

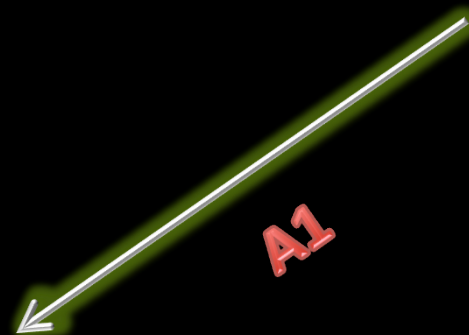
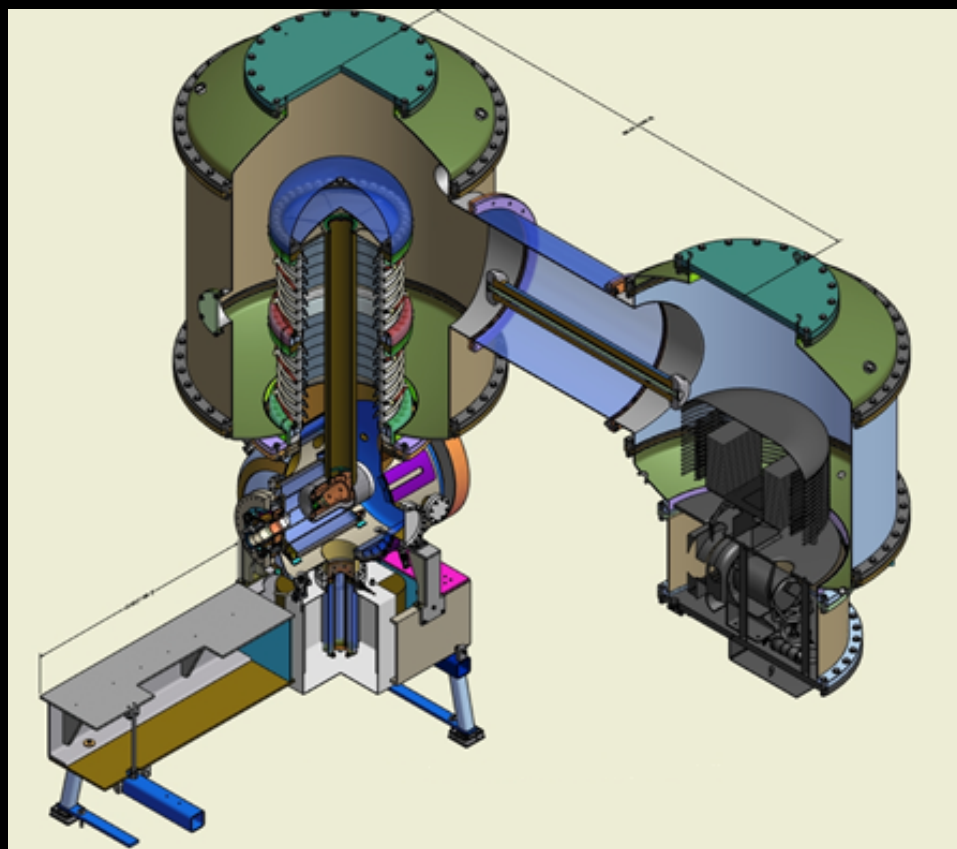
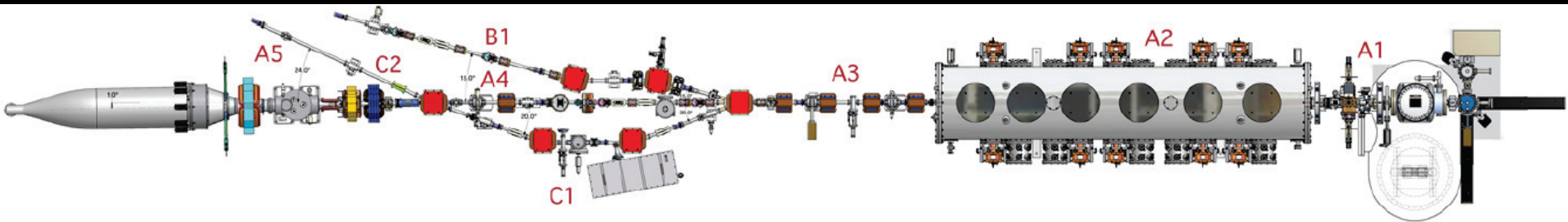
HIGH-VOLTAGE TESTING FOR A HIGH-CURRENT ELECTRON GUN

