



FLAME

FcaL Asic for
Multiplane rEadout

UPDATE ON FLAME TB ANALYSIS

13.01.2021

REMINDER: RUNS ANALYSED

➤ Runs used:

- $X_0 = 0$: 777 – 780

- $X_0 = 1, 2, 3$: 678 – 683

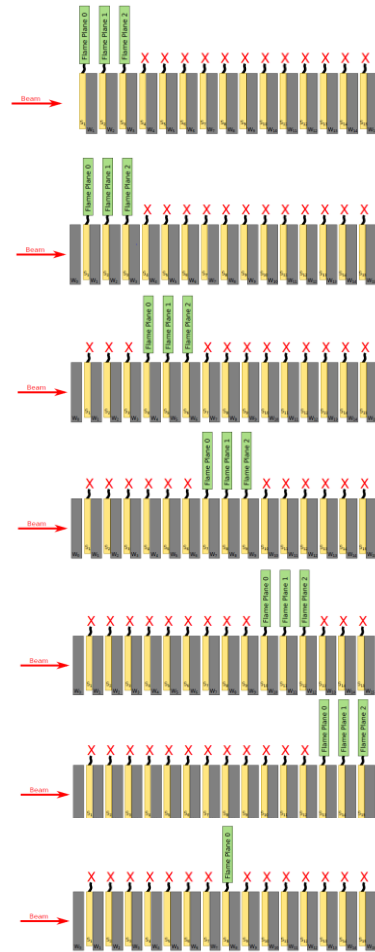
- $X_0 = 4, 5, 6$: 696 – 701

- $X_0 = 7, 8, 9$: 746 – 755

- $X_0 = 10, 11, 12$: 758 – 762

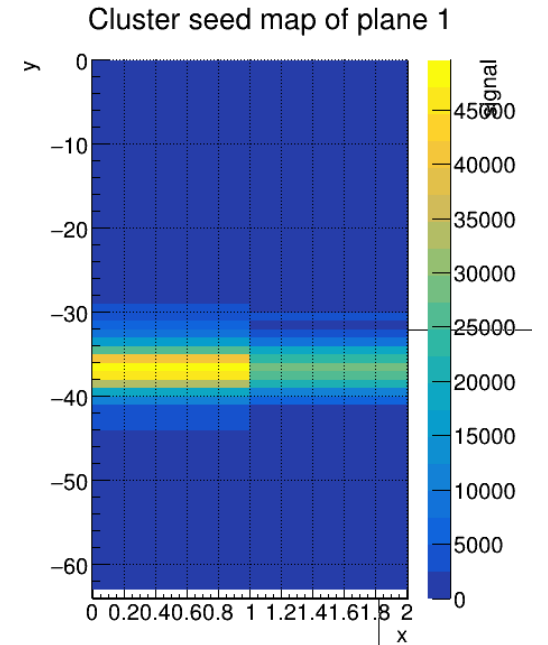
- $X_0 = 13, 14, 15$: 869 – 873

- $X_0 = 8$: 877 – 881



