

# GEn-RP projections

## Accumulated charge

- 5 PAC days at 40uA on 10cm LD2 (27uA on 15cm) corresponds to an accumulated charge of 11.7 C.
- We are running at 10uA LD2 and collecting about 0.5 C/day.
- Around 5.0 C of good data already collected; 12 days left to run.
- We can expect to collect around 11 C if running conditions remain the same.

# GEn-RP projections

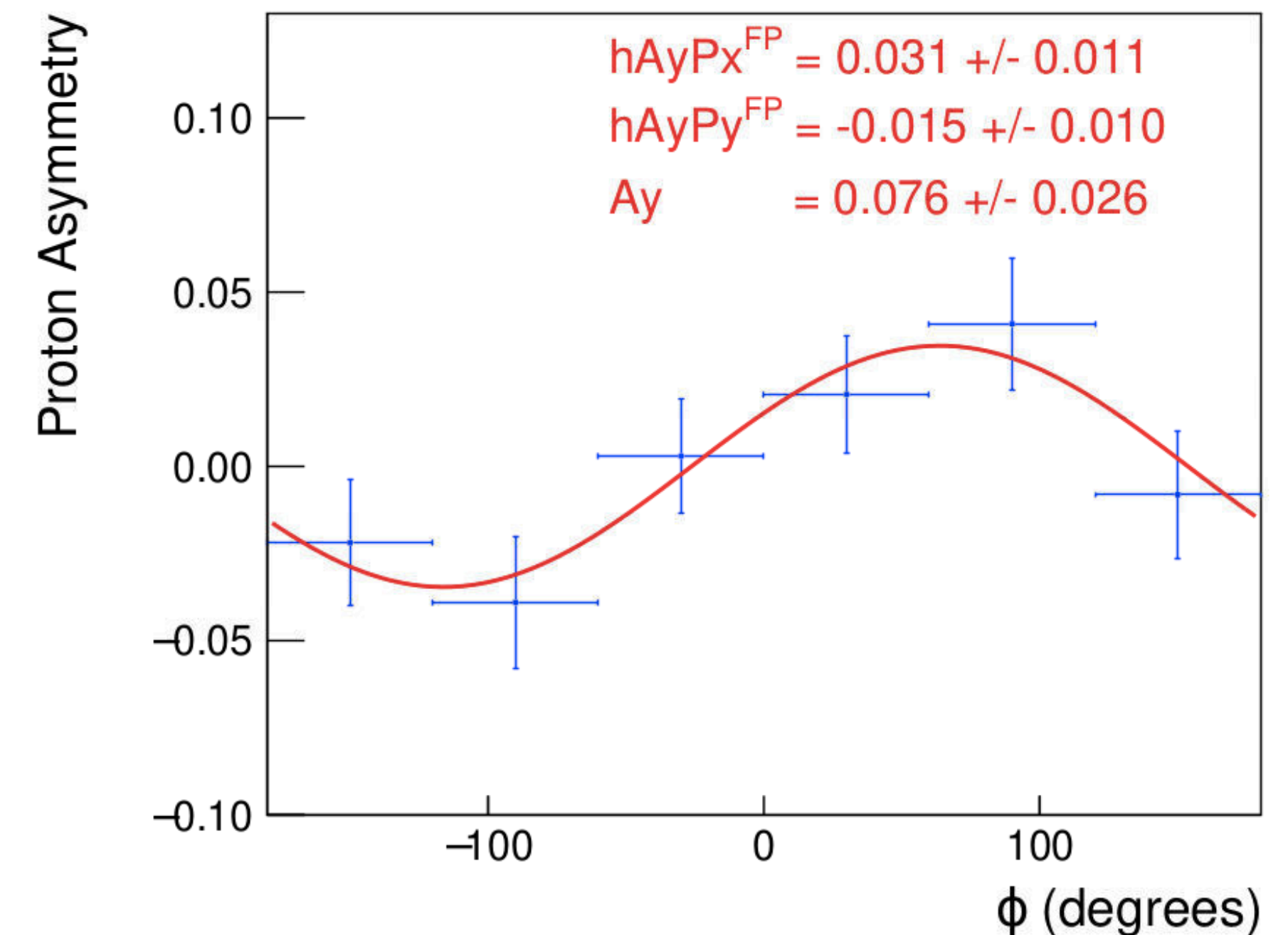
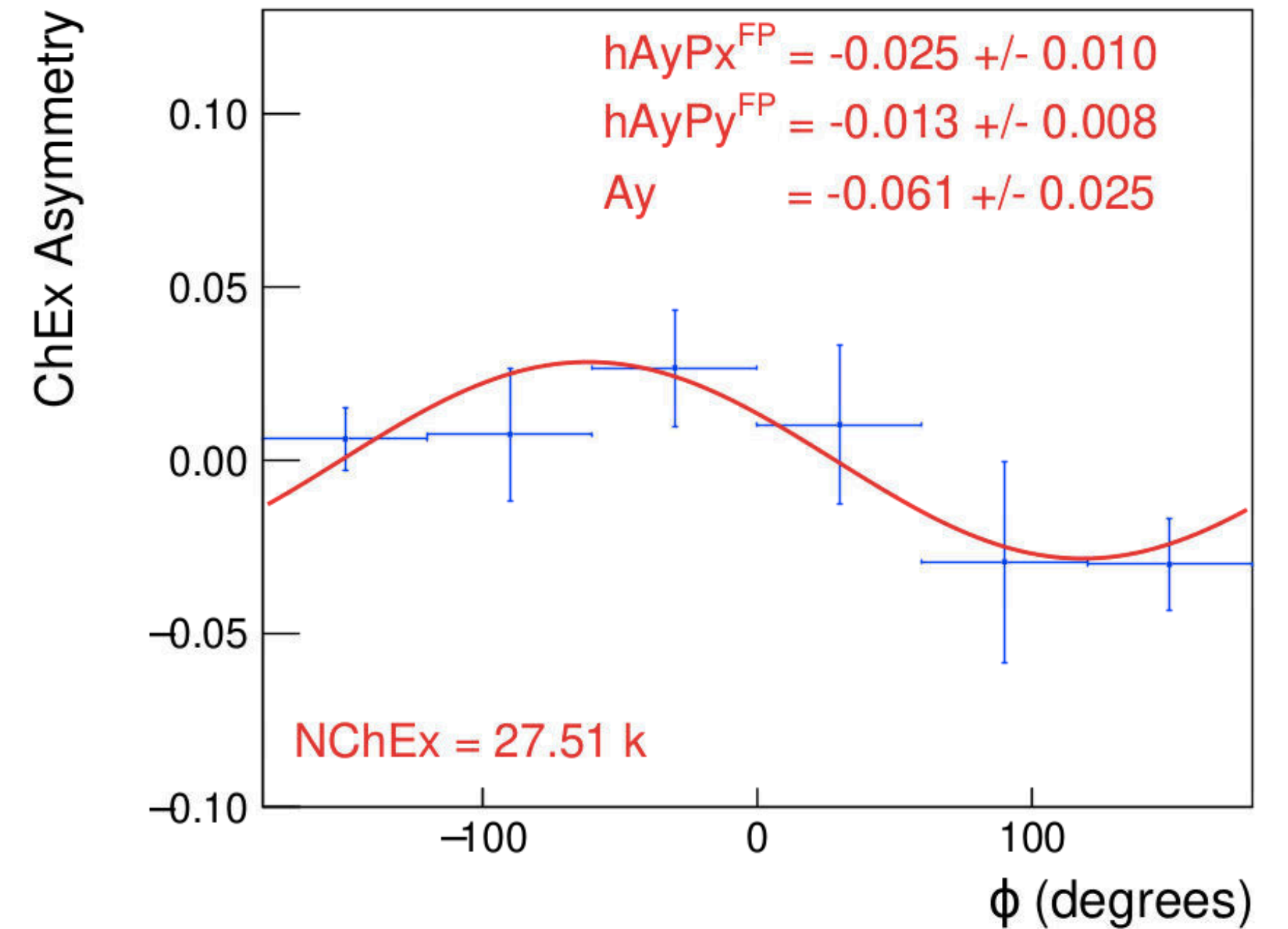
## Neutron charge exchange yield

