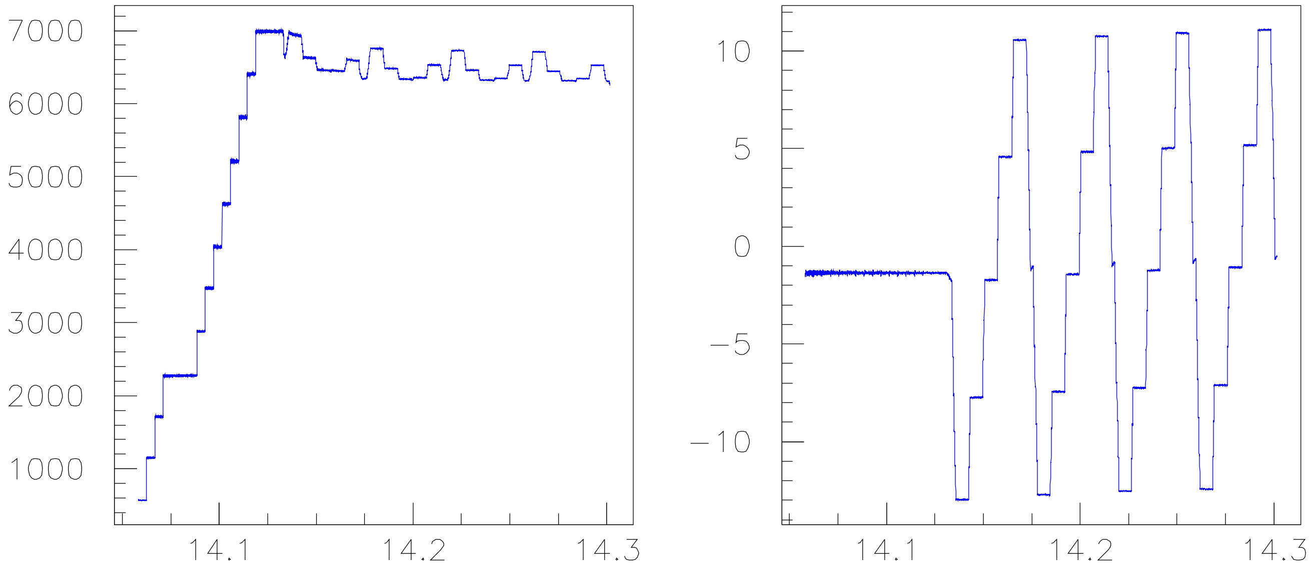
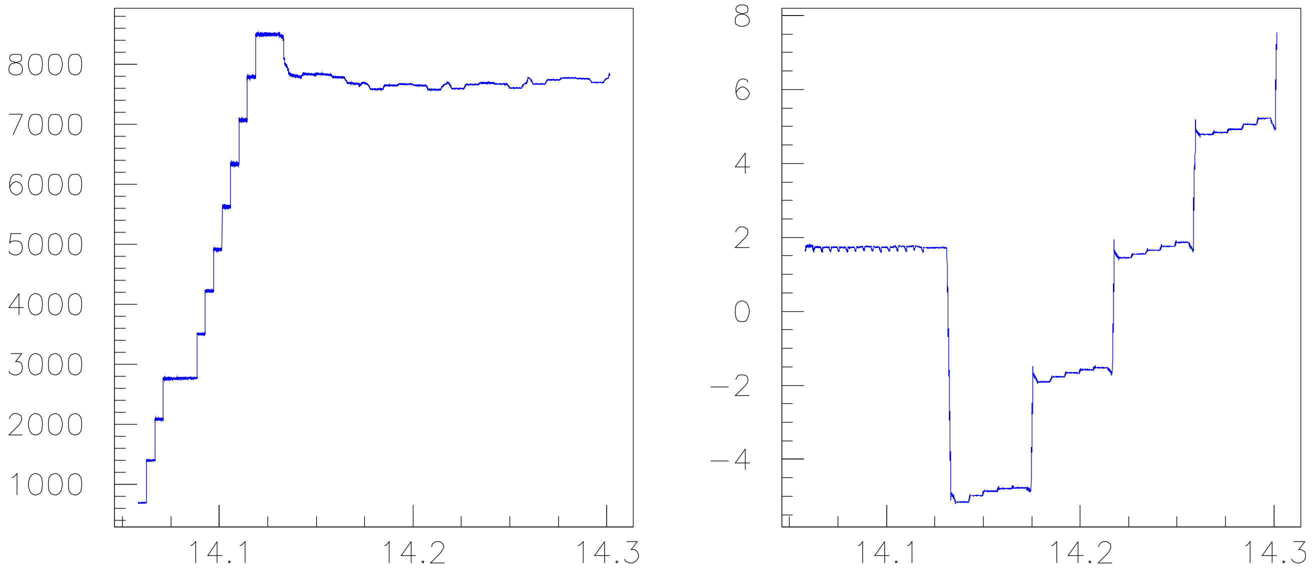
Grid Study, Mar 11, 2004, Recycler Echotek

