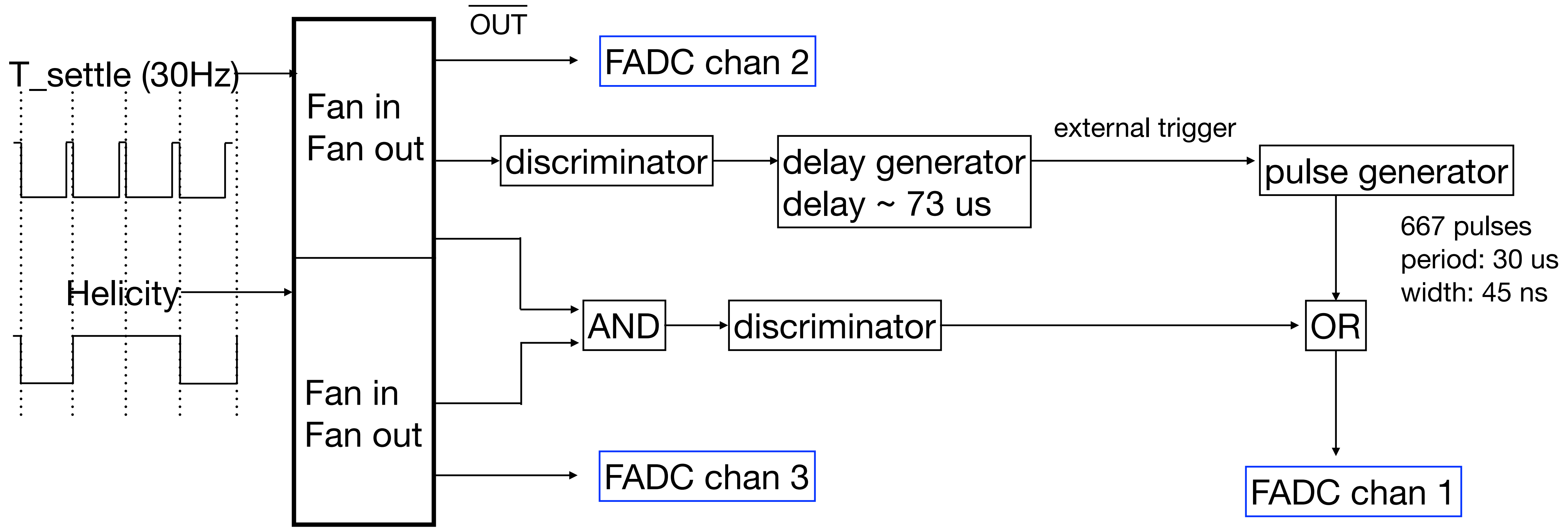


Measurement of small asymmetry — — fixed pulser

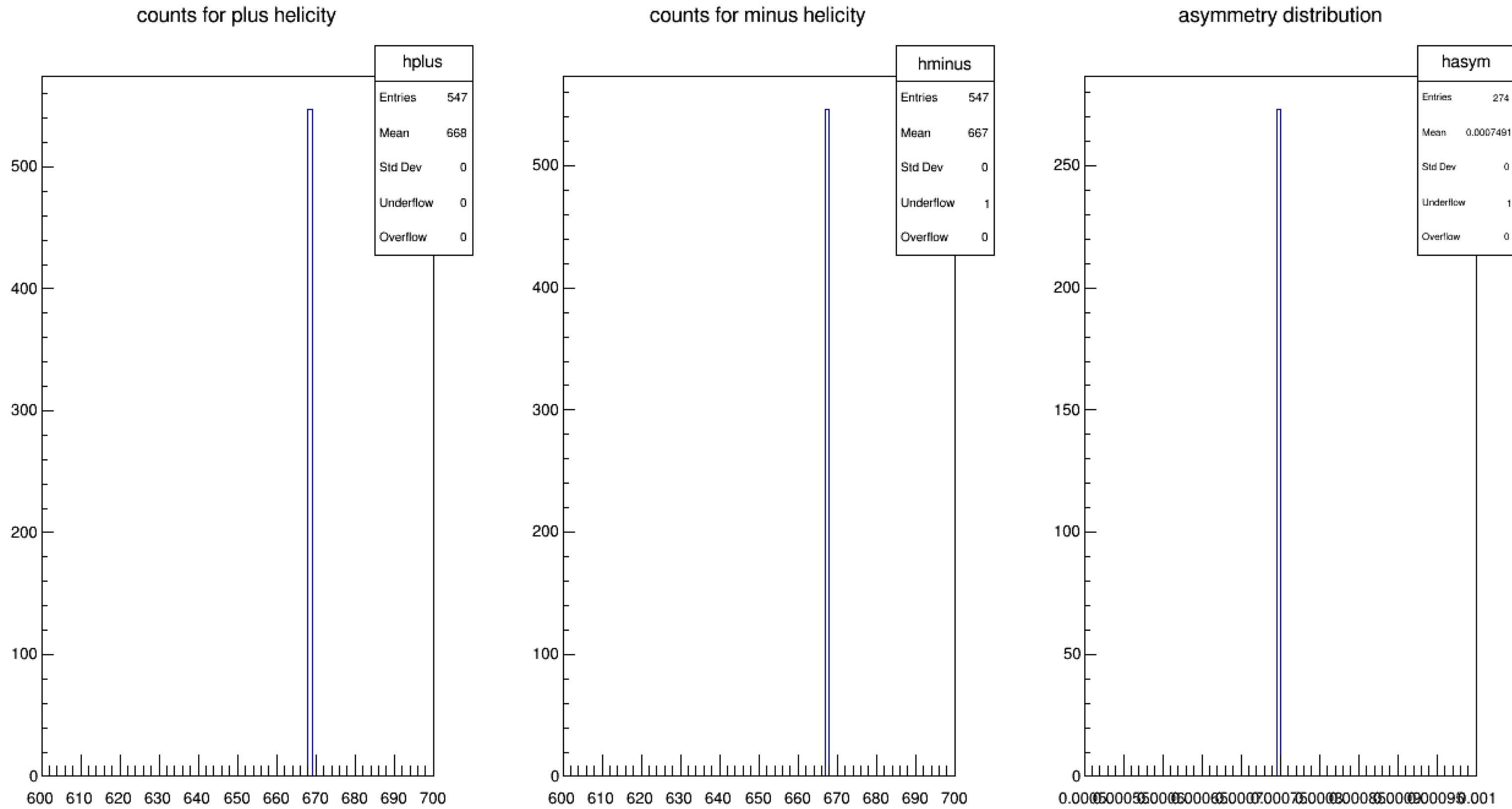
Hanjie Liu 06/02/2021

- Purpose: see if FADC is able to measure a 600 ppm-1000ppm asymmetry, and what issues might happen



- In “+” helicity, there are 668 pulses; in “-” helicity, there are 667 pulses.
- The expected asymmetry = $(668-667)/(668+667) = 749$ ppm

- Compton electron firmware; run in raw mode with Blocklevel=10, Bufferlevel=10;
- Helicity is 30 Hz Quad pattern (+—+ or -++-); helicity information is recorded both in VTP and FADC chan3. They agree with each other. The helicity pattern matches the prediction.
- The number of pulses in “+” (“-”) is counted per helicity window;
- The asymmetry is calculated for each quad as: $(N_+ - N_-)/(N_+ + N_-)$, N_+ is the number of pulses observed in FADC chan1 when helicity is “+” in one quad



- No dead time effect in the fixed pulser generated asymmetry test