

**RC Weekly Report**  
**SIDIS CSV Experiment E12-09-002**

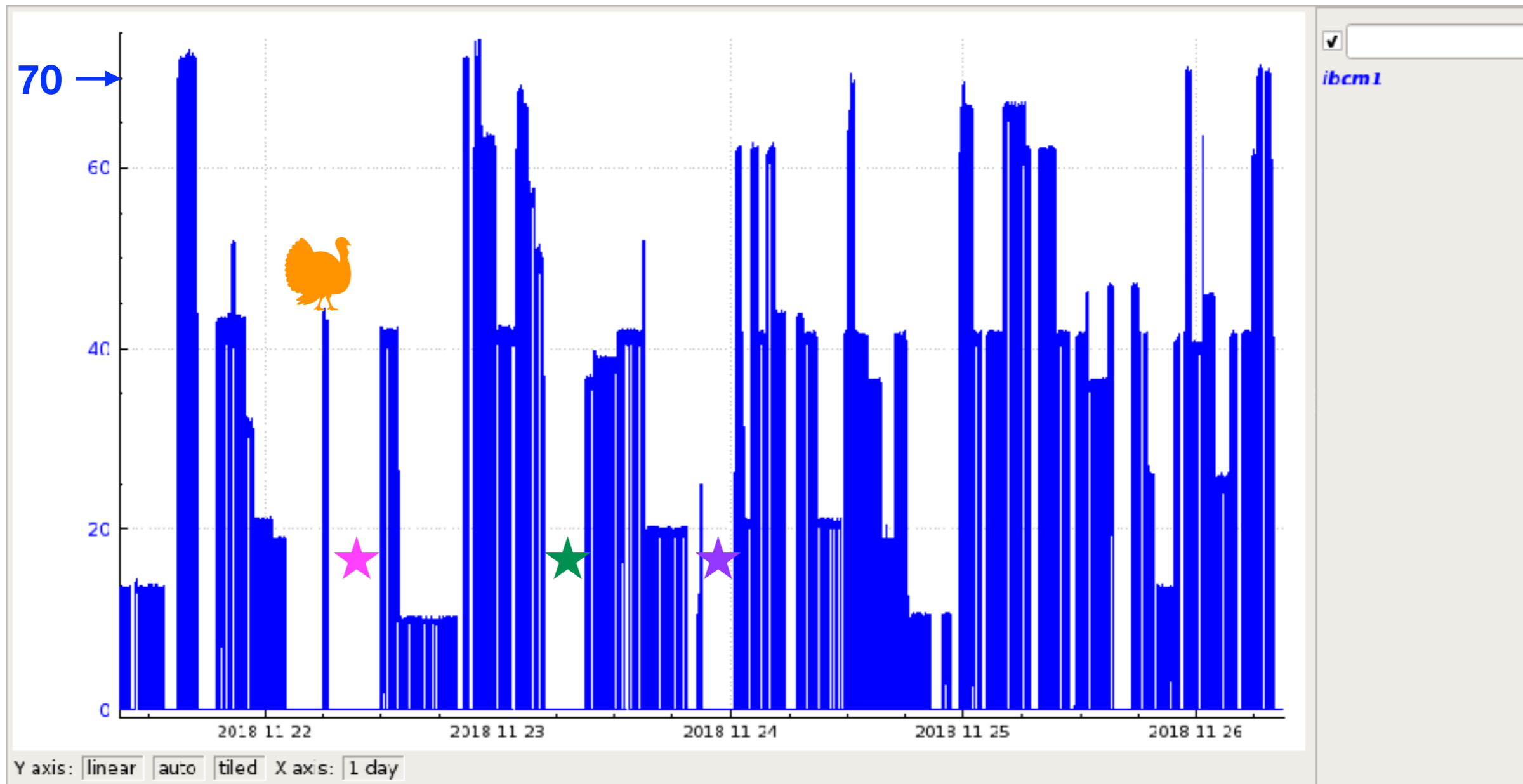
**R. Montgomery**  
**21/11/18 - 26/11/18**