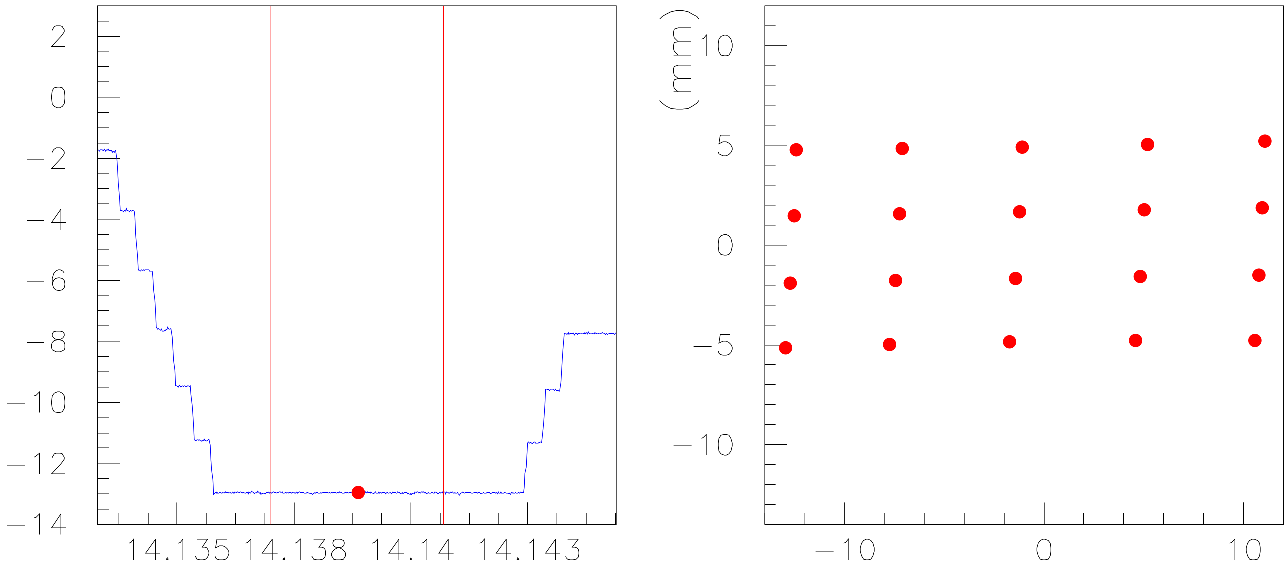


a) HA15 A+B Proton(hours)   b) HA15 26*(A−B)/(A+B) Proton

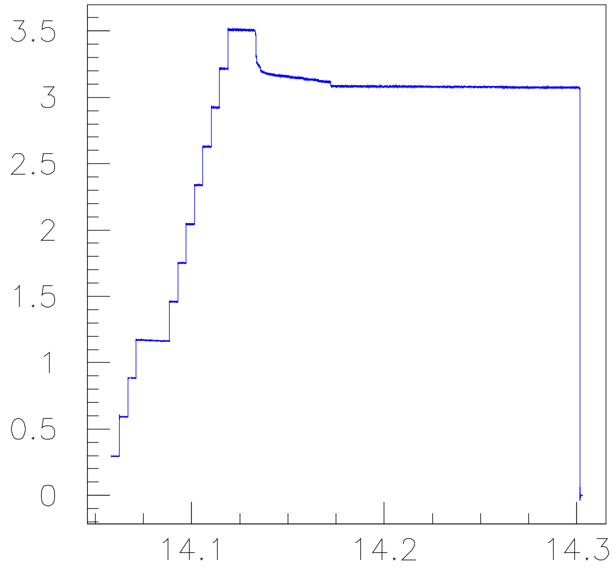


c) VA14 A+B Proton(hours)   d) VA14 26*(A−B)/(A+B) Proton

Grid Study, Mar 11, 2004, Recycler Echotek



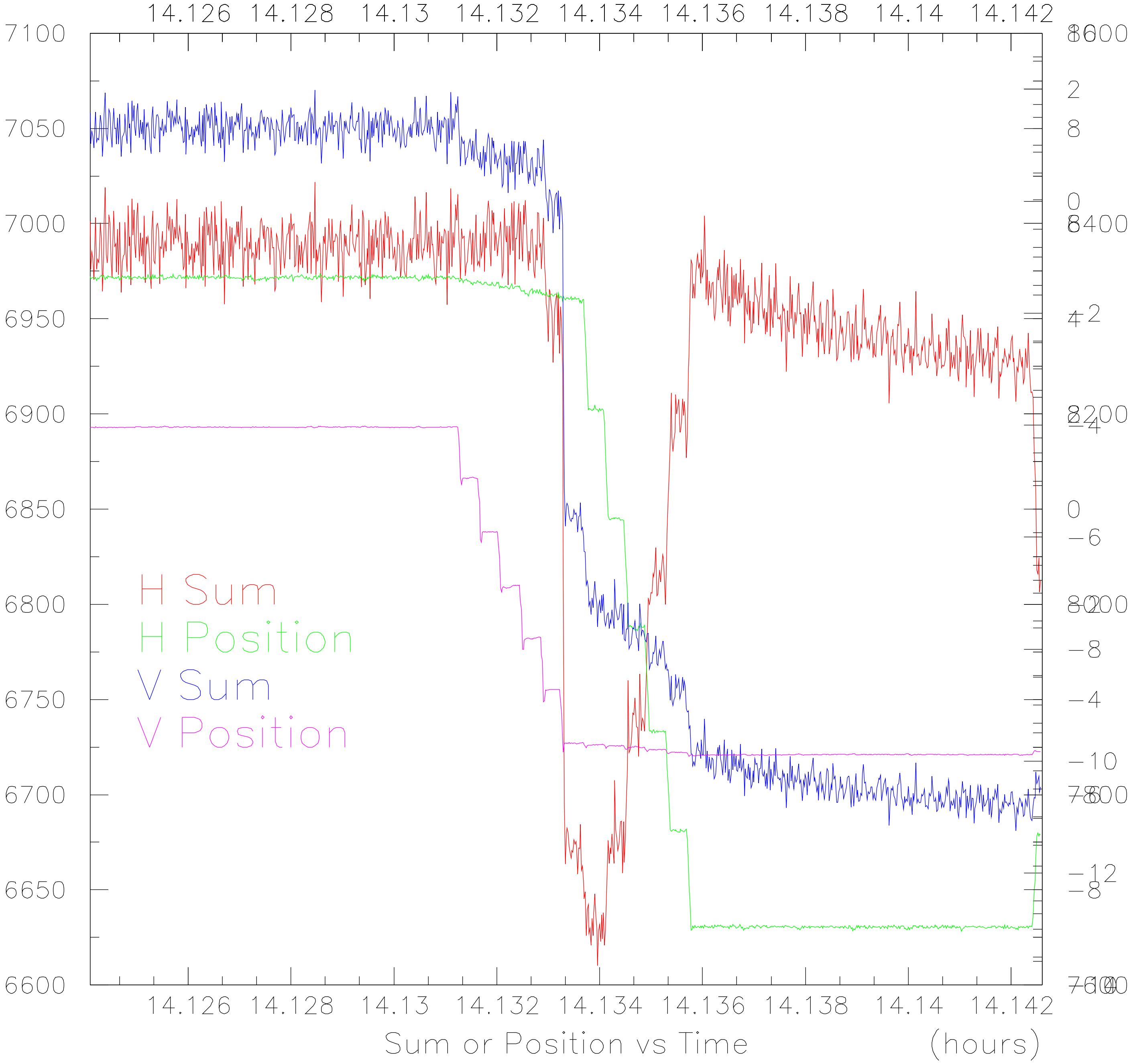
a) HA15 26*(A−B)/(A+B) Proton b) Measured V vs H (mm)



