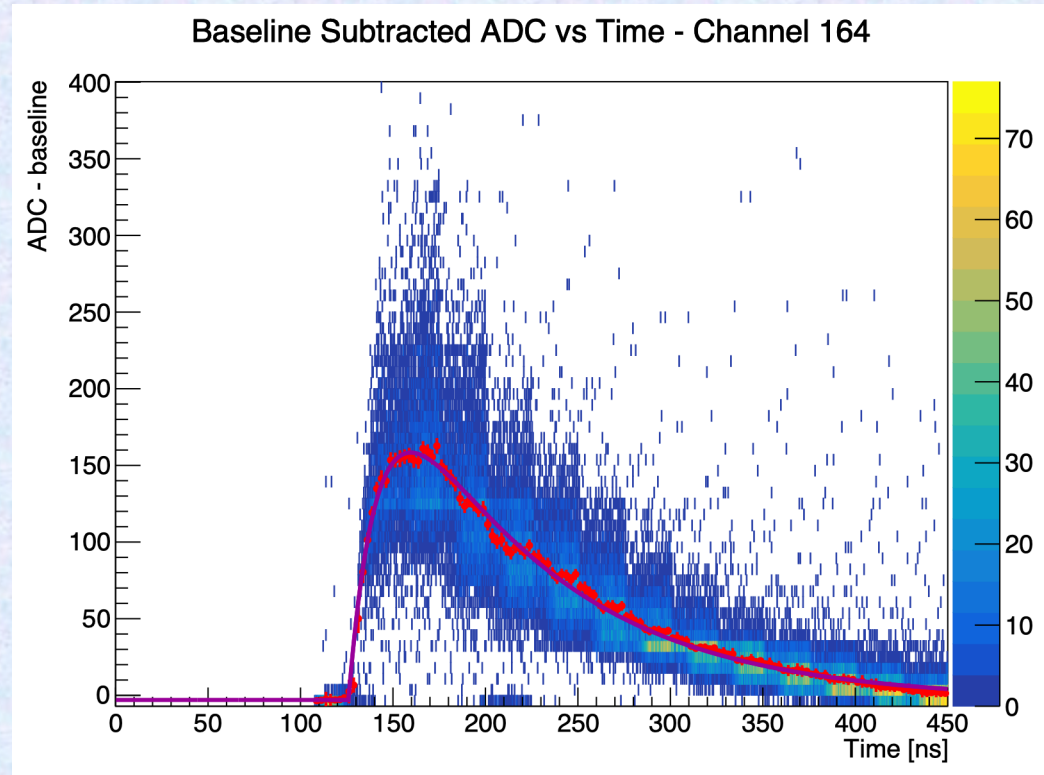
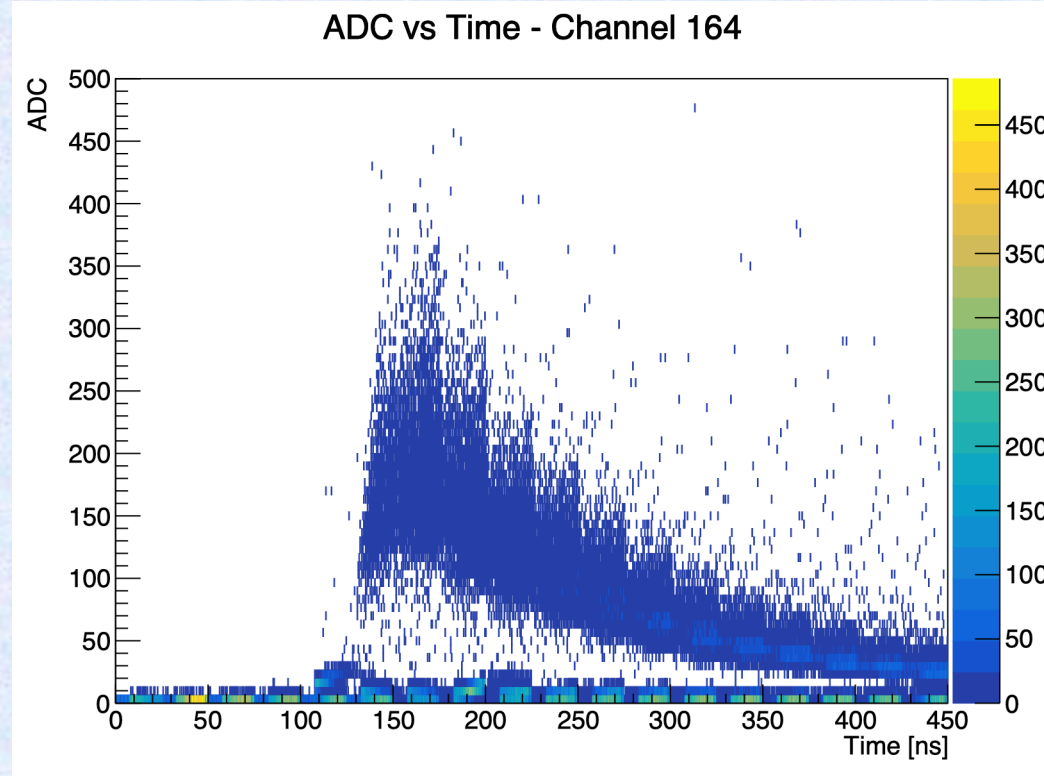