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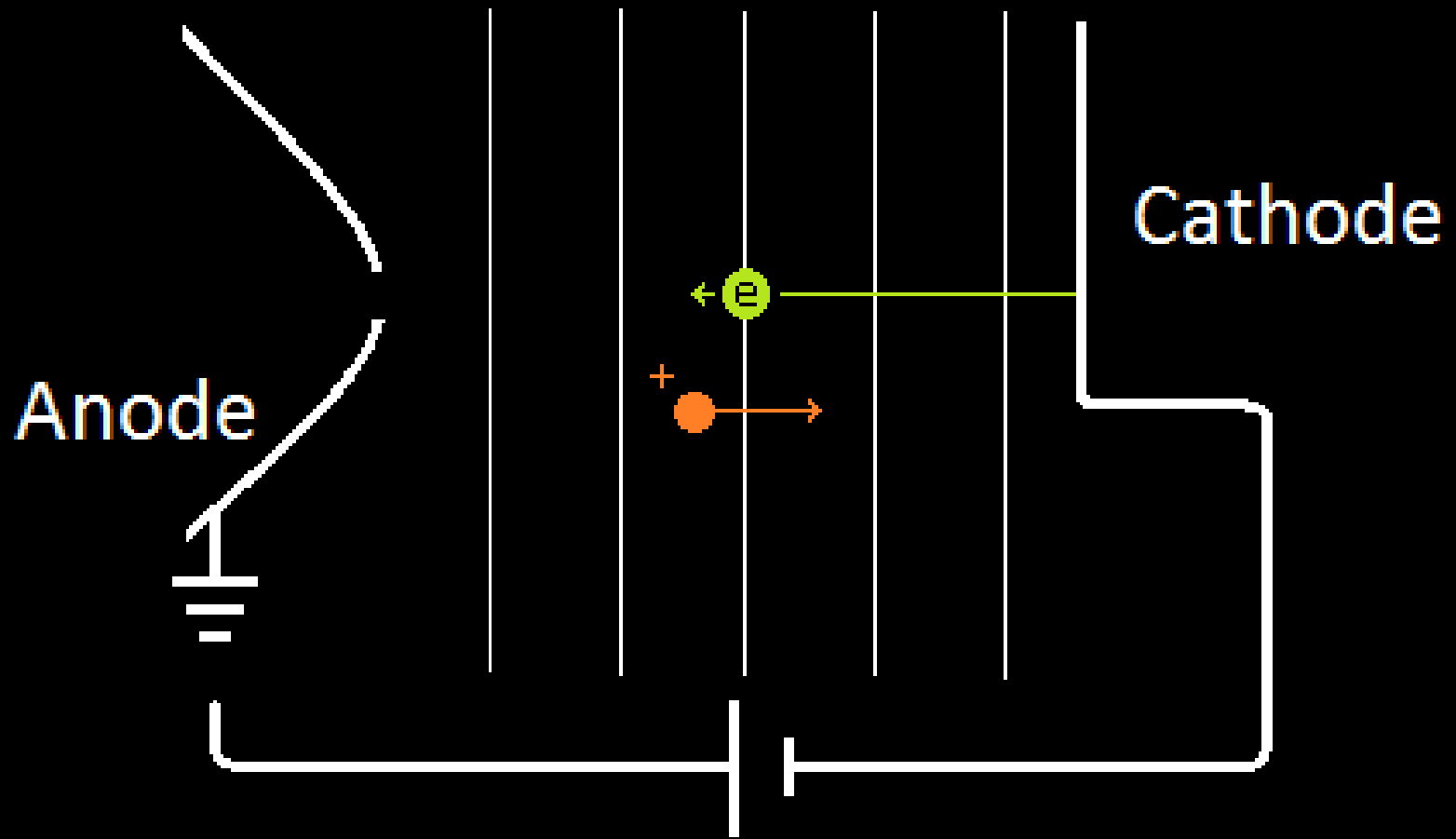
**Supported by the NSF Grant PHY-1156553*