c) T:IBEAM

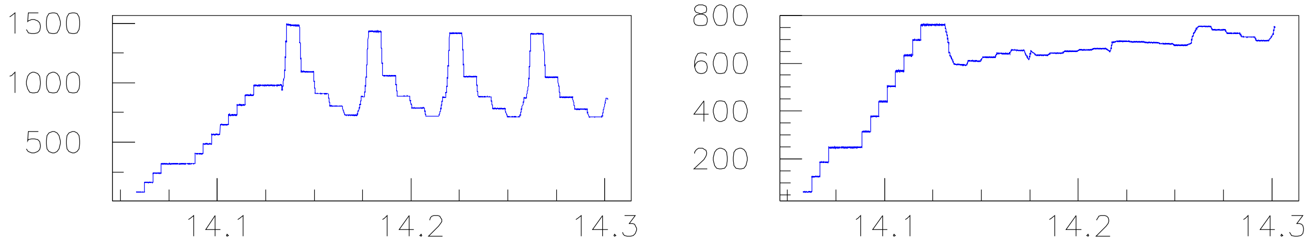
2004/03/18 17.37

Detail at the Beam Loss



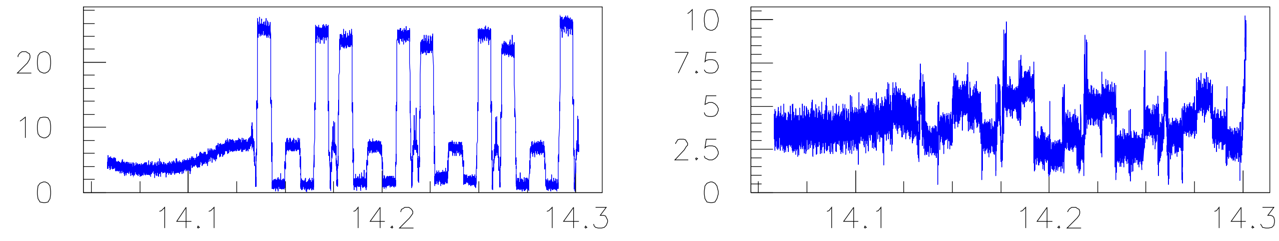
2004/03/18 17.37

Cancelation of Proton Signal on Pbar Cables



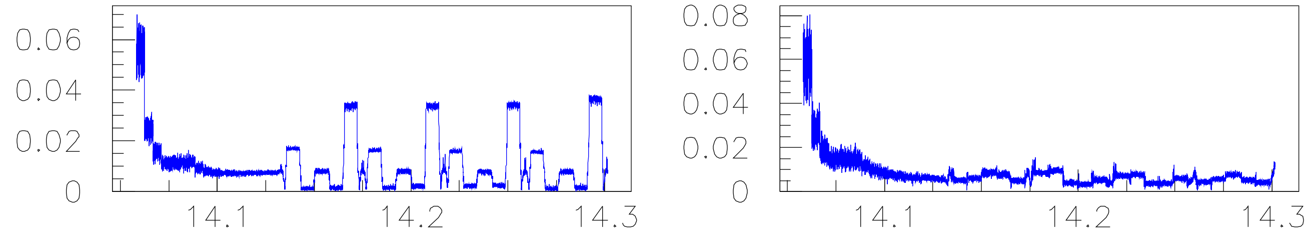
a) H Pbar A+B, Raw(hours)

b) V Pbar A+B, Raw (hours)