Hall D TB Sample – Update



Plot average of the signals (data – fit) vs time.
Fit the average:

$$\text{ADC} = \begin{cases} B_0, & t < t_0 \\ B_0 + A_0(1 - e^{-\Delta/\tau_{\text{rise}}})e^{-\Delta/\tau_{\text{fall}}}, & t \geq t_0 \end{cases}$$

Where $\Delta = t - t_0$

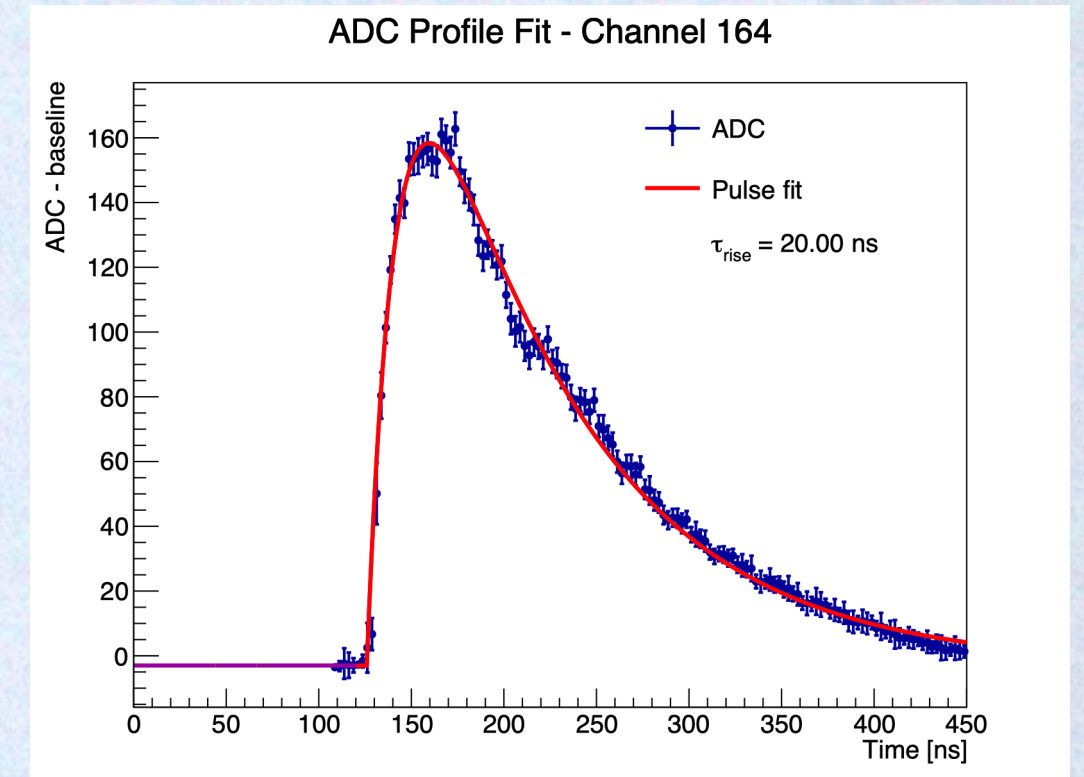
B_0 = Baseline

A_0 = Amplitude

t_0 = pulse start/time offset

τ_{fall} = fall time constant

τ_{rise} = rise-time, expressing how sharp/soft the leading edge is



Peak time occurs at

$$t_{\text{peak}} = t_0 + \tau_{\text{rise}} \ln \left(1 + \frac{\tau_{\text{fall}}}{\tau_{\text{rise}}} \right)$$