➤ 5 GeV electrons

➤ ~ center of the sensor

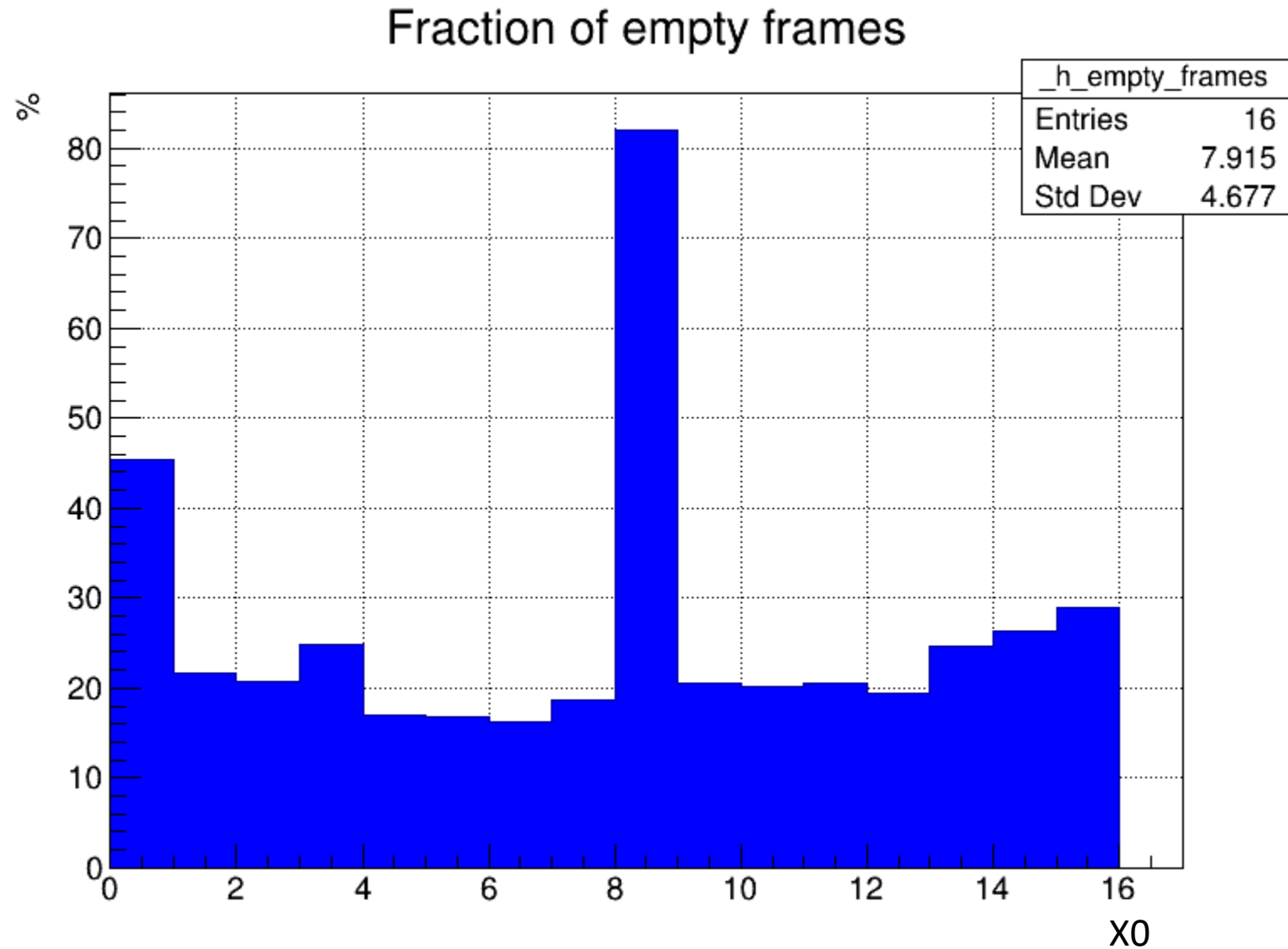


Run	Dead channels for planes 7, 8, 9 First run in configuration C (see FLAME measurement plan). Some problem with plane 8. It shows only the noise. Noise is lower than in the neighbor planes. We continue runs with this problem open	746
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➤ ADDED TO THE ANALYSIS