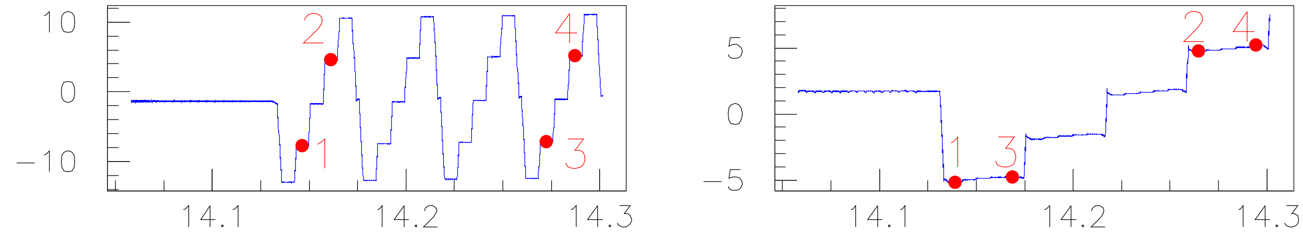
c) H Pbar A+B, Corrected

d) V Pbar A+B, Corrected



e) H Pbar A+B, Corrected/Raw

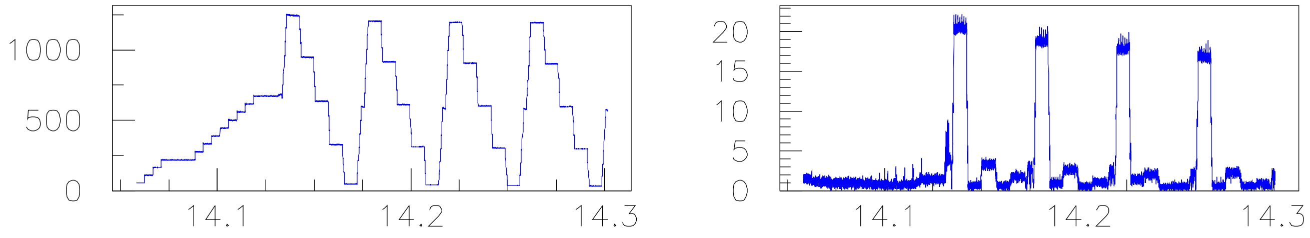
f) V Pbar A+B, Corrected/Raw



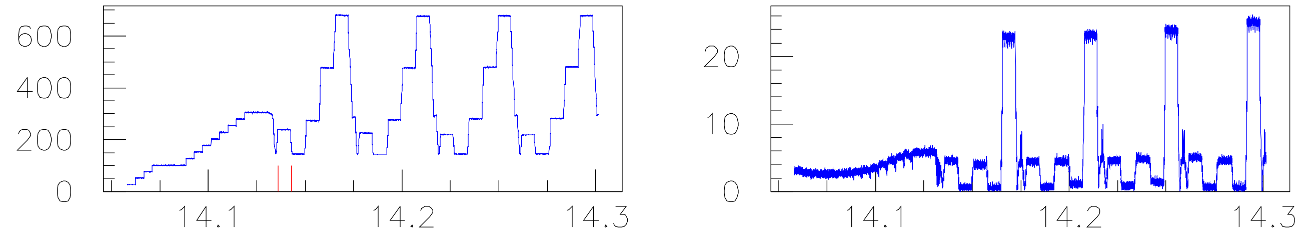
g) H 26∗(A−B)/(a+b)

h) V 26∗(A−B)/(a+b)

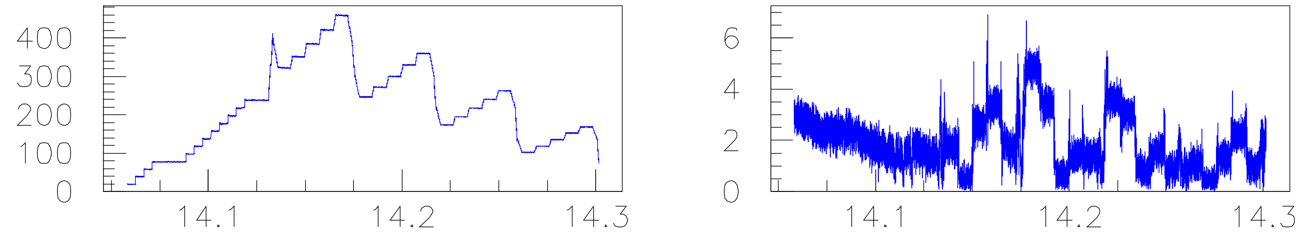
Signal Magnitudes for Each Cable



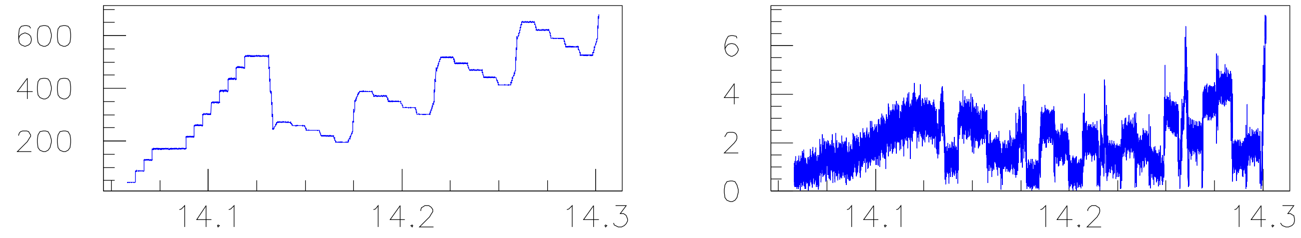
a) H Pbar A Raw (hours) b) H Pbar A Corrected