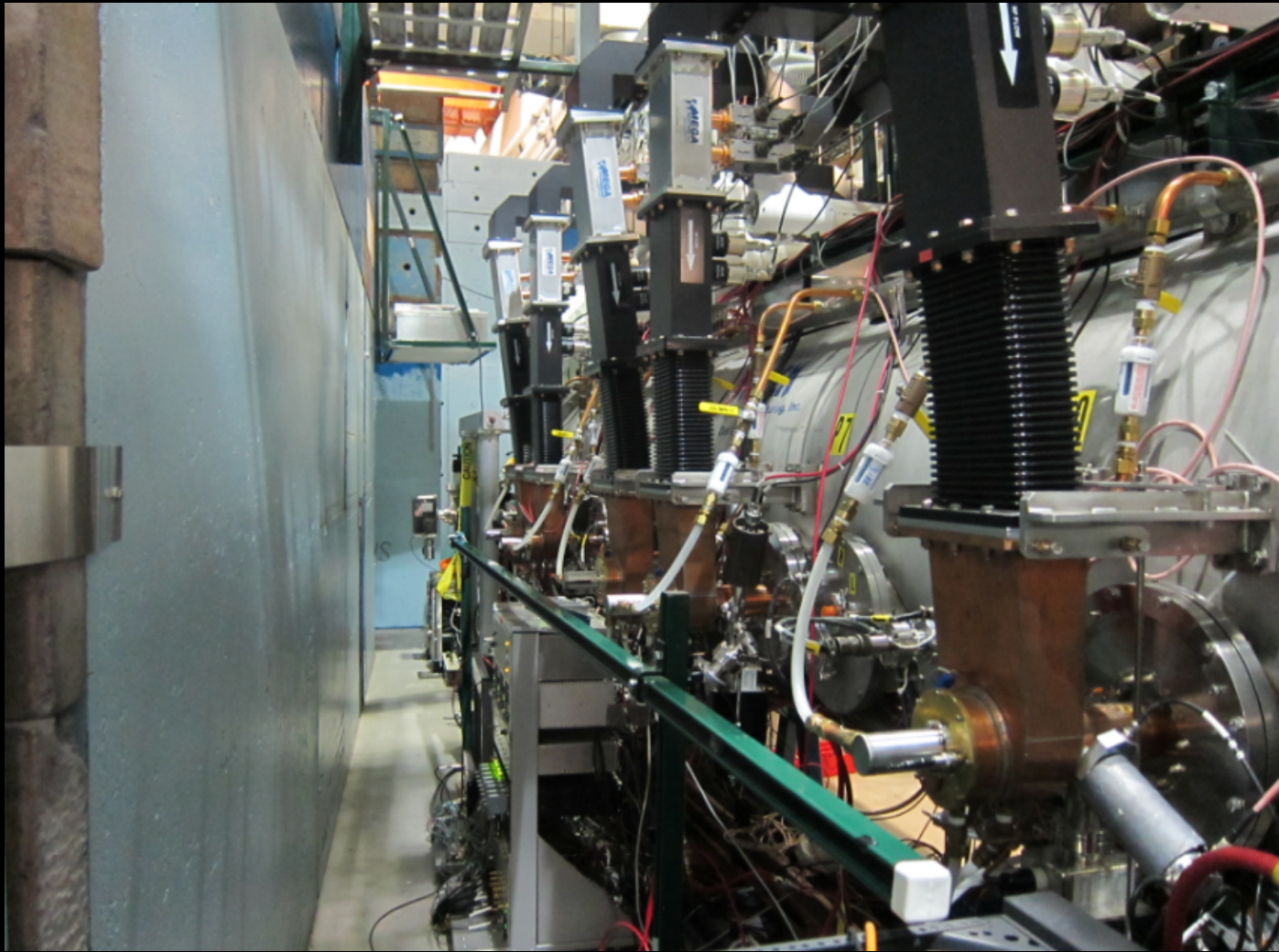


A view of the cathode prep system.

Electric field



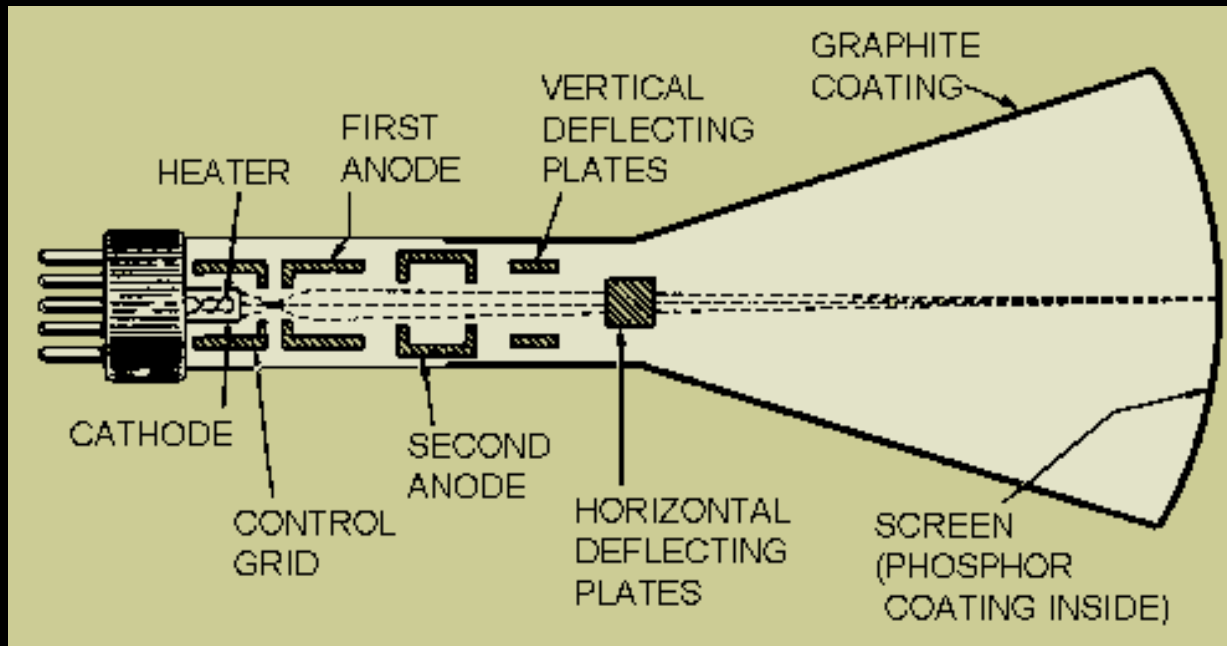
A positively charged ion travels back toward the cathode.



The RF cavities.



Installing the non-evaporable getter pump.

