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CEBAF R28-2 gun with Tee SS electrode gun is tripping off at 180 kV ~ once every week since Nov 4. Suspect field emitter. This is the plan to address it.

The backup gun, R28-1 with Tee Nb electrode is currently installed in UITF. It has been baked, and is connected to the resistor tank ready for HV processing. M. Poelker reports UITF is still days away from receiving authorization to turn the gun on, even for HV processing.

Prior to proceeding with CEBAF gun HV conditioning, but after UITF gun HV conditioning:

1. Stage the resistor tank, HV cables and the turbo pump cart from UITF to ISB
2. Ask I&C for camera and video channel to monitor Kr pressure in the turbo pump cart

Proposed plan for CEBAF gun Kr HV processing:

* Connect turbo pump cart to Kr line and evacuate, start mild bake and charge Kr line **DONE**
* Connect pump cart to gun bake I/P, evacuate and bake line to ~150 C for ~4 hours?
* Connect resistor tank to gun and to HVPS
* Close gun valve and set it in shut override mode
* Install gun HVPS interlock bypass in J6 connector (Gun vacuum/Global, and 15 deg dipole)
* Replace photocathode puck currently in gun HVC with dummy GaAs photocathode puck
* Set TV camera to monitor Kr pressure in turbo pump cart, check video ok in EPICS
* Set Kr pressure to ~2E-6 Torr as read by the turbo pump pressure gauge
* Bring gun HV to 180 kV, then to 190 kV
* IF no signs of field emission or HV trips: soak for 4 hours under Kr conditions
* If gun trips off while soaking at 190 kV, ramp voltage to 200 kV and soak for X hours, then drop to 190 kV and soak until there are no trips in X hours???
* If field emission, processing will require > 200 kV, but no higher than ~ 230 kV or otherwise we risk arcing across the insulator
* When there is no sign of field emission or gun trips in X hours at 190 kV, shut Kr off. It will take a few hours for the vacuum to fully recover, but should be sufficiently low to turn the gun IP back on
* Ramp gun to 180 kV and evaluate HV voltage for no gun trips and no field emission. It is difficult to say for how long, because the gun trips are happening once a week.
* Assuming gun ok at 180 kV, say in 4 hours, then:
* Remove resistor tank and connect gun directly to HVPS
* Remove gun HVPS interlock bypass key and re-connect to interlock signals J6 connector
* Replace dummy GaAs photocathode with production photocathode
* Evaluate gun vacuum if ok to open gun valve. If yes, return gun valve to normal operating mode
* Gun ready for ops