Peak amplitude value

$$\begin{aligned} \text{ADC}_{\text{max}} &= B_0 + A_0(1 - e^{-\Delta_{\text{peak}}/\tau_{\text{rise}}})e^{-\Delta_{\text{peak}}/\tau_{\text{fall}}} \end{aligned}$$

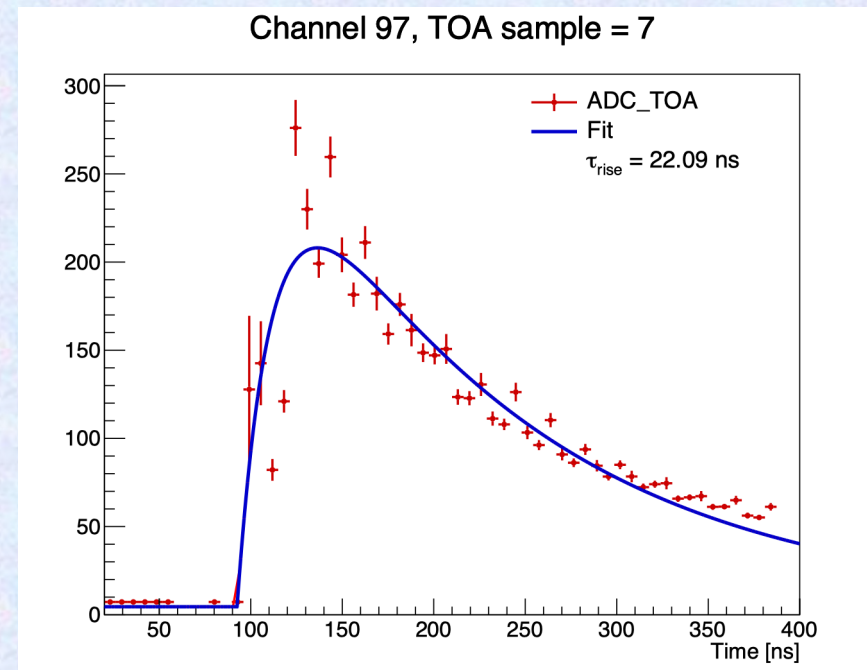
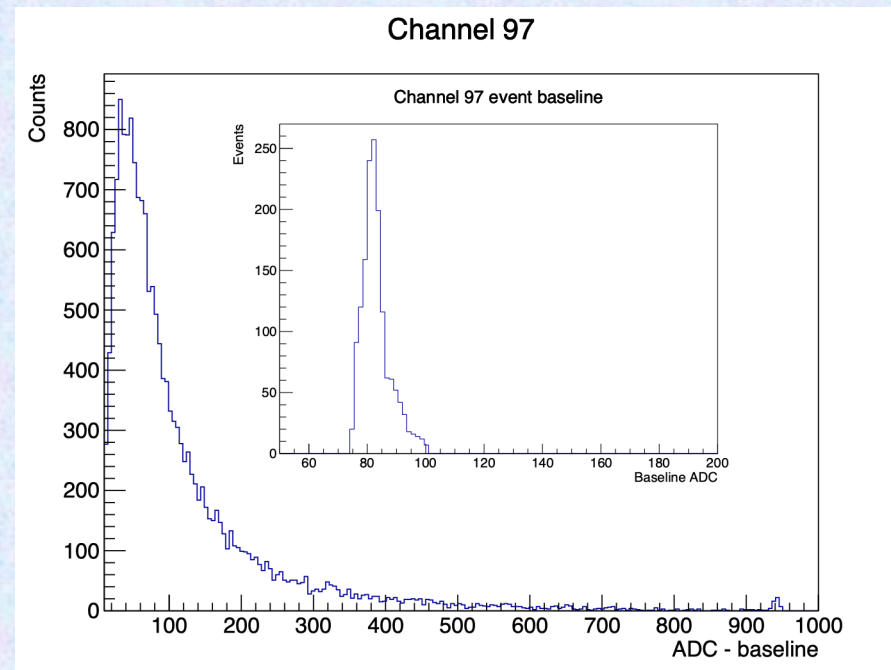
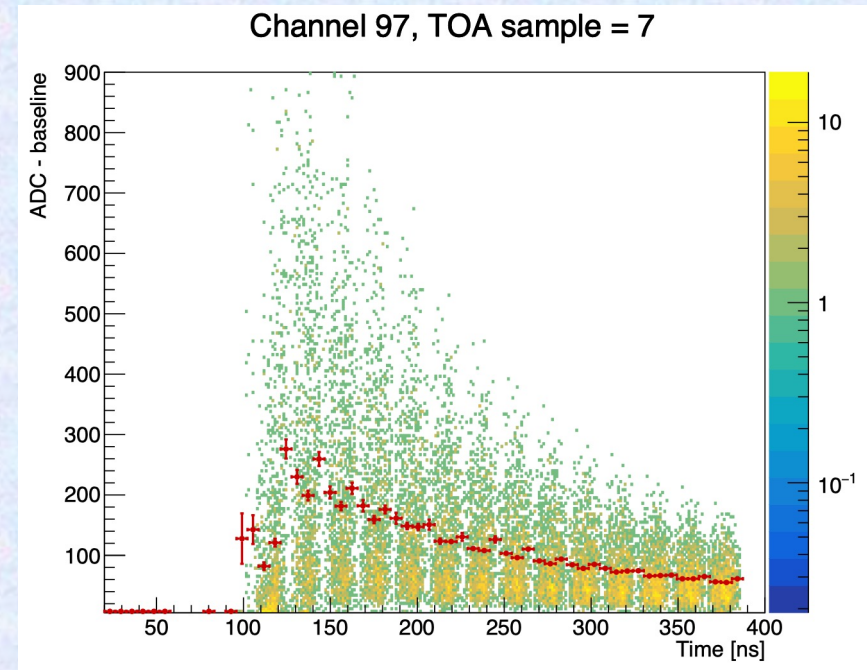
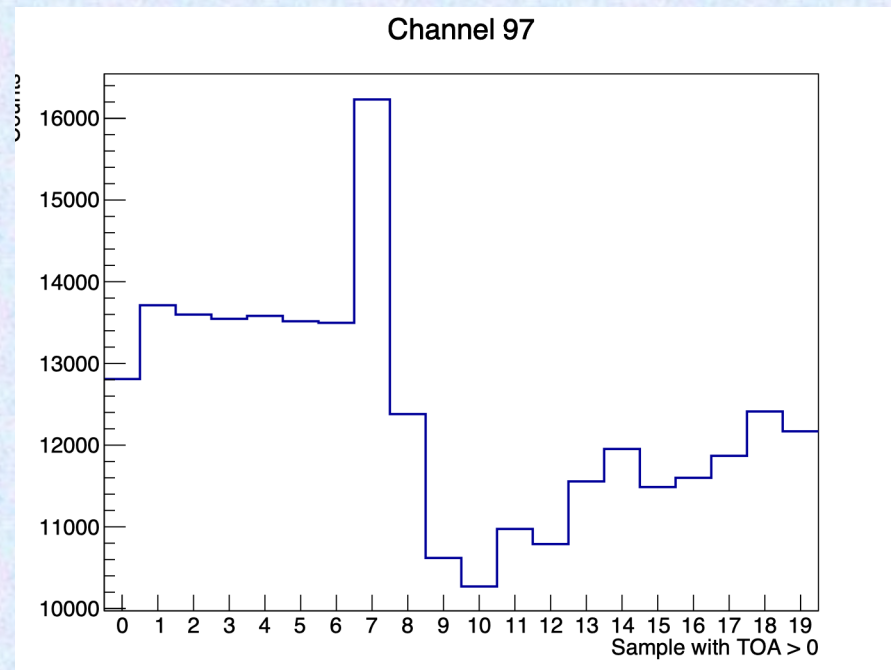
Where $\Delta_{\text{peak}} = t_{\text{peak}} - t_0$