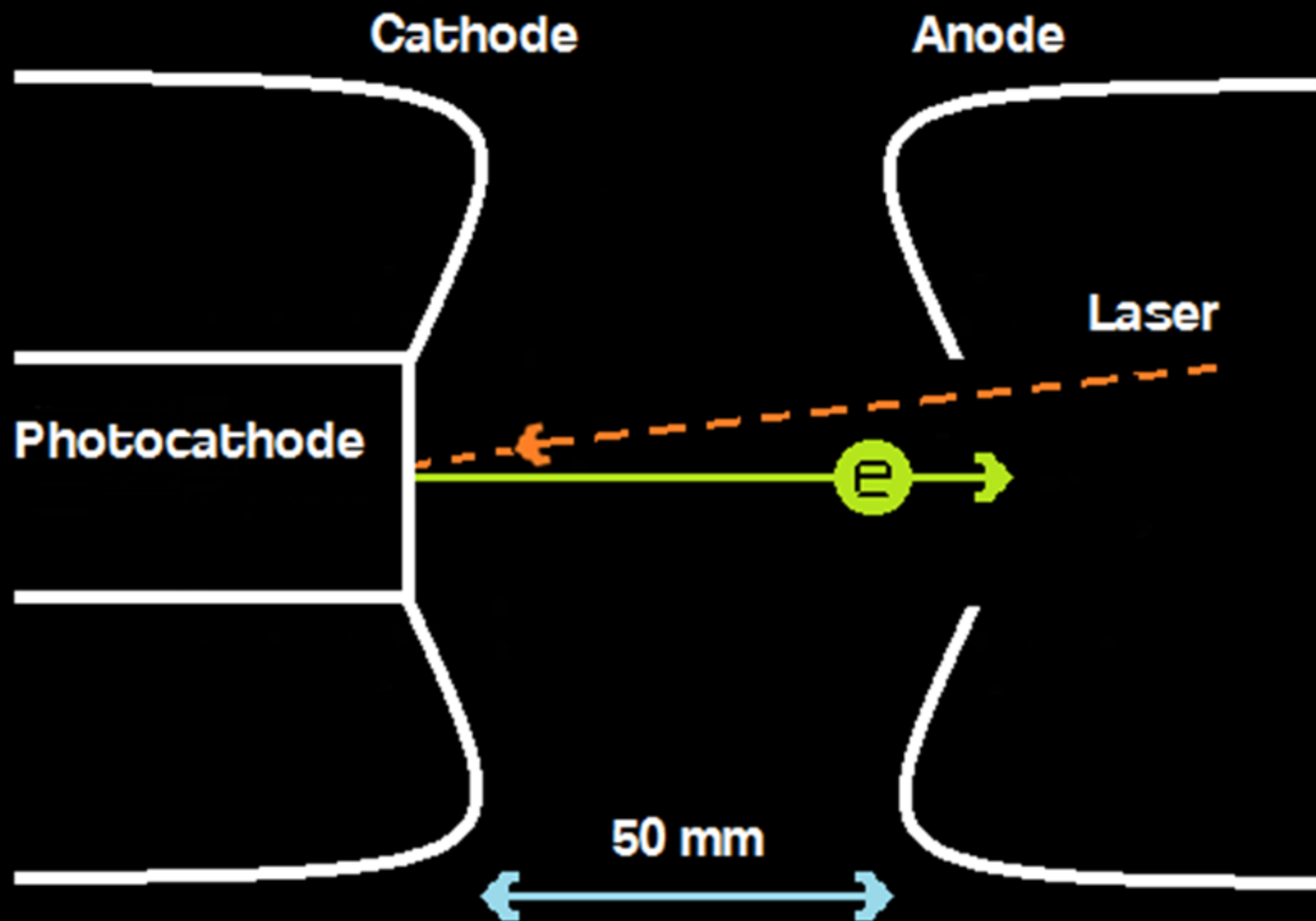


Example of a thermionic gun.

Note the heater and filament (as opposed to laser).

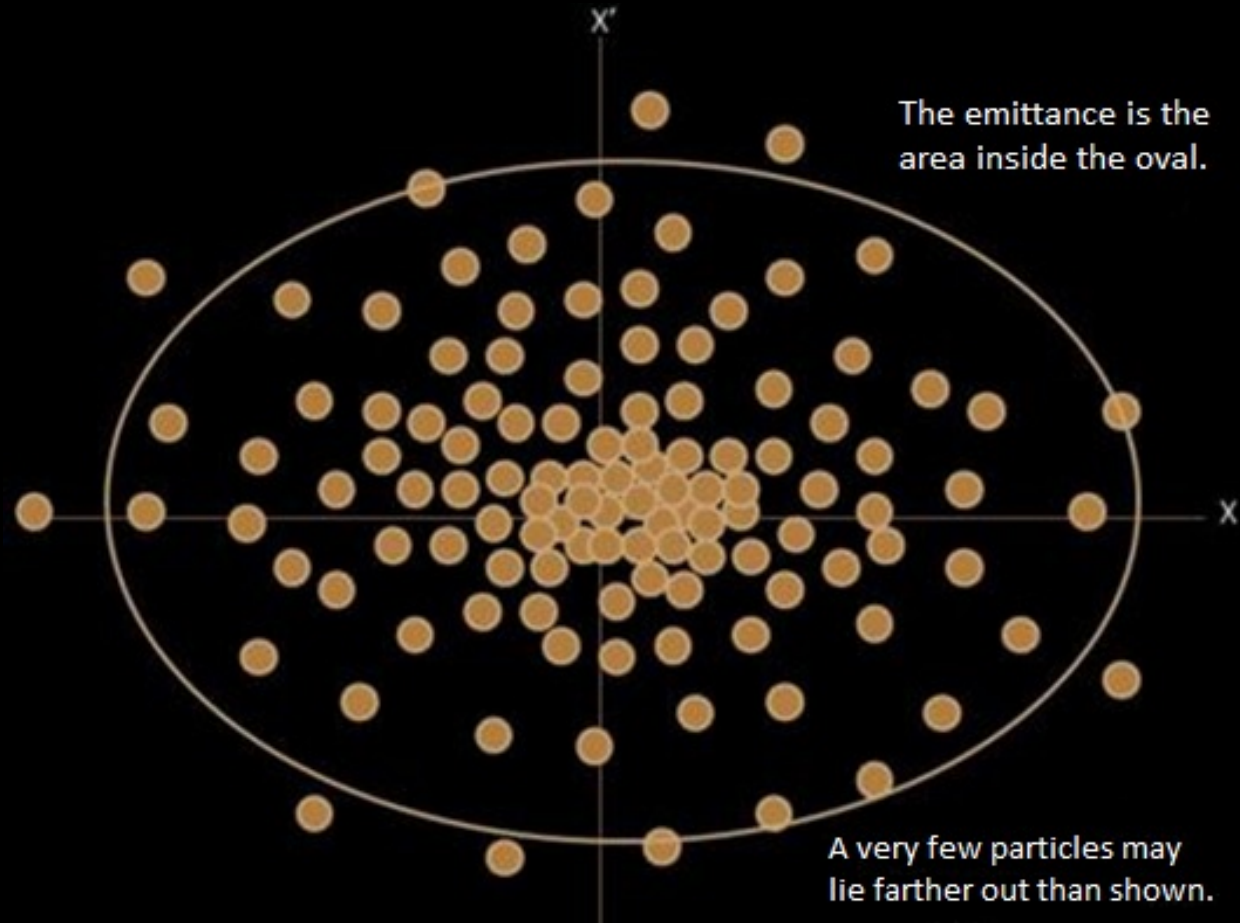
Photogun

(Under an electric field and in vacuum)

