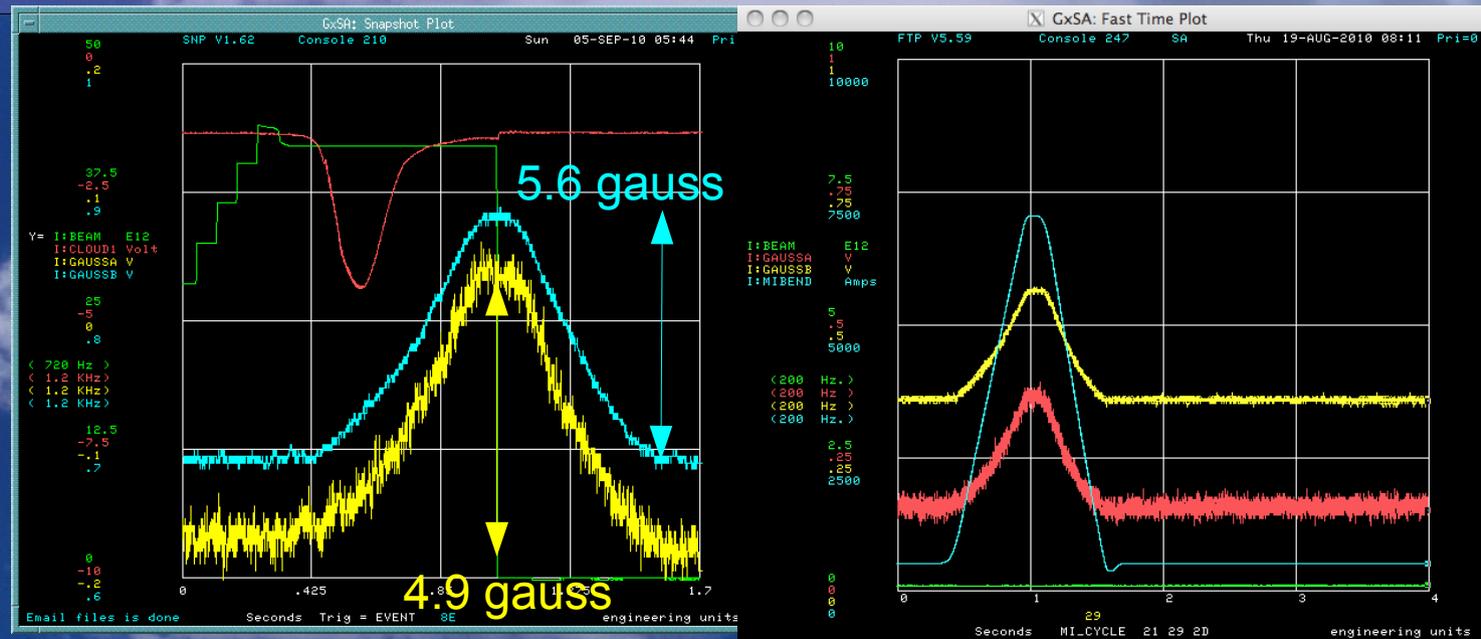
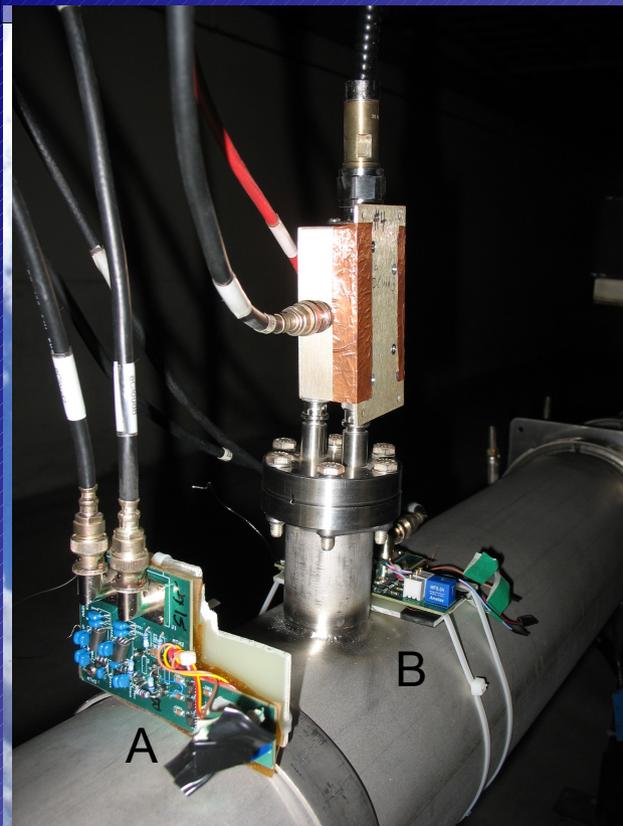