/work/eic/EPIC/TestBeam/BIC/data/KCU0/beam/beam_ROC_0-00002679-0000.evt '

Hall D TB Sample – Update

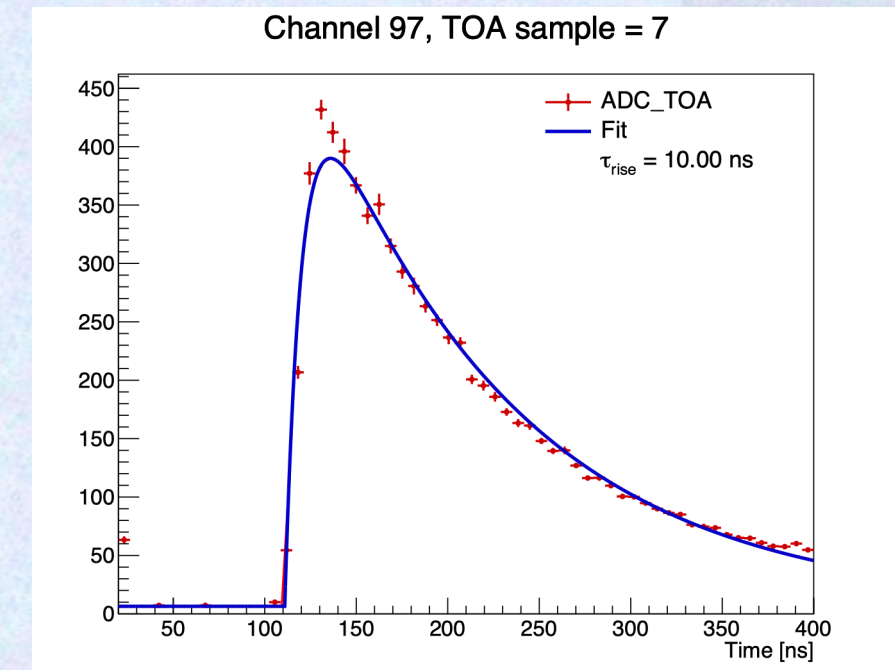