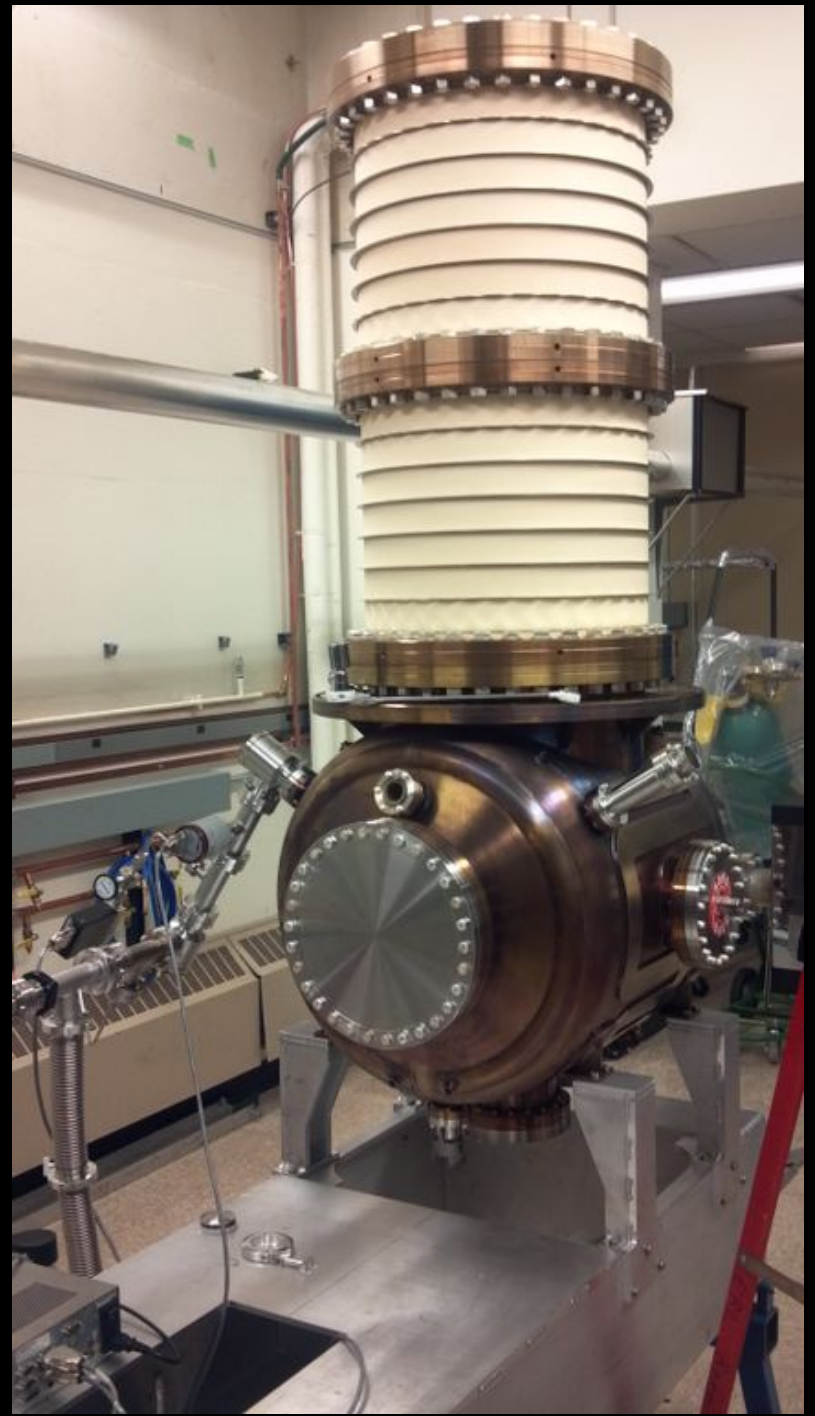


Emittance tells us about the average spread of the beam: its size and angle.

We want this value to be low!