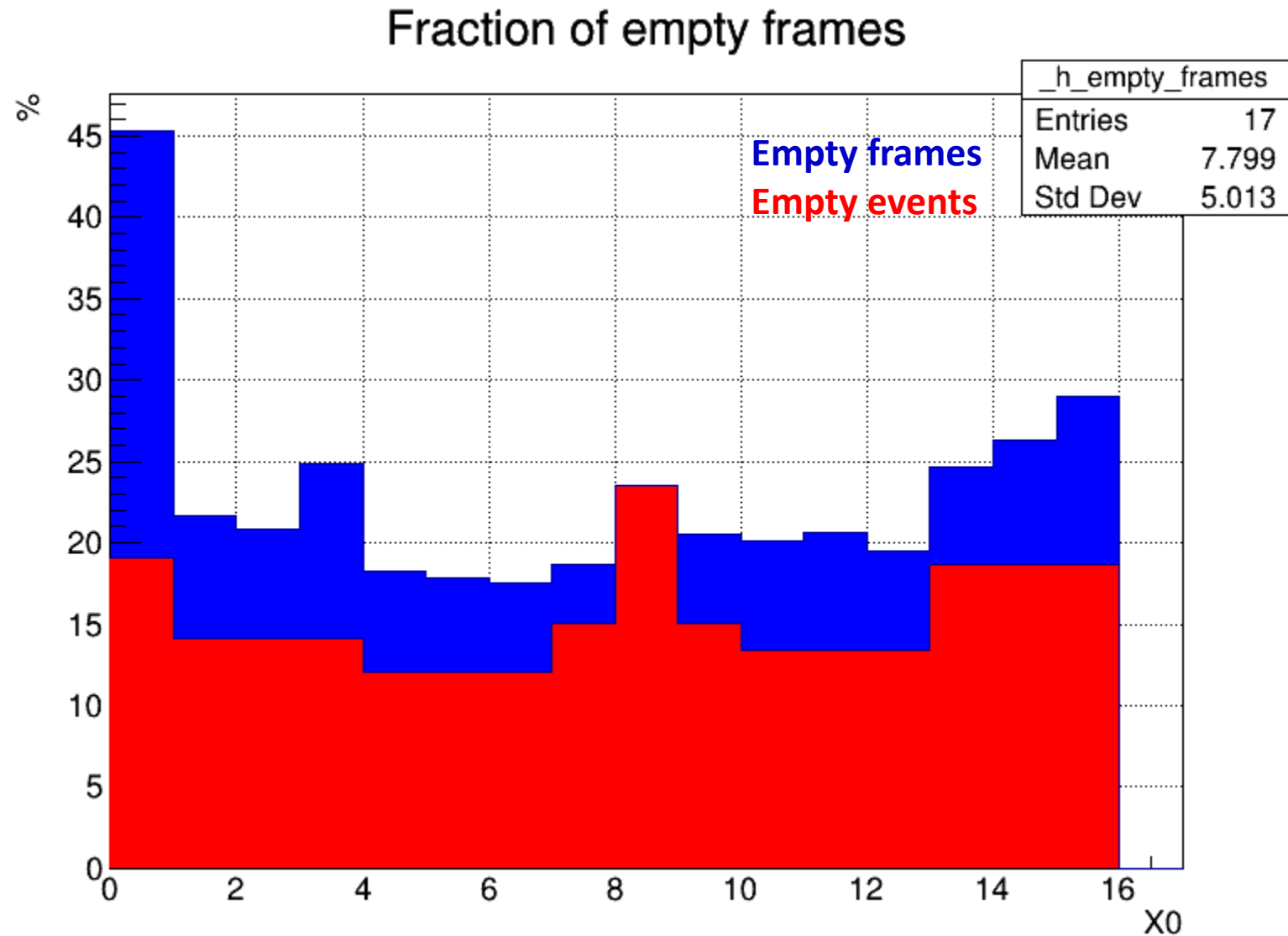
REMINDER: EMPTY FRAMES ISSUE

- There is a significant fraction of empty frames
- Source unknown:
 - triggers on particles out of lumical acceptance?
 - trigger synchronisation failure?
 - **fraction of empty events to be checked**