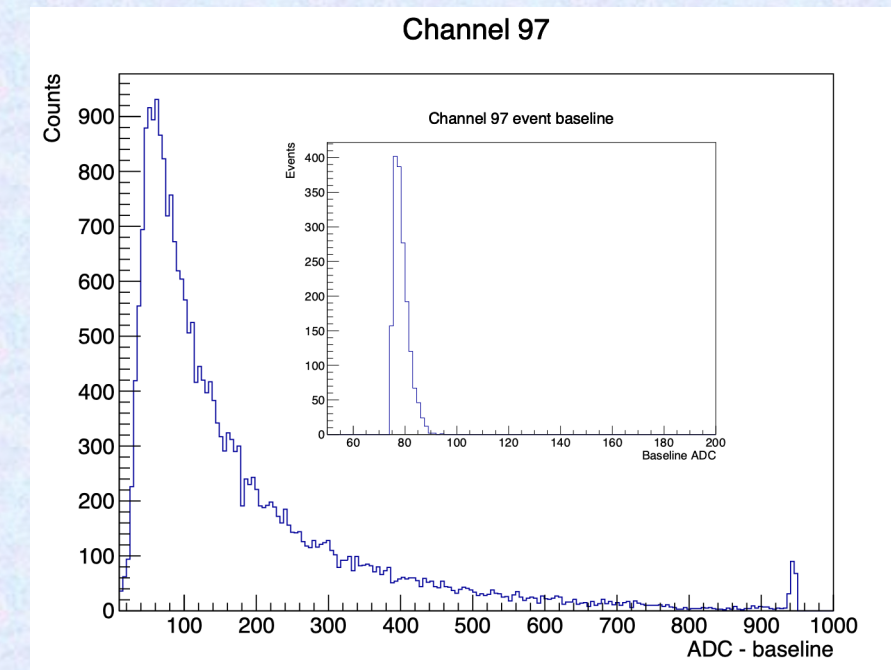
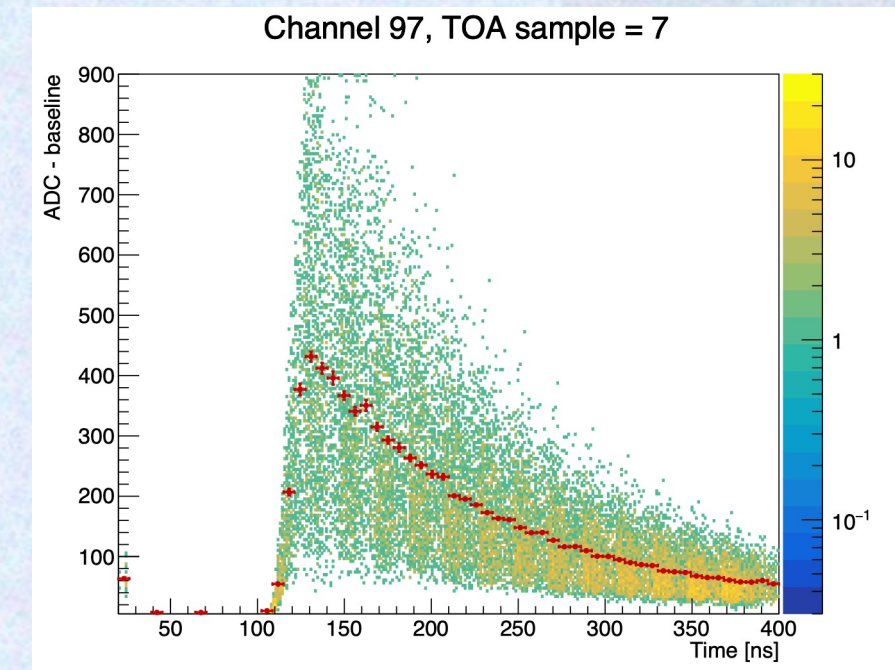
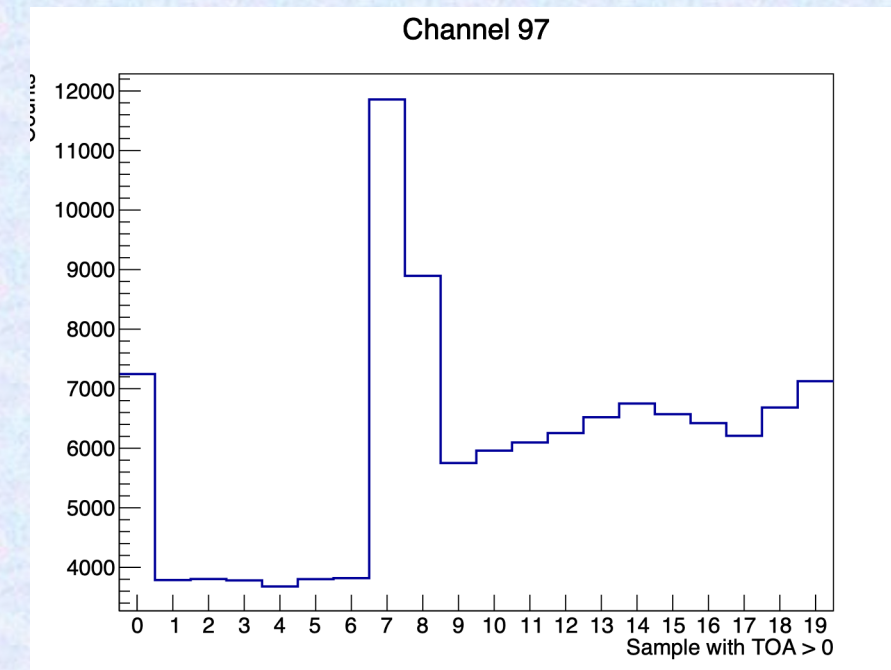
KCU0