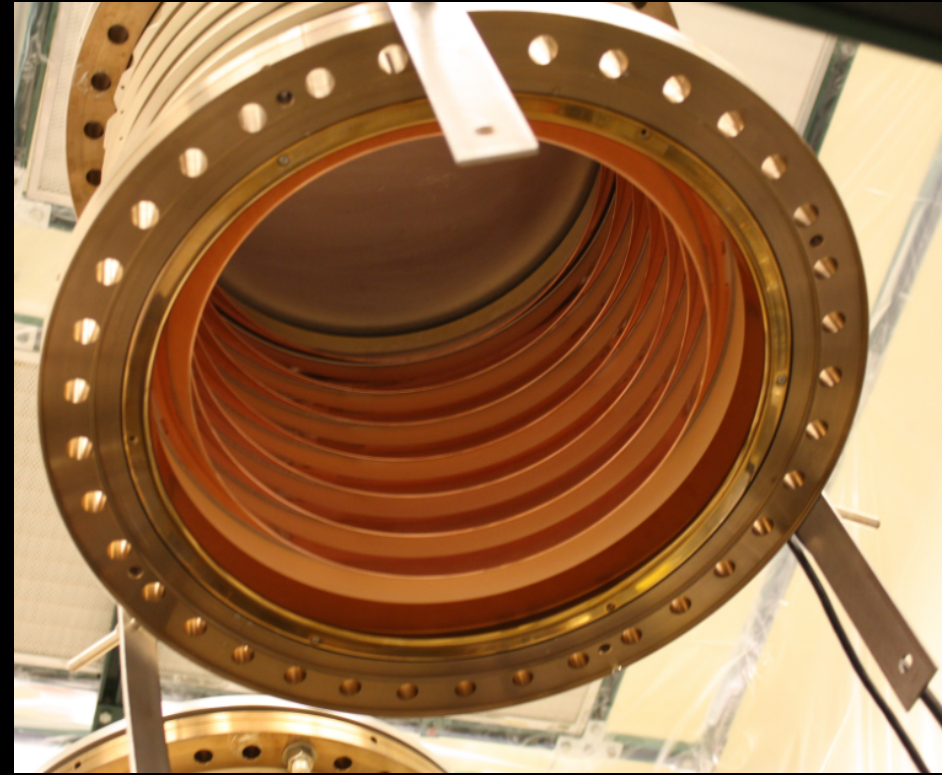
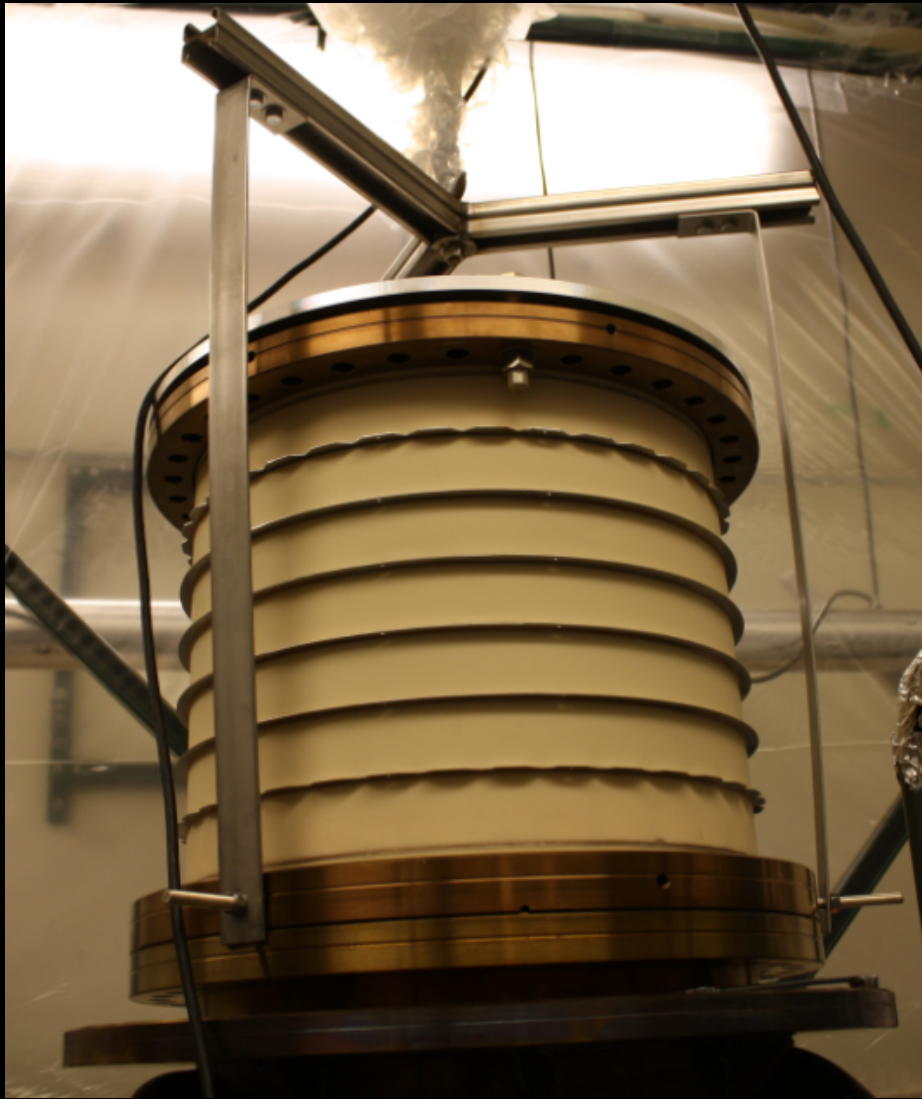


With the “super clean” phase of the gun construction done, we removed it from the clean room to begin initial tests (showing it won't break down by going step by step – insulators – plus stalk – plus electrodes: to see where any issues are) before sending it to L0, which is the area where the ERL is housed.