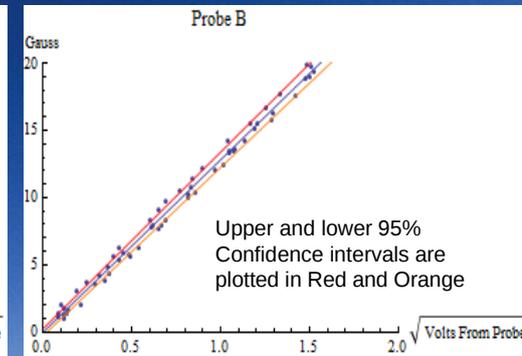
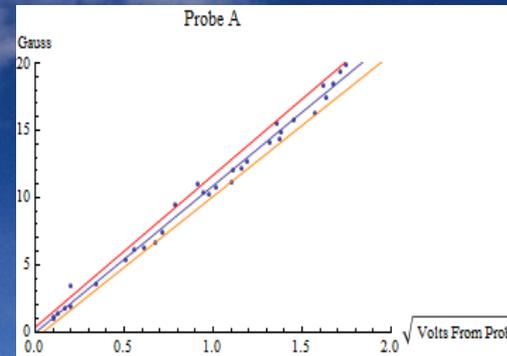
# MI Magnetic Field Measurements