channel = 97, Magic Parameter = 512



KCU1

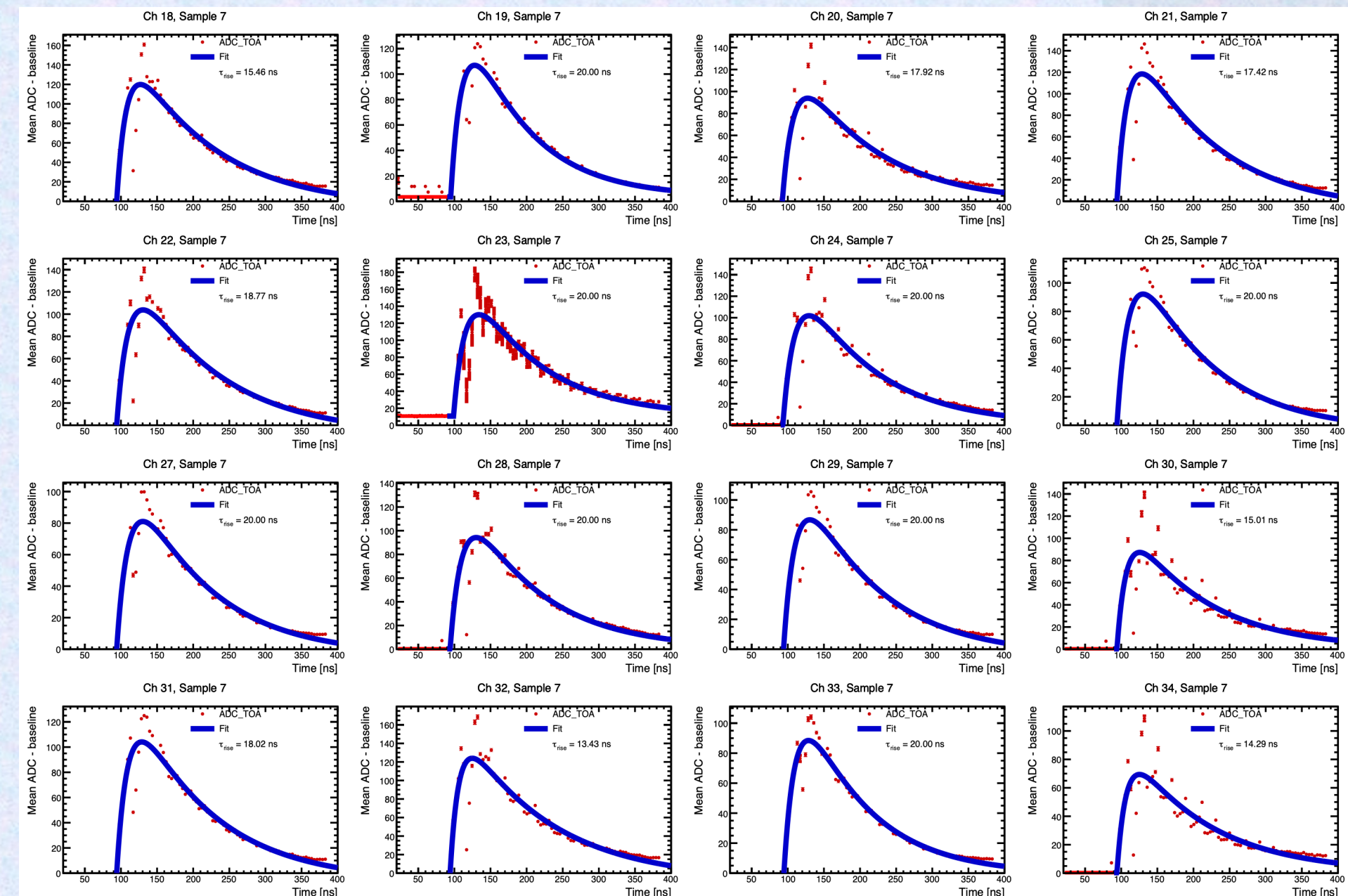
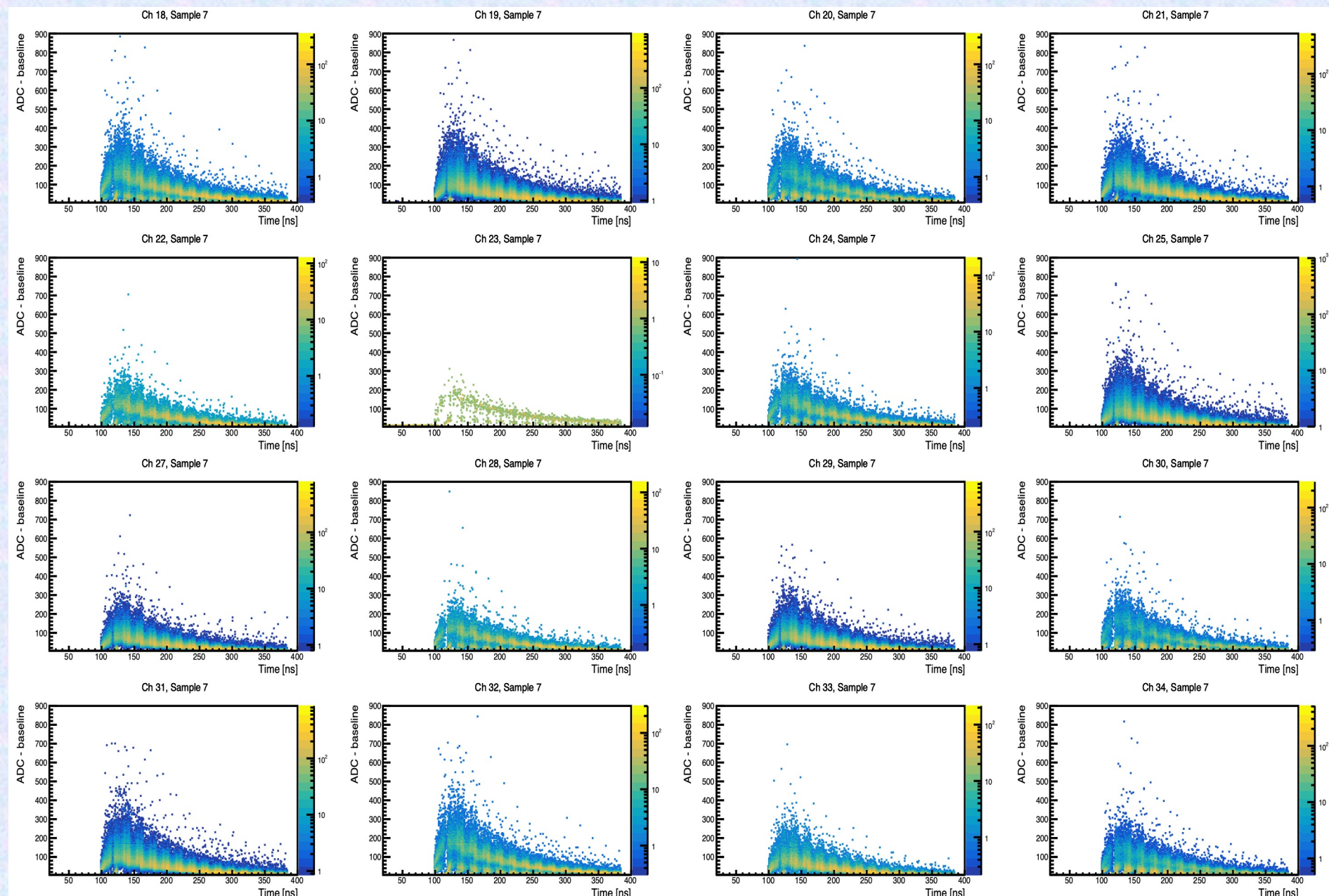
channel = 97, Magic Parameter = 0



