Hera Coordination Meeting

J Stewart Nov. 19 2001

- Detector Status
- Beam Conditions
- Proposal for HERA Running

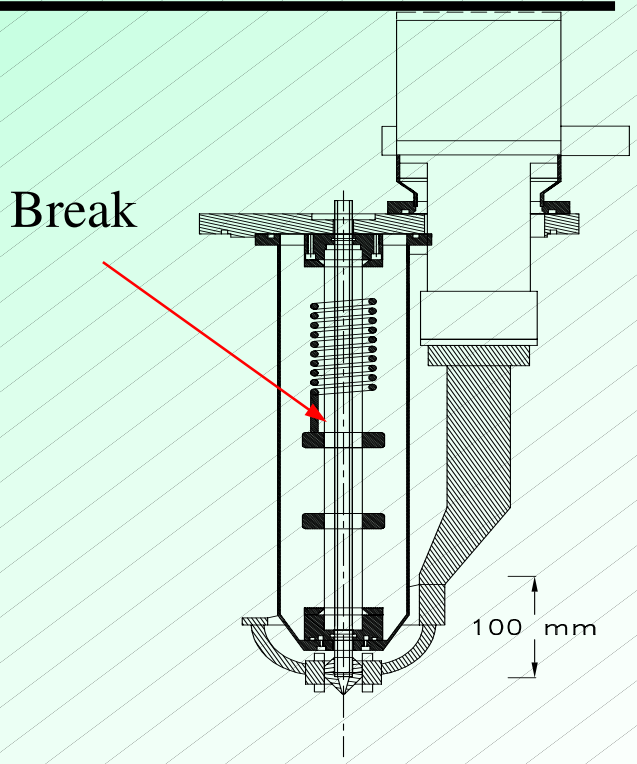
Detector Status

Target:

- **Atomic Beam Source**
  - In general operating reliably
  - Two broken discharge tubes
    - One caused by operator failure
- **Breit-Rabi polarimeter**
  - Initial tune accomplished
    - Fine tuning still necessary
  - Polarization as expected:

$$P_{z+} = 0.82 \qquad P_{z-} = -0.84$$

- **Target Gas Analyzer**
  - Unknown problem with QMS - Under Study



Spectrometer Status

- **All Tracking chambers are tested and ready to take data.**
- **Rich will run with nitrogen this year since there is no data taking.**

Spectrometer is ready to take data

Hera Beam Status

It has been demonstrated that a tune can be found where the background is low enough for HERMES to turn on!

Many thanks to ELKE and Hera!

Beam Position Monitors (BPM):

- **Survey indicates BPMs are off up to 3mm in vertical. (Collimator C2 has +/- 3mm aperture)**
- **MEA will make survey tool**
- **Will adjust BPMs in X-mas Shutdown**

Physics Overview

Running Mode / Target / Running Mode Beam	Transverse Polarized Hydrogen $P_\perp \sim 0.8$	Longitudinal Polarized Hydrogen $P_\parallel \sim 0.9$	Unpolarized H,D,He,Ne,Kr, … 100 x ABS-density End-of-fill
Unpolarized Beam or Helicity balanced	Excl. SSA $\pi^+,\pi^-,\pi^0,\rho,\ldots$ GPD-Amplitudes Semi-Incl. SSA $\pi^+,\pi^-,\pi^0,\rho,\ldots$ Δq , $H_1^\perp$	Excl. SSA $\pi^+,\pi^-,\pi^0,\rho,\ldots$ GPD-Amplitudes	Inclusive • Cross section ratios Semi-inclusive • Frag. Functions • Nuclear effects Exclusive • Coherence length • Color transparency
High polarization $P_B \sim 0.55$	Inclusive DSA A_2 ---> g_2 Sum rules , HT	Semi-inclusive DSA Δq_s	
High polarization $P_B \sim 0.55$ + Helicity balanced	Inclusive Λ δq		Exclusive • DVCS Inclusive • $\Lambda \rightarrow \Delta s$
Charge balanced High polarization $P_B \sim 0.55$ + Helicity balanced			Exclusive • DVCS

