Status of E-906/SeaQuest

– an unpolarized fixed-target Drell-Yan experiment

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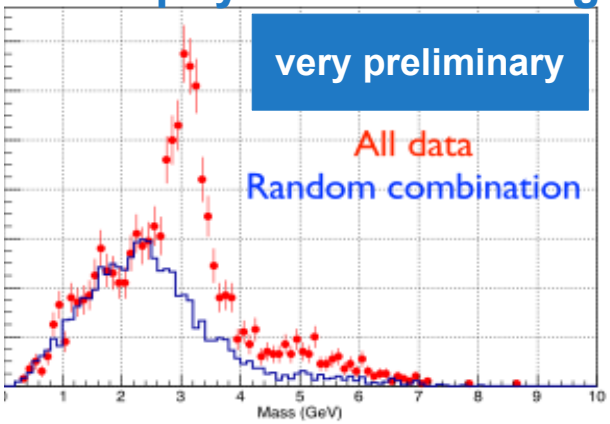
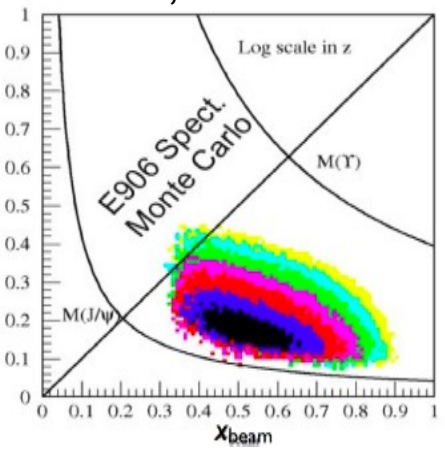
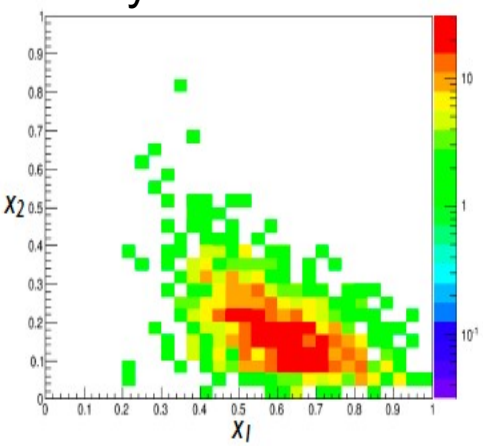
Reached a milestone

- during shutdown on February 18th and 19th:
  - filled liquid hydrogen target (LH2)
  - filled liquid deuterium target (LD2)
  - target table rotating between:

    LH2 flask - empty flask – LD2 flask – no target – iron target
- started **physics data taking** after shutdown, first run on February 20th







- at current running conditions (2e12 ppp):

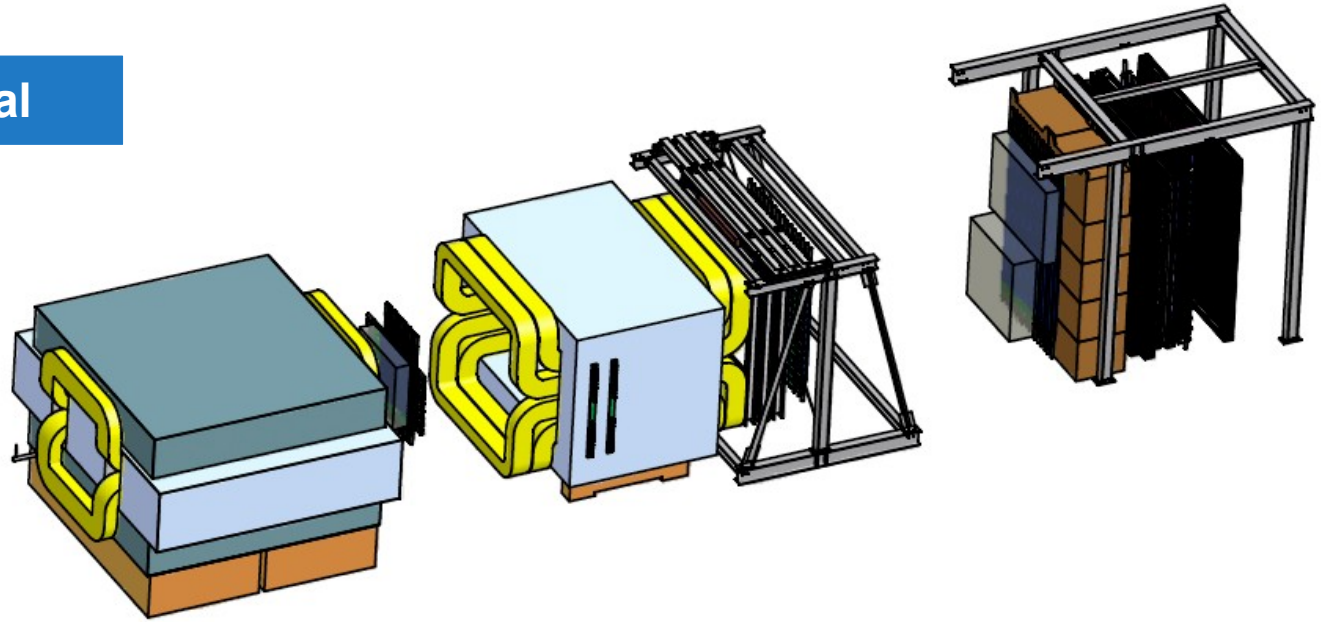
  first physics results expected after 3 months of data taking

Beam Status

- large variation in instantaneous beam intensity
- SeaQuest beam-line Cerenkov counter:
  - **beam diagnostics**: measurement of RF-bucket by RF-bucket intensity
  - **trigger inhibit**: veto on single RF buckets as a function of intensity
  - currently: inhibiting about 50% of integrated luminosity
- continual high effort by AD to solve **known problems in spill structure**:
  - slow component of 360Hz and *fast* component in spill structure
  - improvement of 53MHz duty factor → reduce beam inhibits
- **in the next months**: data taking at 2e12
- **long term goal**: data taking at 1e13

Spectrometer Status and Plans

Operational



Target	target positions calibrated, LH2 and LD2 targets filled and cycling
Magnets	FMAG (2000A) and KMAG (1600A) operational
Hodoscopes	calibrated, timed in precisely, high efficiency, well tested during trigger studies
Drift Chambers	calibrated, high efficiency, operated at nominal voltages, operate stable at 2e12 ppp
DAQ	continuous data taking, reducing DAQ dead time

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 based on data and MC simulations
- **extensive trigger studies:**
  - understood limitations of NIM diagnostics trigger at high rate
  - FPGA trigger efficiency and purity high, but not 100%
  - ongoing work to optimize efficiency and purity
  - ongoing work to optimize trigger acceptance