Fall Program 2018

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| Hall | Polarized | Typical Current | Beam Quality |
| A | No | 20 uA | Sharing w/ D  Parasitic PQB |
| B | Yes | 2-80 nA | Max Spin  Min bleed |
| C | Opportunistic | 70 uA | Bunch charge  Cathode lifetime |
| D | No | 10 – 500 nA | Sharing w/ A  pA runs (TAC) |

* Resume at Spring linac energy 1050 MeV (two changes late Fall 1430, 805)
  + Wien for B=+50 => Using VWien=50 +Solenoids=90
  + New spin calculator based on elegant w/ SR available soon
* Gun2 photocathodes
  + Puck #3 – SLSP-5247-4 (SM#2) – Spare for physics
  + Puck#6 – SLSP-75104 (SM#2) – Dirty? but sibling 90% miniMott
  + **Puck #9 – SLSP-5756-4 (HV) – Physics photocathode**
    - [**https://logbooks.jlab.org/entry/3584525**](https://logbooks.jlab.org/entry/3584525)
  + Puck #10 – SLSP-75105-DBR (SM#1) – Dirty? test DBR Gun2
  + Puck #32 – Bulk (SM#2) – HV processing, retro, sacrificial
* Working w/ Michele on photocathode manager to replace “Where’s My Puck”

Items purchased, repaired, etc.

* Puck #30 series – issue appears to be burrs, finally a winner?
* Manipulators are being re-worked at UHV Transfer
* R28(2)/R30(3) flanges ordered (fiducials, handles, ground shed taps)
* Ground shed (2) shop job
* New group laptop (RGA, roaming JMenu, Beam Gauge, etc)
* NI USB ADC req submitted
* Bigger monitor at tunnel roll-around cart
* Need spares???

Gun2

* Operate at 130kV for the Fall run
* Anode grounded, overvoltage protection box now is ISB for remote QE scan
* Remote QE scan works relatively, but ground w/ LM for absolute QE scan
* HVPS controls appear to be operating reliably, w/ some caveats
  + Tiny leak at SF6 burst valve slow droop on pressure, may stabilize
  + Small cross-talk into voltage/current DVM’s when inserting devices
* New NEG BPM’s appear to be working well
* Increased MBH2I01V limits to +/- 2A to accommodate larger kick (now <1A)
* Laser chiller was off ~month (observed phase changes?); now on => alarms

Injector

* How is setup going?
* New bunch length software
* Chopper P1 re-added to VME (was in CAMAC, got lost)
* Moving Mott valve from Ops to Mott screen (limit opening)

Work we did this SAD

* Bubble engineering run
* Brock cavity removed from 1D spectrometer
* Gun HV commissioning
* 200 kV hardware commissioning
* 180 keV beam tests
* PQB studies of RTP cell (fast no ring, charge + position)
* Shukui prototyping new polarization maintaining 4-laser system
* John found new HV grease

Posted Experiment Schedule

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| --- | --- | --- |
| Time Period | Program | Activities |
| Today – Dec 19  (19 weeks) | NP  Fall’18 | ABCD  Prototype RTP/Mosfet UVa  SCAM: <https://logbooks.jlab.org/entry/3584798>  Assess lifetime (QE meas, Gun curr, Rad, Vac) |
| Dec 24 – Jan 1 | Lab Closed | Holidays |
| Jan 2 – Jan 29  (4 weeks) | SAD  Winter’19 | RTP Pockels cell  Anode bias |
| Jan 30 – Mar 10  (8 weeks) | NP  Spring’19 | A=C=70uA, B=Pol |
| Mar 11 – Jun 9  (13 weeks) | SAD  Spring’19 | Bubble Engineering Run  PREX PQB setup  Gun2 electrode? |
| Jun 10 – Aug 4  (8 weeks) | NP Summer’19 | A=70uA 1-pass PREX, Two Wien flip  B 5-pass (witness beam)  C ~ week of running |
| Aug 5 – Sep 30  (8 weeks) | SAD Summer | Bubble Experiment? |
| Oct 1 – Dec 18  (12 weeks) | NP  Fall’19 | A=150uA 1-pass CREX, Two Wien flip  BCD ~5-pass all <30uA |

Injector Upgrade 2020

* Gun2 that reaches 200kV, improved emittance, manages active area
  + <https://logbooks.jlab.org/entry/3585391>
* Wien filters + optics that operate 200kV, manage two-wien flip
  + HV switches
* QCM characterized with beam for CEBAF input parameters
* PSS kicker for 200kV integrated to layout
* Improvements for vacuum, ion clearing, manage laser power
* Improvements in magnetic field quality and layout for transport, choppers, match
* Right set of diagnostics
* Improve layout (two-wien flip optics, earlier buncher location, align to chop)
* Evaluate/Improve chopping chamber
* Resume regular upgrade meetings