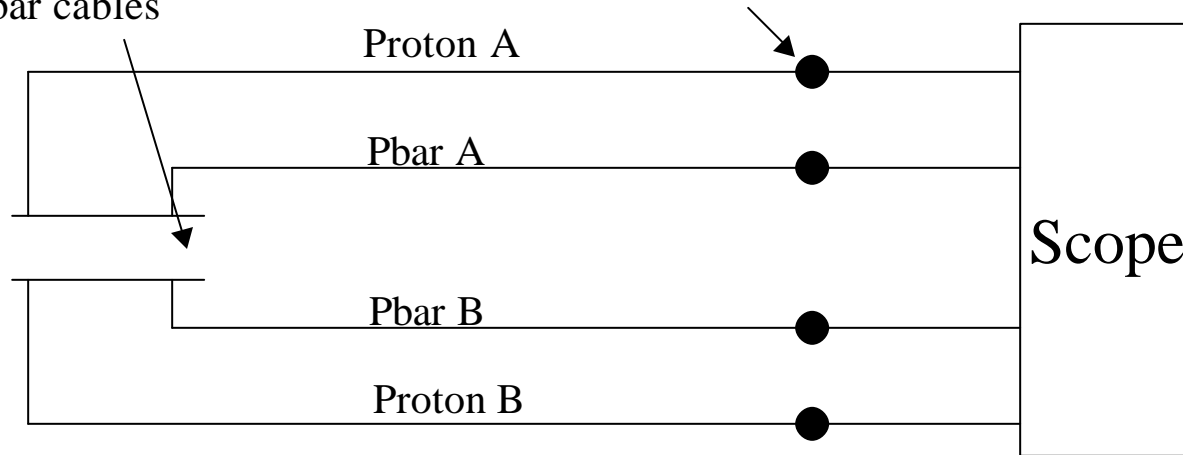


BPM Reflections

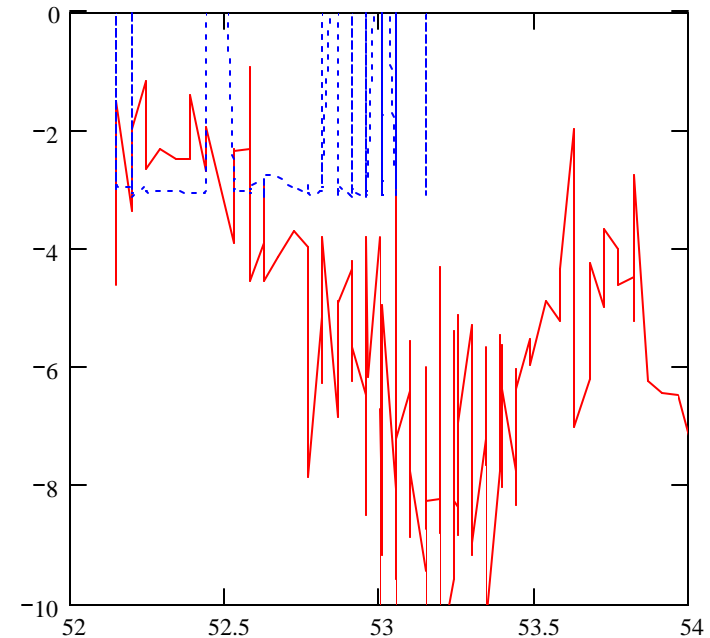
Mismatch at pickup causes proton signal to leak to pbar cables

Mismatch at cable transitions causes proton signal to return to pickup and back through pbar cables.



Comparison of Pbar and Proton Signals

- Signals from proton end of pickup and pbar end of pickup measured simultaneously for proton only store.
- FFT of both signals was calculated.
- Ratio of pbar FFT/proton FFT calculated.
- Ration shows evidence of long time-scale reflections.



Plot showing ratio of pbar FFT to proton FFT in dB as a function of frequency (MHz). Blue trace is phase (radians).

List of BPM Data Taken

- Single proton bunch
- Pbars only
- Proton only stores (12 & 36 bunches)
- HEP (pbars and protons)
- Horizontal and vertical planes for all measurements.
- Measurements made with and without 70 MHz filters.
- 4 Msamples each trace. Some traces at fast sample rate (2.5 Gs/sec) and some at slower rates (125 Ms/sec).