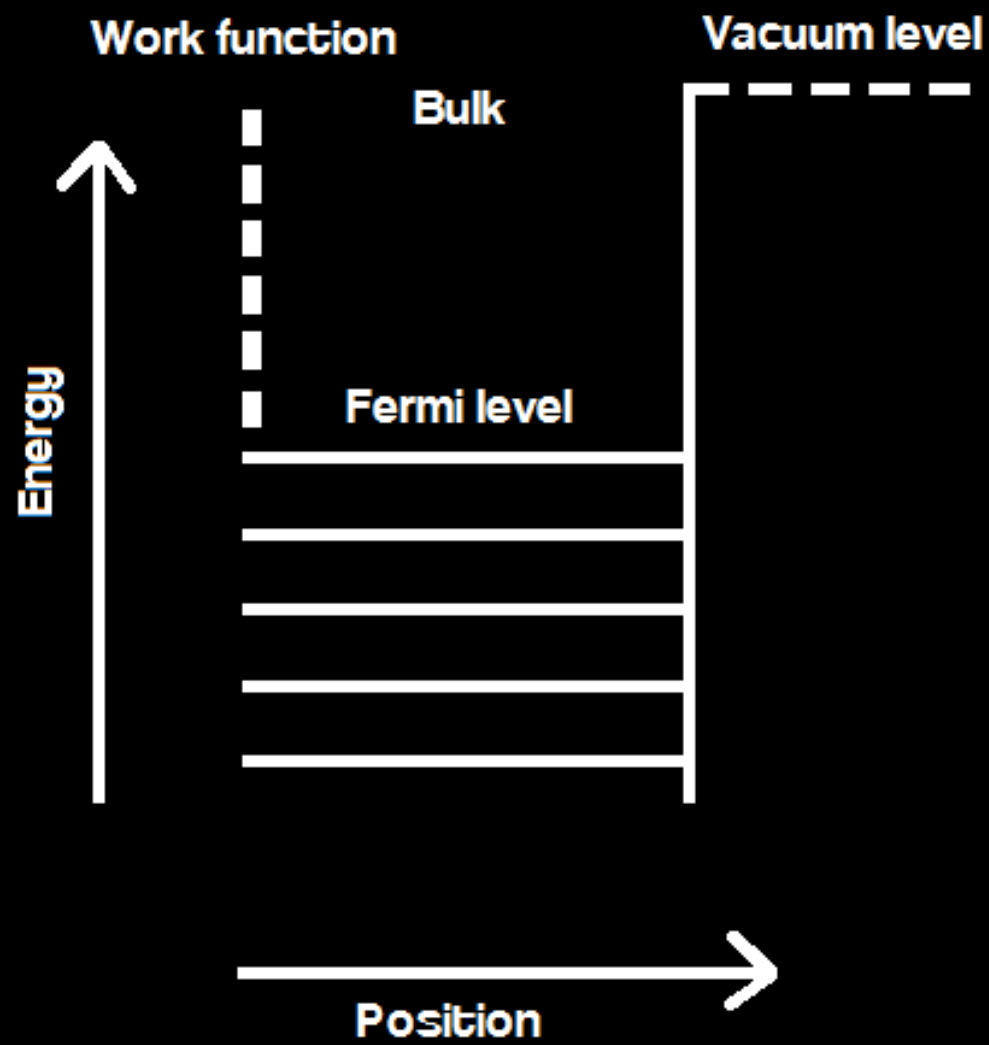


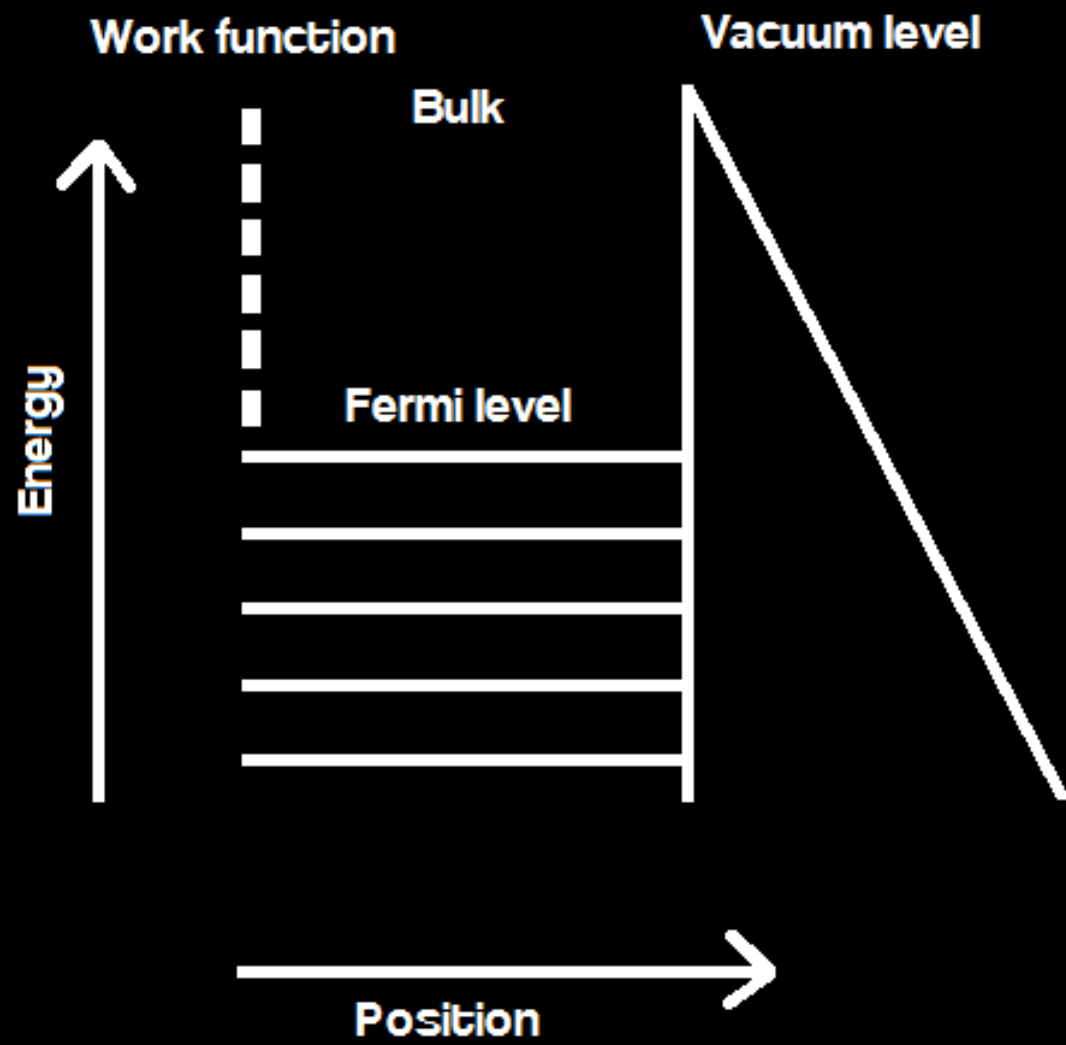


High pressure rinsing protection rings.



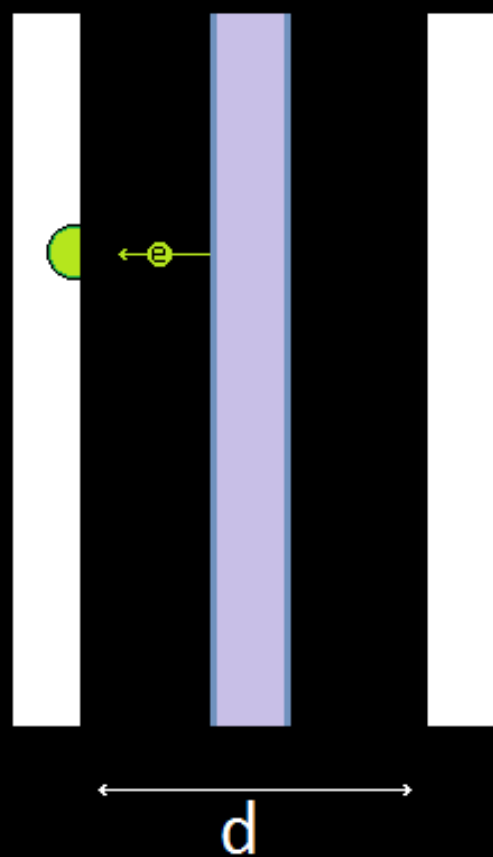
The first insulator is lowered on to the vessel (left). Later, the second insulator is lifted