c) H Pbar B Raw (hours) d) H Pbar B Corrected

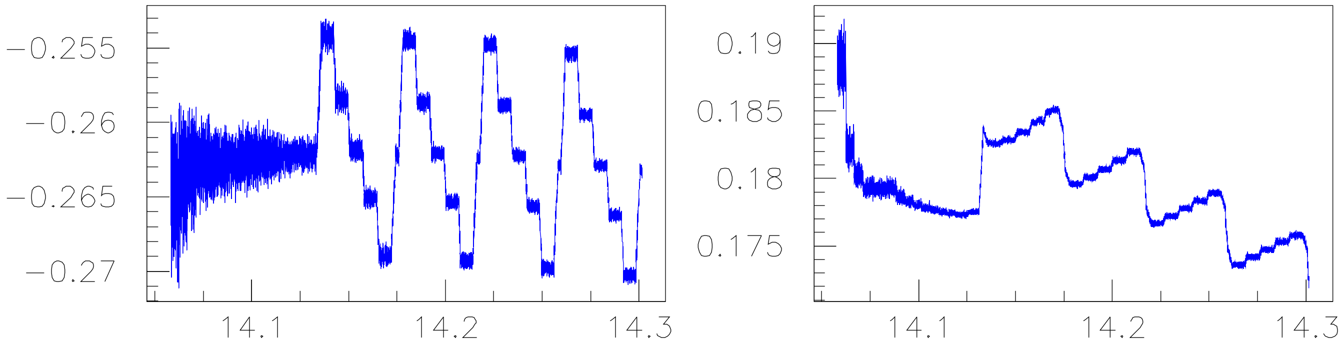


e) V Pbar A Raw (hours) f) V Pbar A Corrected

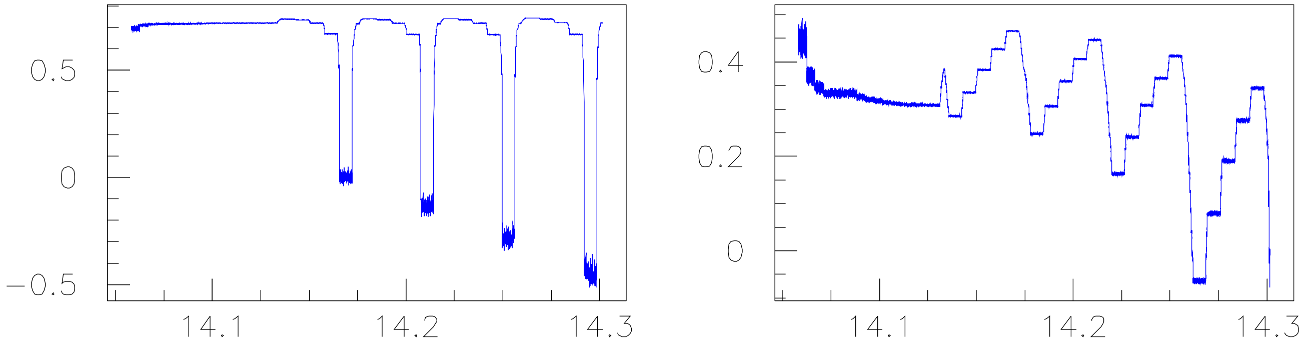


g) V Pbar B Raw (hours) h) V Pbar B Corrected

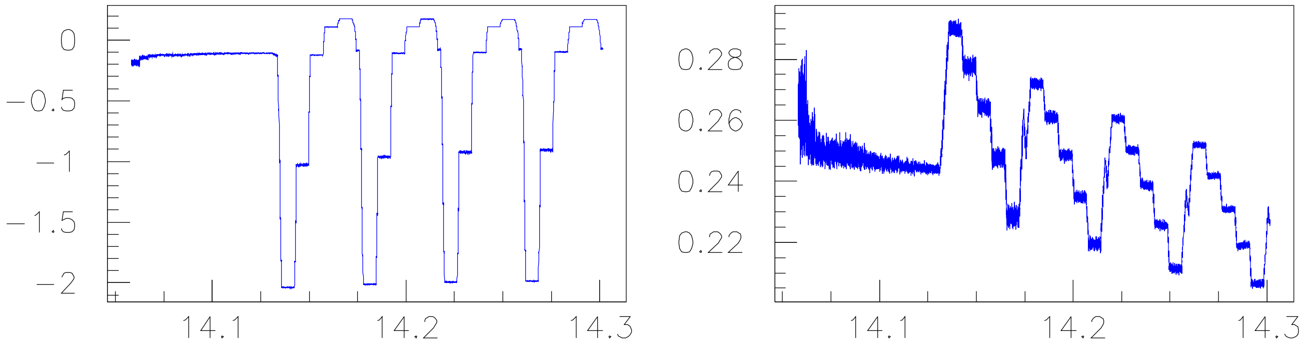
Relative Phases for each Cable



a) H arg(B_P)−arg(A)   b) V arg(B_P)−arg(A)

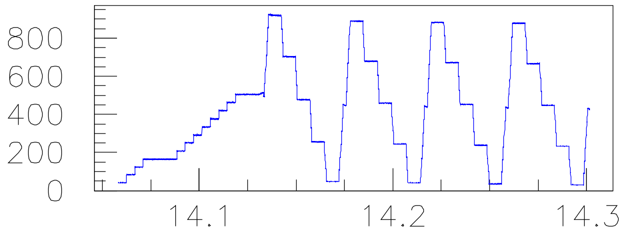


c) H arg(A_{PBAR})−arg(A_P)   d) V arg(A_{PBAR})−arg(A_P)

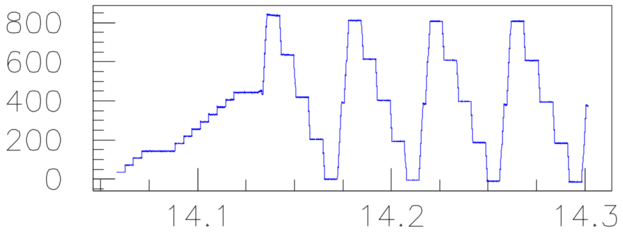


e) H arg(B_{PBAR})−arg(A_P)   f) V arg(B_{PBAR})−arg(A_P)

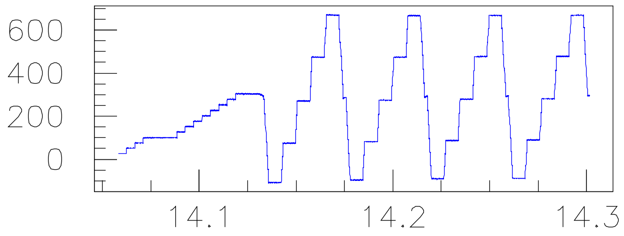
Real and Im Parts of PBAR Signals. $F=EXP(-i\ ARG(A_P))$



