Gun Test Stand, why?...WHY???

- To demonstrate proof of principle magnetization of high current (mA) electron beam for the JLEIC R&D
  - In particular, to support Riad Suleiman's LDRD award
- To provide 350 keV beam for Yan Wang's thesis work on emittance as a function of photocathode surface
- To serve as a test stand for improved gun and diagnostics designs for CEBAF, UITF, LERF.
- To demonstrate for the first time high current beam from and inverted gun at 350kV DC with in-house multi-alkali photocathodes

Timeline

May

First beam
Beamline & cathode commissioning

June

Emittance vs cathode film thickness and roughness

July

Lifetime vs cathode film thickness and roughness

August

Shut down for Riad's magnet installation
Gun & cathode chamber refurbishing
Beamline upgrade

September

All systems vacuum bake
Beamline diagnostics re-installation

October

Gun HV conditioning
Magnet commissioning
Cathode chamber commissioning
Beamline commissioning with beam

Status as of May 2 2016

Viewers

- C. Norris finished instrumenting the beam viewers
- M. Johnson made the devices are available through the screen FEL -> GTS -> Viewers.

Video

- J. Gubeli and C. Gould are working on temporary analog cameras. Update?
- Later to be replaced with K. Jordan and B. Freeman's digital imaging system. Update?

DC power

- E. Diggs and J. Delk installed and wired magnets. Update?
- Limiting current resistors needs to be installed. Hall probe checks are needed.

Status continued

Software

- M. Johnson made the devices are available through the screen FEL -> GTS -> Viewers, with position sensors?
- K. Hesse made a new GTS magnet command screen
- C. Dubbe generated new nomenclature
- M. Joyce created the GTS LED
- S. Witherspoon is working on vacuum software for the 6 UHV IP controllers connected to beamline
- G. Croke provided channel assignments
- Need to implement dump and anode ammeter signal in EPICS,.

Laser

- Laser is DC BEAM
- S. Zhang is treading the laser beam from the hutch to the gun cathode.
- Need shutter and attenuator EPICS control.
- Do we also need ND filter that can be insterted?

Beam Dump

- Dump has been electrically isolated and ready for BNC connection to ammeter in control room.
- D. Bullard working on LCW water connections. Needs flowmeter from P. Francis to interlock with laser shutter or gun.

… and our postdoc Mamun

- Made the first multi-alkali photocathode in the GTS prep chamber yesterday!