prior to attachment, showing its interior (right).



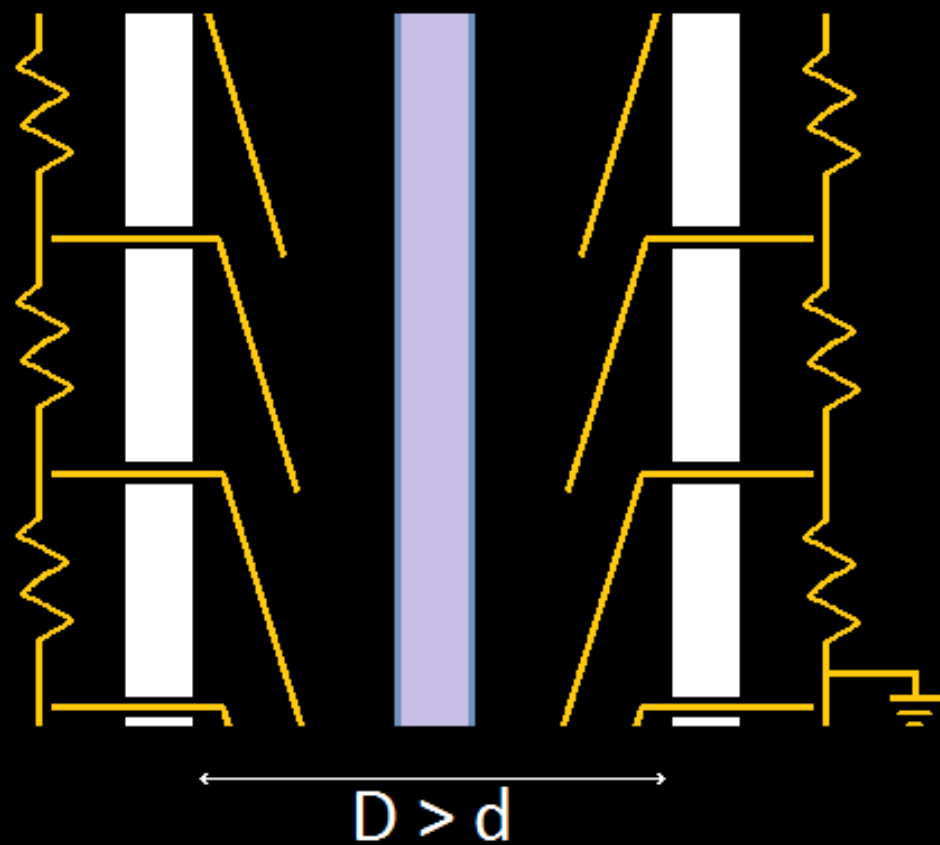


Insulator differences between gun designs

Gun Mark I



Gun Mark II





Thanks to:

Karl and Jared, for their help, and to Cornell, for the opportunity.

Questions?