**Data Collected**

- Experiment in **production mode** since RC handover Wed 21/11
- Production data successfully collected for **8 kinematic groups** (each group includes z-scan and data taking on LD2 and dummy targets):
  - **11** ( $Q^2=5\text{GeV}^2$ ,  $x=0.5$ ,  $\pi^+$ ) (8/8, rate study using 3 beam currents for 1 setting)
  - **12** ( $Q^2=5\text{GeV}^2$ ,  $x=0.5$ ,  $\pi^-$ ) (8/8, rate study using 3 beam currents for 1 setting)
  - **Electron singles in SHMS** ( $\theta_{\text{SHMS}}=9^\circ$ ,  $p_{\text{SHMS}}=-7\text{GeV}$ , LD2 target, SHMS 3/4 only), 3 beam currents
  - **8** ( $Q^2=3.98\text{GeV}^2$ ,  $x=0.5$ ,  $\pi^-$ ) (8/8)
  - **7** ( $Q^2=3.98\text{GeV}^2$ ,  $x=0.5$ ,  $\pi^+$ ) (8/8)
  - **17** ( $Q^2=5.5\text{GeV}^2$ ,  $x=0.5$ ,  $z=0.7$ ,  $\pi^+$  and  $\pi^+$ ) (4/4)
  - **18** ( $Q^2=5.5\text{GeV}^2$ ,  $x=0.5$ ,  $z=0.6$ ,  $\pi^+$  and  $\pi^+$ ) (4/4)
  - **3** ( $Q^2=4\text{GeV}^2$ ,  $x=0.4$ ,  $\pi^+$ ) (6/8, lowest z-point missing)
  - **4** ( $Q^2=4\text{GeV}^2$ ,  $x=0.4$ ,  $\pi^-$ ) (6/8, lowest z-point missing)
- Beam currents spanning  $10\mu\text{A} - 70\mu\text{A}$
- Overall **~18/32 kinematic groups now completed from CSV run plan** (3 groups missing lowest z setting)
- Higher  $Q^2$  groups for next run period.
- End of owl shift **data collected for 2 kinematic settings of SIDIS pt experiment E12-09-17**. Roughly just under half desired charge goal at  $x=0.45$ ,  $Q^2=4.50\text{ GeV}^2$ ,  $W=2.53\text{ GeV}$  for negative and positive SHMS polarity (15-11 and 16-11)



## Beam Since Wed 21/11/18



- Accelerator down times roughly  $\geq 1$ hr
  - Wed 21/11, **2h 9min**: 1L17-8 communication errors
  - Wed 21/11, **57min**: 1L24 PC104 board swap
  - Wed 21/11, **1h 39min**: 1L17 lost communication
  - **Thur 22/11, 9h 43min: 1L24 drop/communication loss, RF and IOC issues, separation checks**
  - **Fri 23/11, 3h 25min: multiple brown outs**
  - Fri 23/11, **1h 12min**: NL13 tuning, ARC 18 trip
  - **Fri 23/11, 3h 53min: more NL13 problems**
  - Sat 24/11, **1h 6min**: 1L24 drops out of HV

## Experiment Downtimes Since Wed 21/11/18

- Experiment downtimes logged (except configuration changes 26/11 owl):
  - Several SHMS and HMS configuration changes totalling logged downtime of ~4hrs
  - Fire alarm (heat sensor) Hall C beam way (18mins)
- Other issues (all occurred after the line voltage glitches on 23/11 at 04:51)
  - SHMS Q3, dipole HB power supplies had to be re-cycled
  - Drive controller errors during HMS/SHMS rotation, shunt trip breakers had to be re-set
  - DAQ frozen (reboot cdaq13 fileserver, perform fsck, reboot of ROCs)
  - SHMS vacuum dropped to  $1.55e-3$  Torr during owl 25/11, SHMS forepump was turned back on and SHMS turbo controller reset
  - HMS dipole tripping when going to MOL (manually set at target for last shift)
- Other items that exist/arose:
  - Degradation of coincidence time resolution still exists
  - IOCHC10 lost communication (Moeller polarimeter). Accelerator group plan to study during next maintenance day

## Status and On-going Work in Hall

- **Successful data taking for E12-09-002** experiment over past 5 days
- Beam off 08:00 today (energy change 1.86 GeV/pass, move to 500 MHz laser)
- Hall C in restricted access
- **Preparations underway for move to Kaon-LT experiment!**
  
- Ongoing work:
  - **Aerogel** change in SHMS (V. Berdnikov and W. Kellner's team)
  - **HGC** work (B. Sawatzky and G. Huber et al University of Regina)
  - **Target loop 3** (LD2) JT valve: D. Meekins closed JT valve in Hall, parked loop 3 D2 target for next experiment and adjusted alarm handler values in CH to sensible values
  - S. Lassiter investigating **HMS dipole** trip issues (current leaks or power supply issue) and investigating possibility of UPS replacement to solve **drive controller error** when rotating
  - **Vacuum** studies
  - J. Beaufait **walk throughs**
- Possible upcoming work Tue
  - Spectrometer brush installations (S. Lassiter)
  - Accelerator group may want to check big BPMs
  
- **MCC aim for Hall C to be locked-up by start of Tue swing**
- Full check out procedure to study any remaining possible effects from mains power glitches?
- MCC perform beam studies overnight Tue. Estimate physics beam delivery Thur. Updated situation after Tue/Wed MCC scheduling meetings
- **Shifts reminder: all TO shifts still on**
  
- RC Meeting 16:30 tomorrow to plan Kaon LT, 2nd floor counting house (will e-mail)