- For the proposal and ERR it was assumed:
  - neutron quasi-elastic rate of 1.5 Hz/uA
  - **overall efficiency** for neutron charge exchange of 0.05 (0.075 Hz/uA)
- The total QE yield expected is then 17.5M events; the normalised yield is 1.5M /C
- The equivalent numbers for charge exchange are 875k total and 75k /C
- Depending on choice of cuts, we are observing:
  - a normalized rate of charge exchange of **14k – 28k /C**

# GEn-RP projections

## Asymmetry analysis

- We assumed  $A_y = 0.07$  for charge exchange, which corresponds to a FOM of  $2.5 \times 10^{-4}$
- Plots from analysis of  $\sim 2$  C of recent LD2 data (10uA, lowered trigger thresholds — from run 400 onwards)
- SBS rear GEM tracking efficiency over these runs is 32%. It was **41%** for run 606 yesterday.
- Statistical uncertainties still too large for any firm conclusion: perhaps evidence that  $A_y$  for pFe has opposite sign than nFe (ChEx).



# GEn-RP projections

## Form factor ratio

- An accumulated charge of 12 C with an overall FOM of  $2.5 \times 10^{-4}$  corresponds to a statistical uncertainty on the FF ratio of  $\pm 0.07$  (shown in blue here).
- Based on current running conditions and the analysis done so far, our best estimate for the FOM is  $1.0 \times 10^{-4}$
- This would correspond to an uncertainty on the FF ratio of  $\pm 0.11$