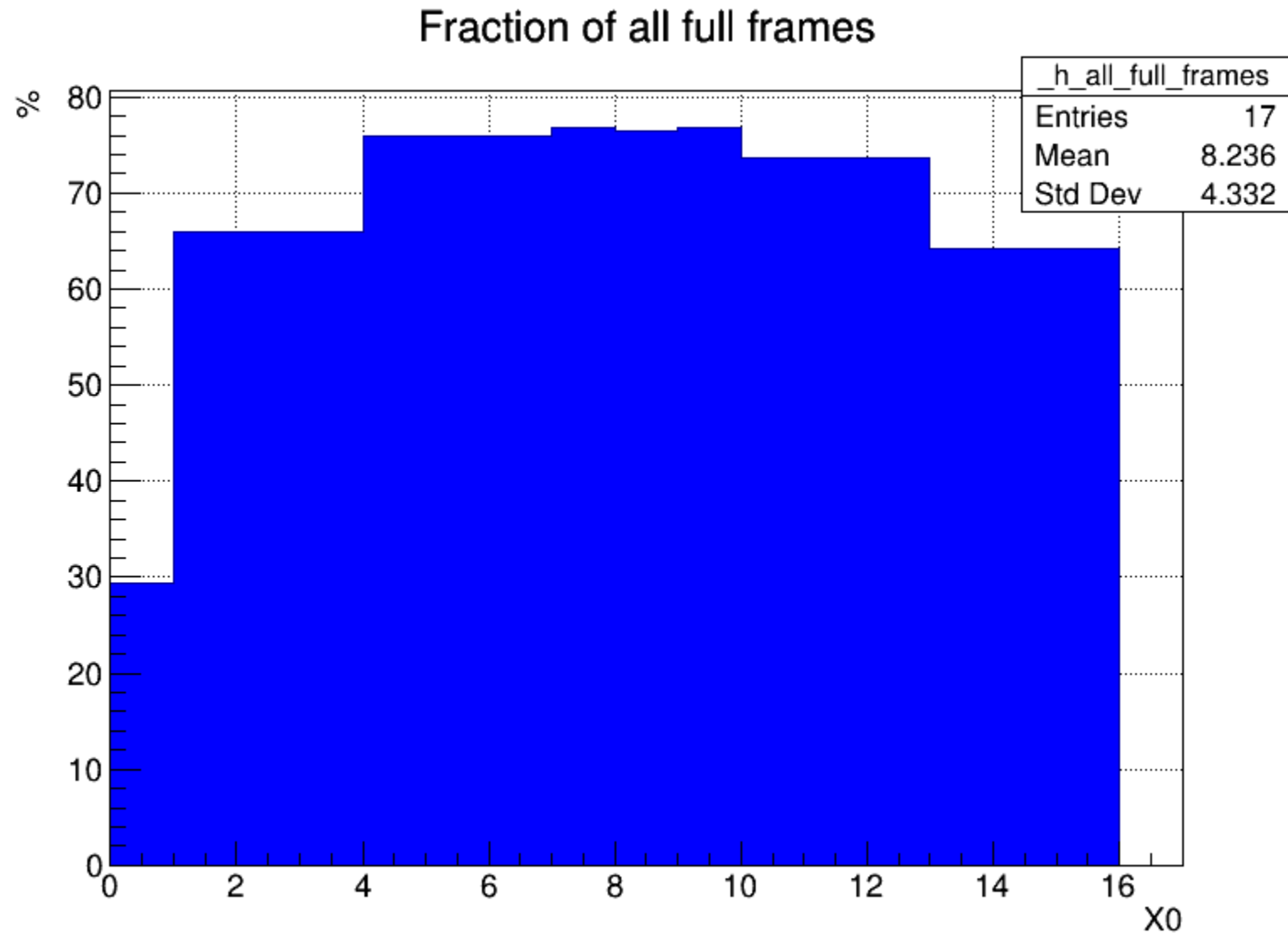
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- Majority of empty frames comes from fully empty events