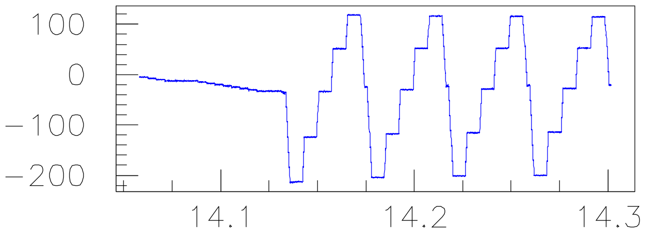
a) H $Re(A_{PBAR}*F)$



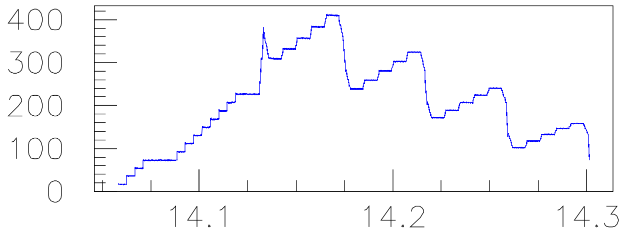
b) H $Im(A_{PBAR}*F)$



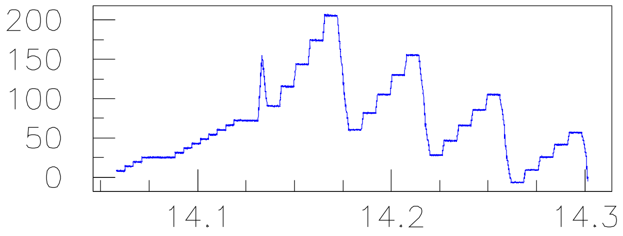
c) H $Re(B_{PBAR}*F)$



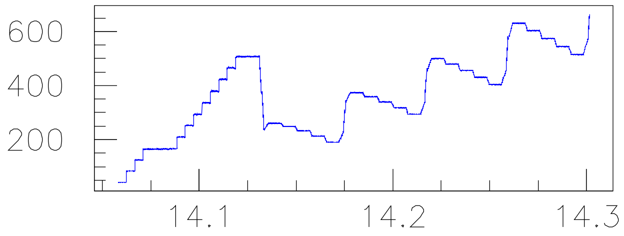
d) H $Im(B_{PBAR}*F)$



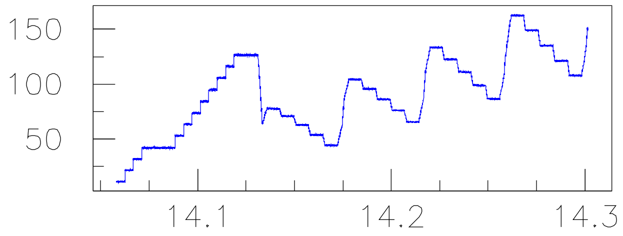
e) V $Re(A_{PBAR}*F)$



f) V $Im(A_{PBAR}*F)$

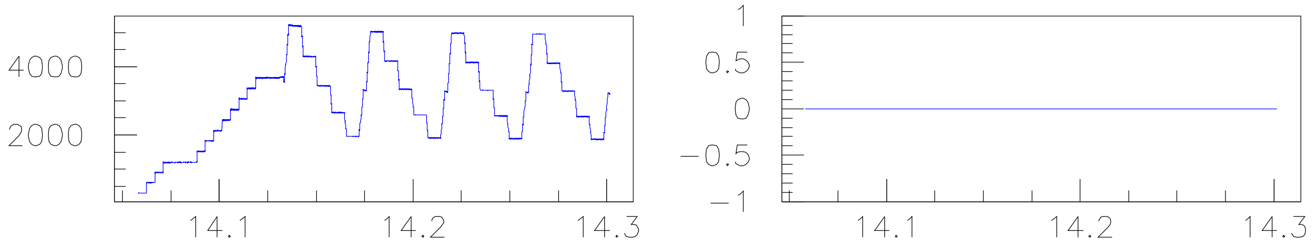


g) V $Re(B_{PBAR}*F)$

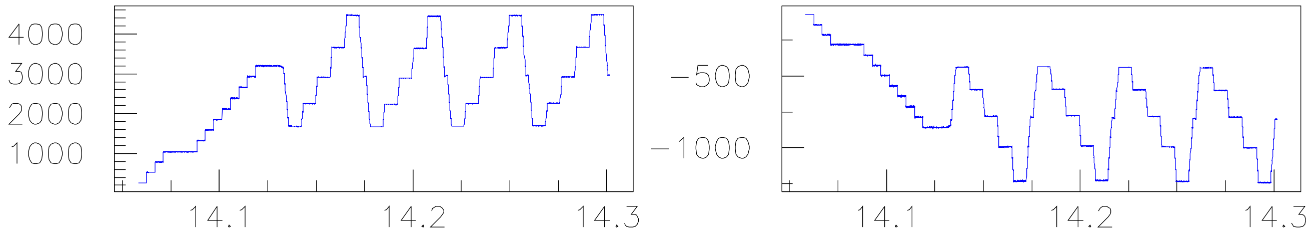


h) V $Im(B_{PBAR}*F)$

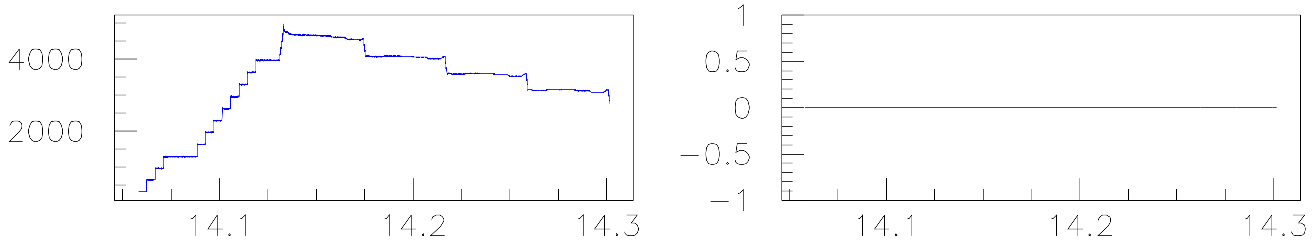
Real and Im Parts of Proton Signals. F=EXP(−i ARG(A_P))