C.Y. Tan  
M. Backfish  
21 Oct 2010

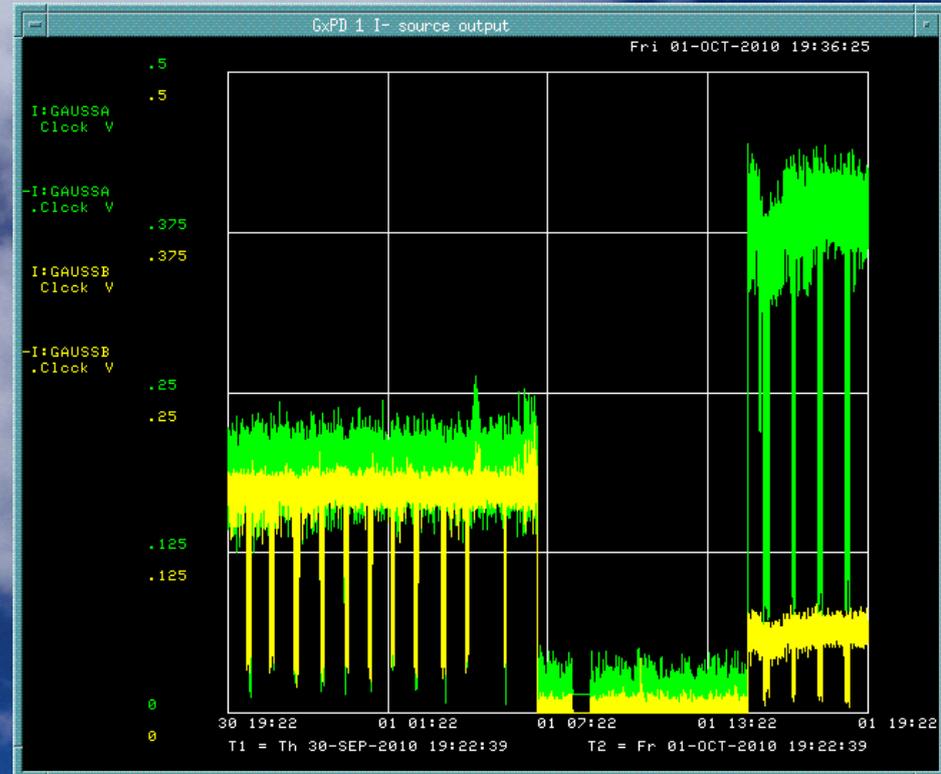
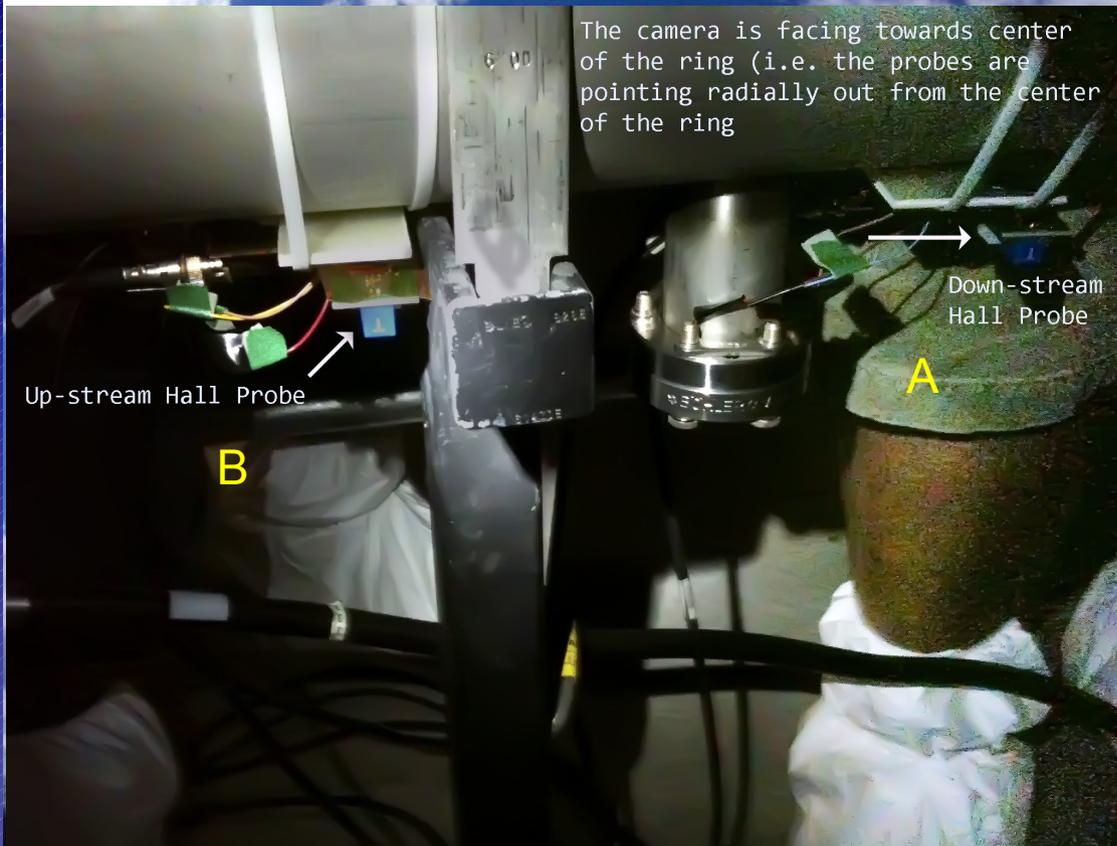
# Magnetic Probes



- Probes axis independent
- Magnetic probe is based on MFS3A
- Differential outputs to reduce noise from ramp.
- Calibrated on bench with Helmholtz coil and Lakeshore Hall probe.



# Probes moved



Gauss B got smaller. Unistrut?  
Gauss A max ~ 6.8 gauss  
Gauss B max ~ 3.6 gauss



Fermilab,  
P.O. Box 500  
Batavia, IL 60510

# Present Probes

- Only magnitude
  - Requires 1 power cable: Twinax: +/- 12V & Gnd
  - 1 signal cable: Twinax: differential signal and Gnd
- Double ended to single ended upstairs, with filter to MADC.

# Vector probes. All involve redesign

- Modify present analogue design for 3-axis
  - There are enough cables (3 Twinax + 1 power Twinax) for 1 set of probes after removing present probes.
  - Double ended to single ended card must be rebuilt.
  - No tech support.
- 2<sup>nd</sup> possibility assume low enough radiation
  - PMI corp 3 axis magnetometer (+/- 11g) with RS485 which requires 3 wires + gnd, but possibly can get away with 2 wires + gnd. However, throughput may be too slow 4Hz???
  - Also require microcontroller decoder upstairs + power board.
  - No tech support.

# PMI Corp 3axis Magnetometer with Rabbit Controller



\$200



BLS4210  
microcontroller  
with 1 RS485  
port.

\$ 328