Status of E-906/SeaQuest

– an unpolarized fixed-target Drell-Yan experiment

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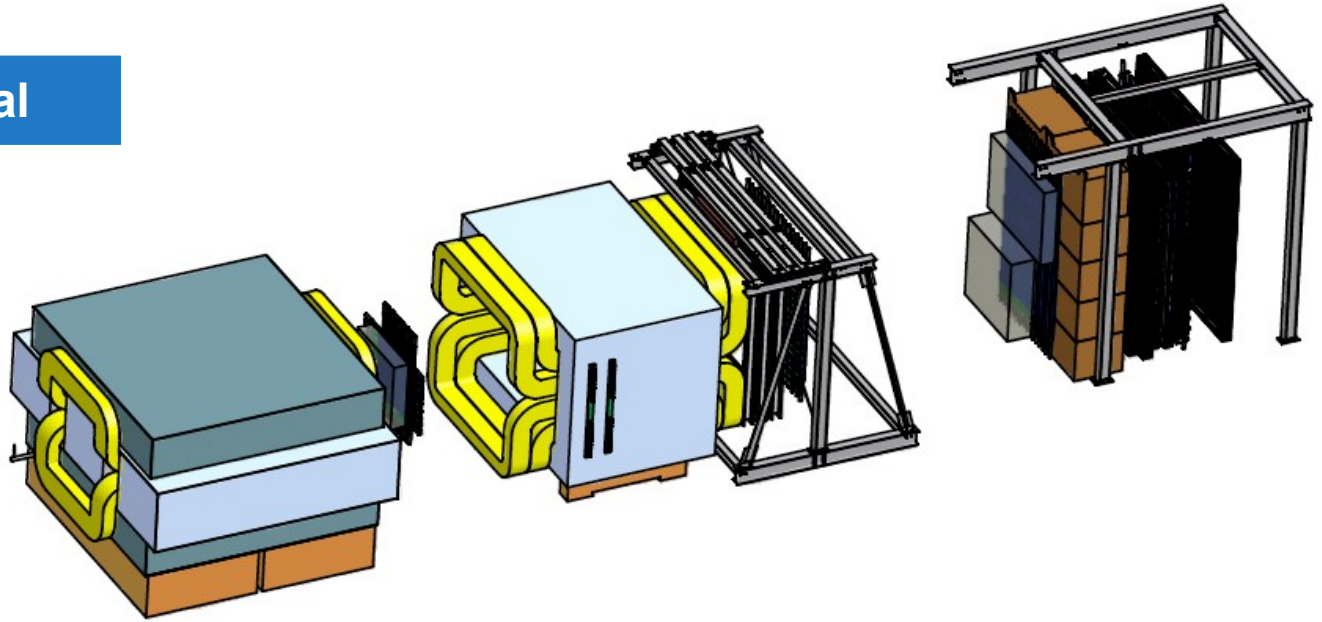
Beam Status

- **beam diagnostics** via SeaQuest beam-line Cerenkov counter:
  - measurement of bucket by bucket intensity
  - trigger inhibit: veto on single RF buckets as a function of intensity
  - in progress: calculation of the luminosity of the vetoed beam
- Cerenkov counter has been identified as **radiation culprit**:
  - reinstalled further downstream, closer to beam dump

    → reduced noise level due to shorter cables
  - recalibrated and retimed in the last week
- **higher intensity running** (last Wednesday):
  - increased number of booster batches from 2 → 3 → 4 → 5 (and eventually to 6)
  - beam intensity of about 2e12, 53MHz duty factor of about 40%
- large variation in instantaneous beam intensity, low duty factor
- continual high effort by AD to solve known problems in spill structure:
  - **slow component of 360Hz** and ***fast* component** in spill structure

Spectrometer Status and Plans

Operational



Target	target positions calibrated, solid-state target cycling
Magnets	FMAG (2000A) and KMAG (1600A) operational, no cooling problems, problems with beam inhibit for FMAG current
Hodoscopes	calibrated, timed in precisely, well tested in ongoing trigger studies
Drift Chambers	calibrated, high efficiency, operated at nominal voltages, also during high intensity running
DAQ	continuous data taking, stable operation at low and high rates

Trigger status

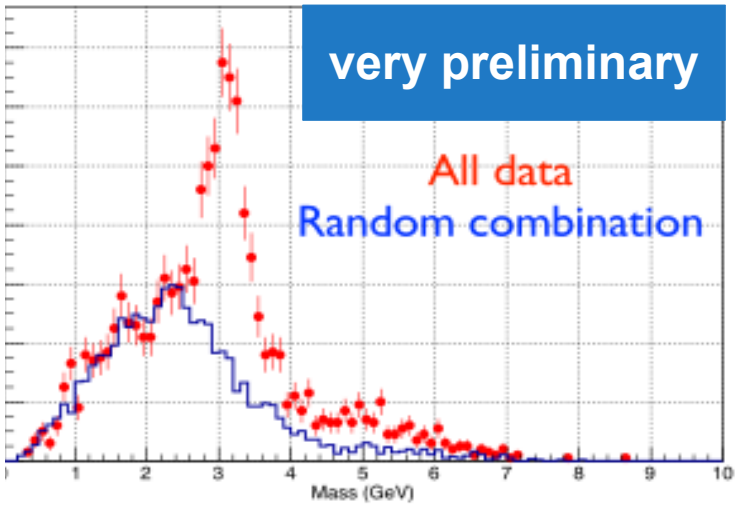
- road pulser tests of **FPGA trigger firmware:**

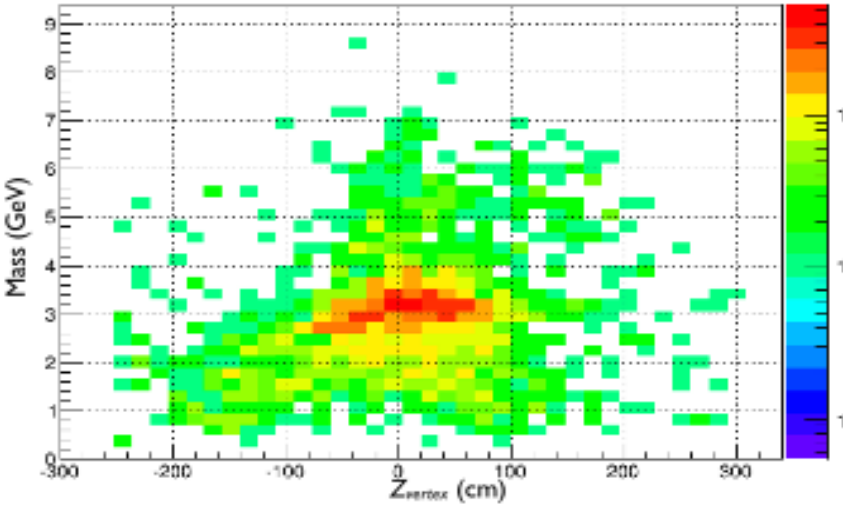
  100.0% efficiency and 100.0% purity

- **trigger road selection** optimized in full Geant MC simulations for:
  - good DAQ livetime
  - good acceptance rate of Drell-Yan events
  - removal of *hot* roads
- **extensive study of trigger rates** from data:
  - FPGA trigger efficiency and purity high, but not 100%
  - ongoing work to optimize efficiency and purity
  - and study dependence on trigger inhibit threshold
  - ongoing work to investigate <3% of events with apparent oscillation of trigger output
  - NIM diagnostics trigger fails at high rate

First Track reconstruction

- **di-muon mass** and **vertex spectra**:





- Main task of the coming week:

What is our overall detection efficiency?