Proposed Running Plan

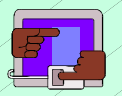
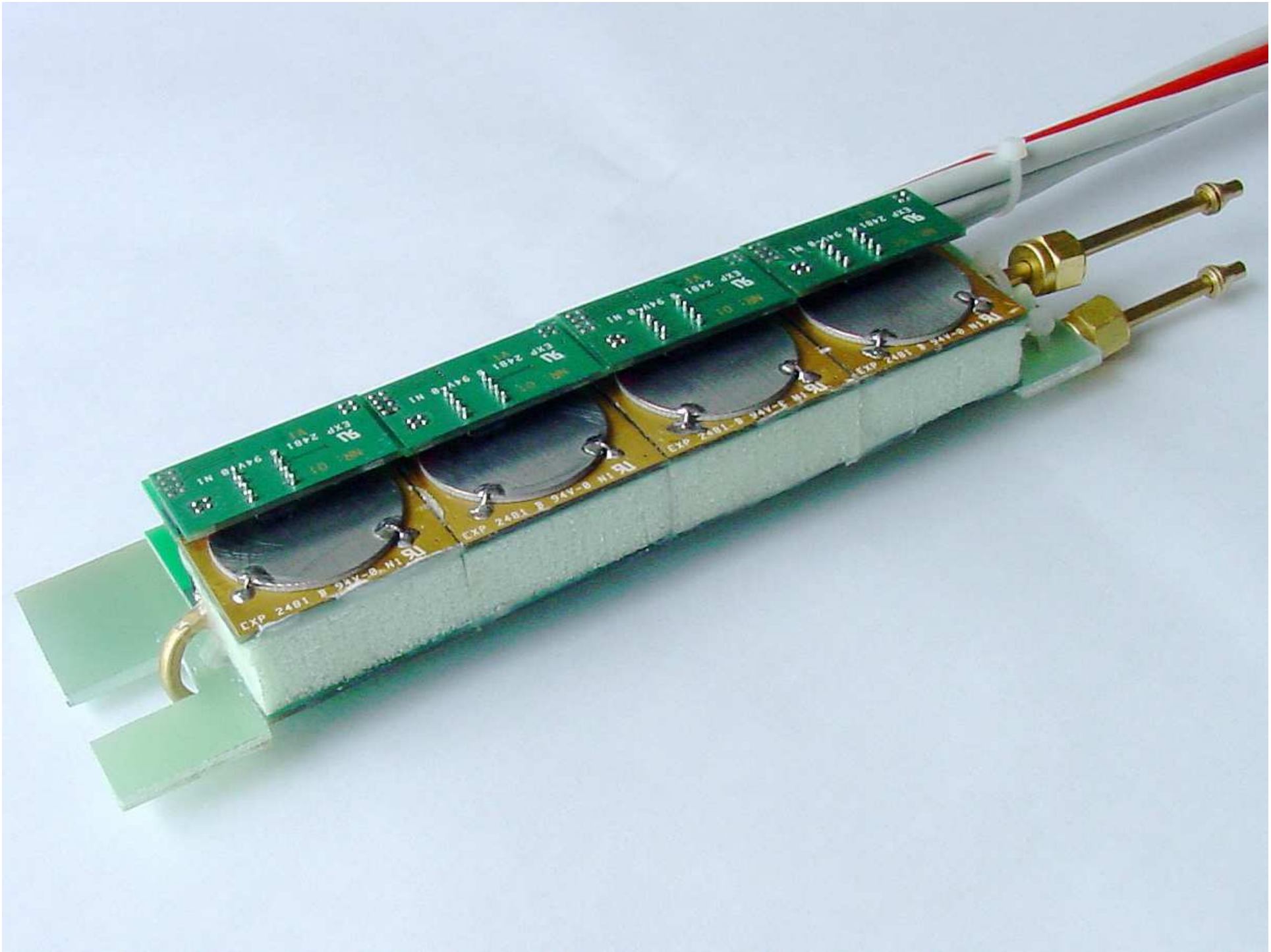
- 2000 e^+ 6.5M DIS pol. D and 6.6M DIS H Helicity balanced
- 2002 e^+
- 2003 e^- } Transverse polarized hydrogen
- 2004 Longitudinal polarized hydrogen } Charge balanced data set for DVCS
- 2005 e^-
- 2006 e^+ } Recoil detector

Beam helicity balanced data set required
Change helicity as often as reasonable

End-of-Fill running for high luminosity unpolarized data set

→ 12 GeV dedicated run sometime before the end of HERA

BLM Characteristics

- 2 Sets of Ion Chambers 
  - Each chamber $4\times4\mathrm{cm}^2$,1.3cm thick
  - 3 ion chambers and 1 dummy chamber per set
- $5\mu s$ Time constant
- Threshold: Several Tracks (Adjustable)
- Trigger: 2 chambers + Dummy veto
- Calibrated with X-rays