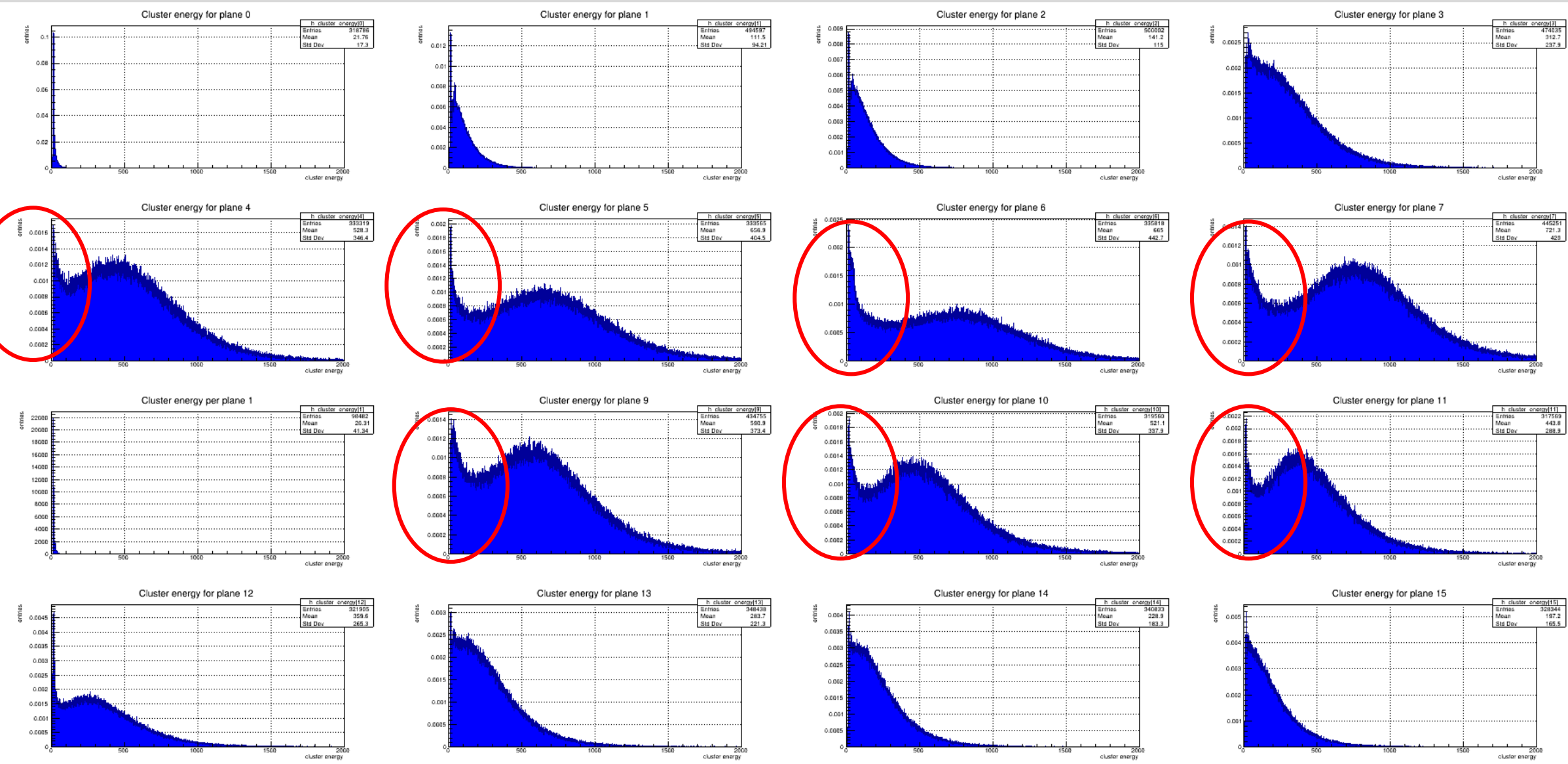


EMPTY FRAMES ISSUE

- There is a significant fraction of empty frames
- Source unknown:
 - triggers on particles out of lumical acceptance?
 - trigger synchronisation failure?
 - fraction of empty events to be checked
- Majority of empty frames comes from fully empty events
- Cut on only full events has been applied (all 3 frames are required to respond)

