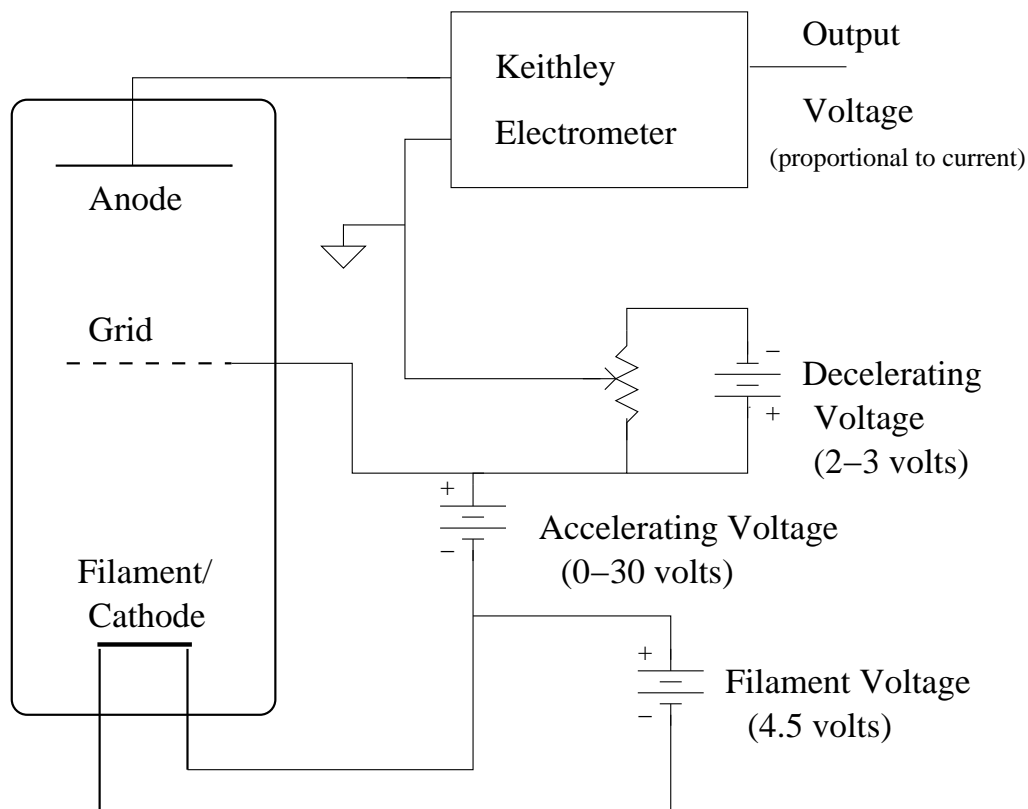


Figure 1: Block diagram of the Franck-Hertz apparatus.

The experimental details are extensively described in **Experiments in Modern Physics**, by A. C. Melissinos; Academic Press (1965).