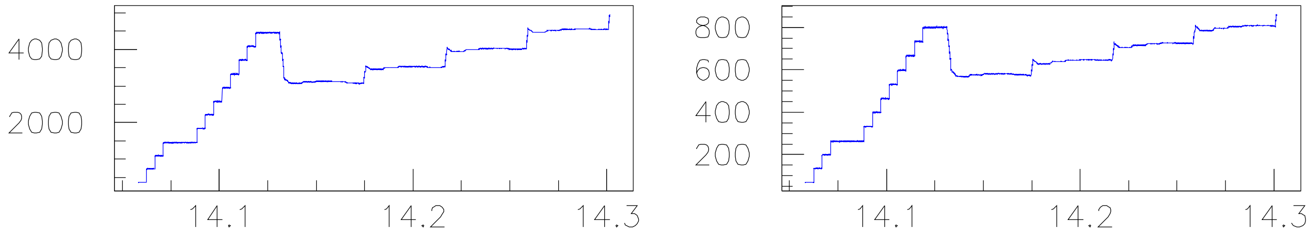
a) H Re(A_P∗F)   b) H Im(A_P∗F)



c) H Re(B_P∗F)   d) H Im(B_P∗F)

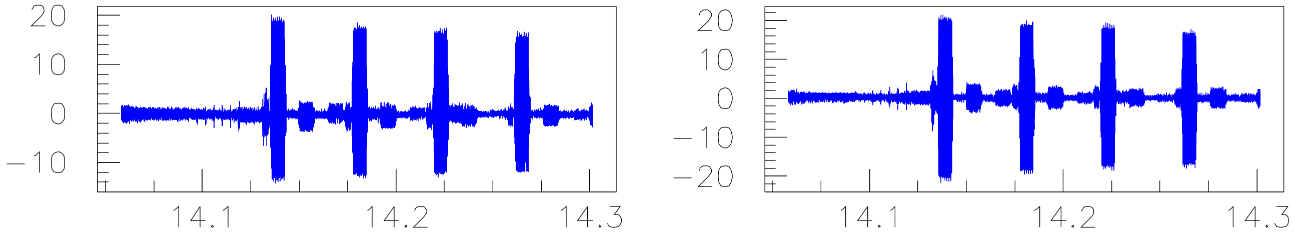


e) V Re(A_P∗F)   f) V Im(A_P∗F)

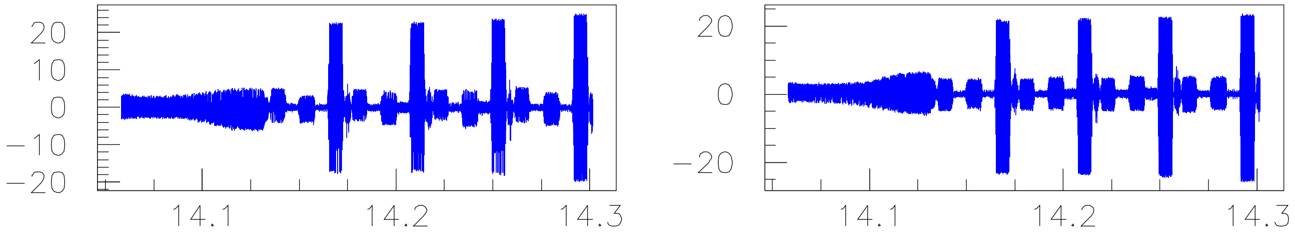


g) V Re(B_P∗F)   h) V Im(B_P∗F)

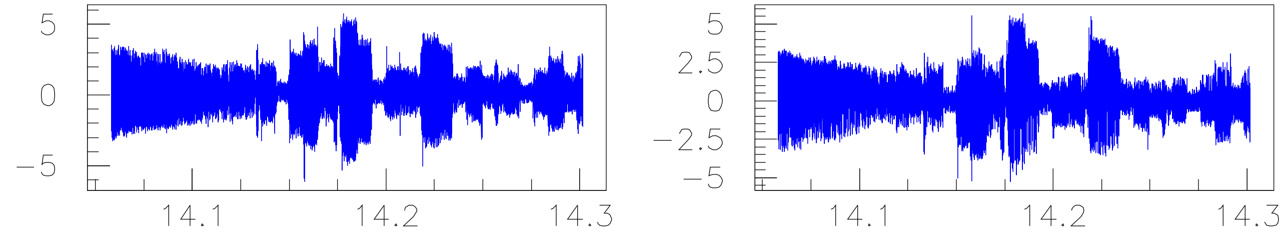
Real and Im Parts of Corrected PBAR Signals



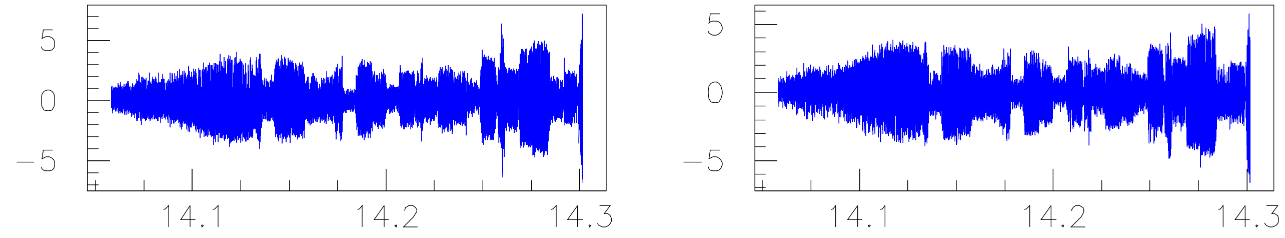
a) H Re(A_{PBAR})   b) H Im(A_{PBAR})



c) H Re(B_{PBAR})   d) H Im(B_{PBAR})