/work/eic/EPIC/TestBeam/BIC/data/KCU0/beam/beam_ROC_0-00002679-0000.evt '

Hall D TB Sample – Update

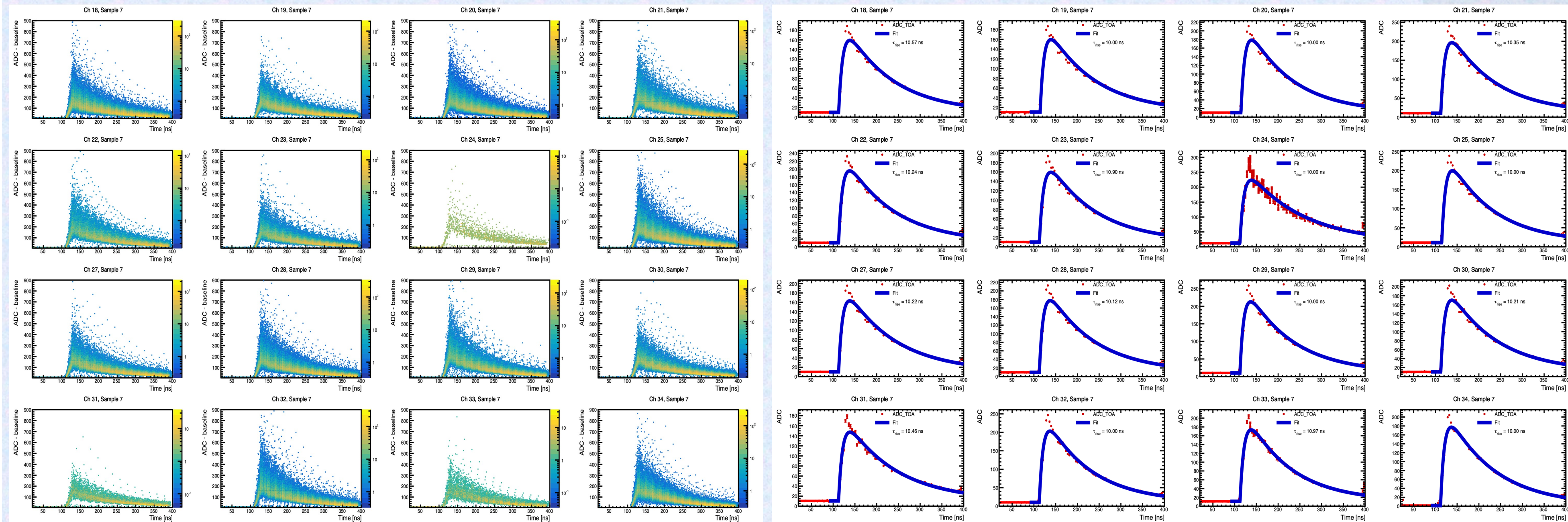
KCU0



/work/eic/EPIC/TestBeam/BIC/data/KCU0/beam/beam_ROC_0-00002679-0000.evt '

Hall D TB Sample – Update

KCU1



/work/eic/EPIC/TestBeam/BIC/data/KCU0/beam/beam_ROC_0-00002679-0000.evt '

Hall D TB Sample – Update

KCU0 only has 3 ASICs, ASIC3 has no data input

KCU1 only has 2 ASICs, ASIC2 and ASIC3 have not data input

/work/eic/EPIC/TestBeam/BIC/data/KCU0/beam/beam_ROC_0-00002679-0000.evt '