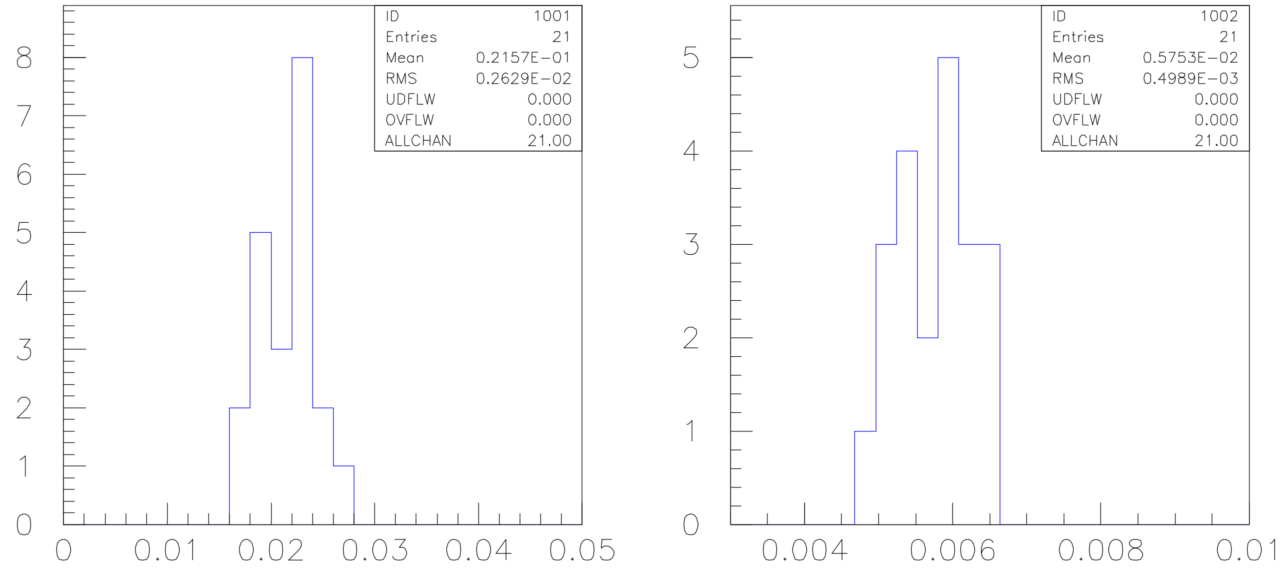


e) V Re(A_{PBAR})   f) V Im(A_{PBAR})



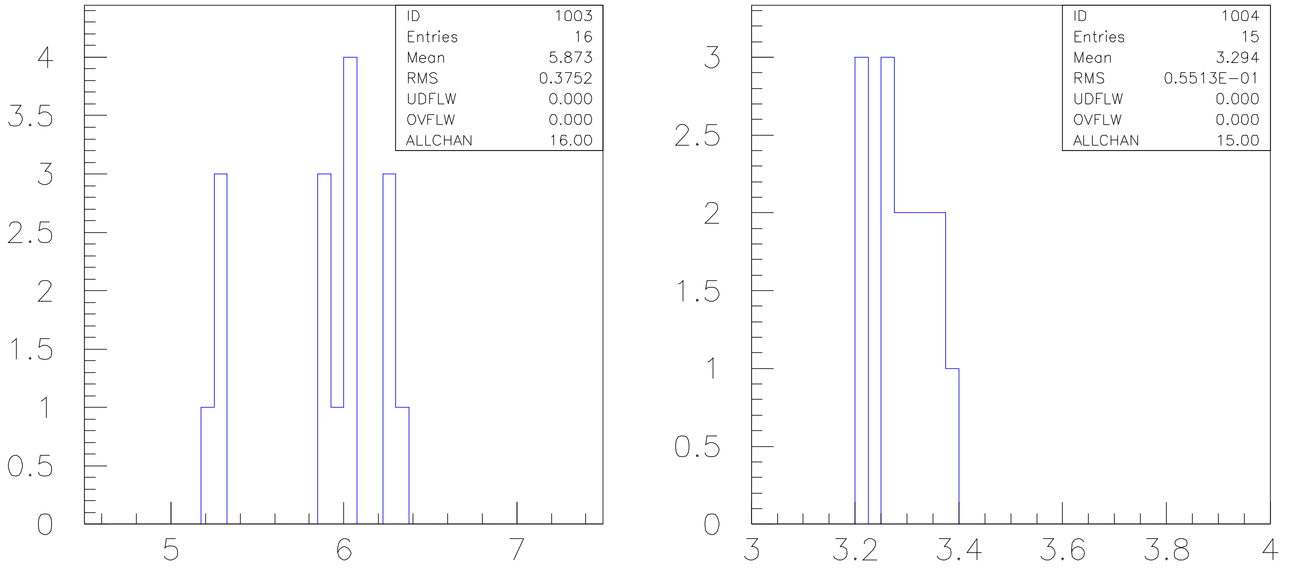
g) V Re(B_{PBAR})   h) V Im(B_{PBAR})

Resolution and Reproducibility



a) RMS(H position) (mm)

b) RMS(V position) (mm)



c) Δx between steps(mm)

d) Δy between steps(mm)