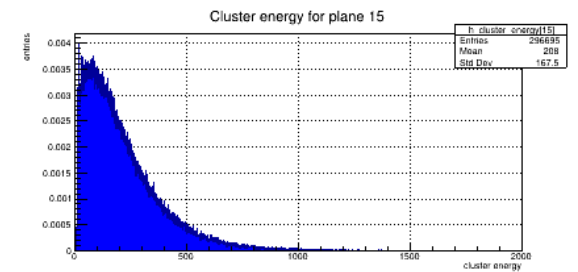
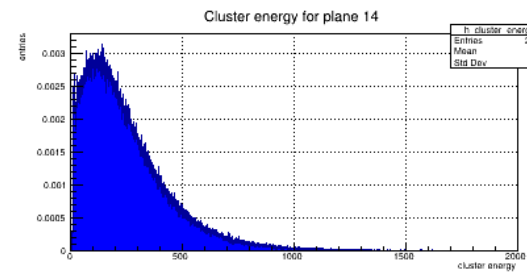
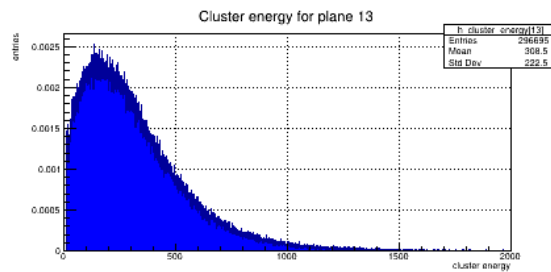
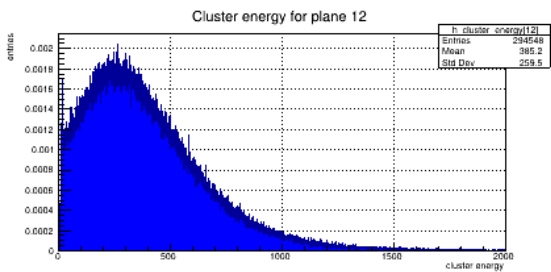
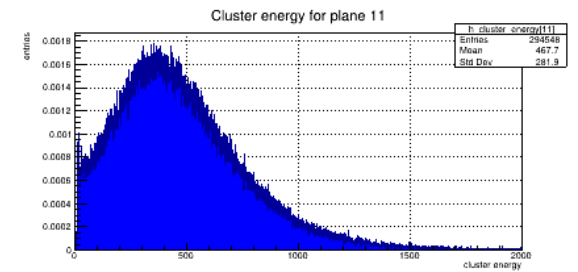
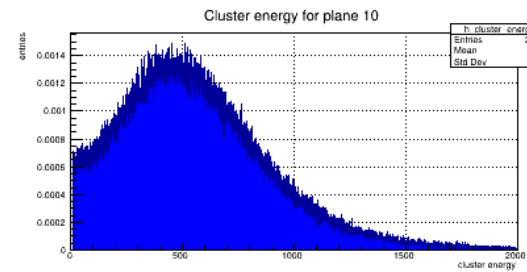
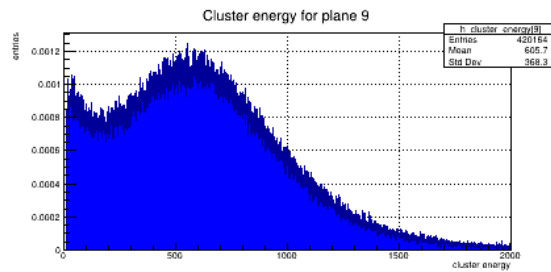
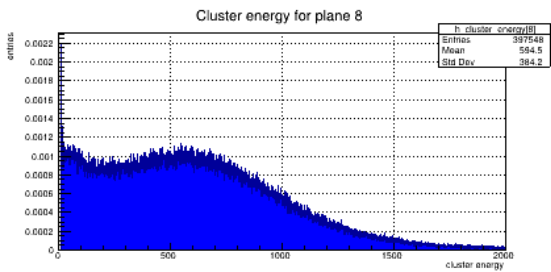
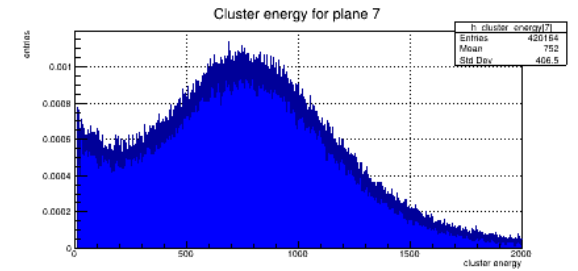
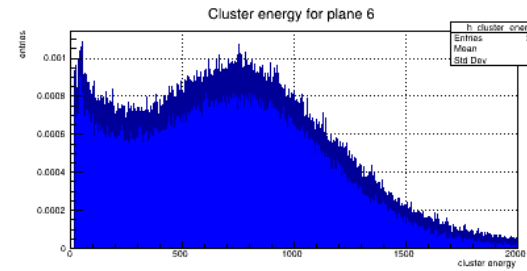
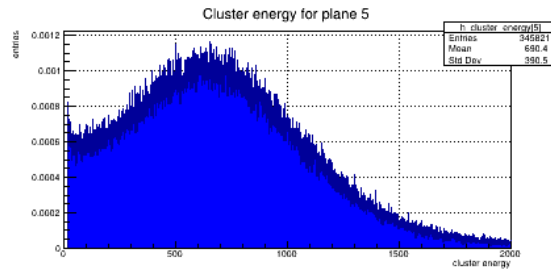
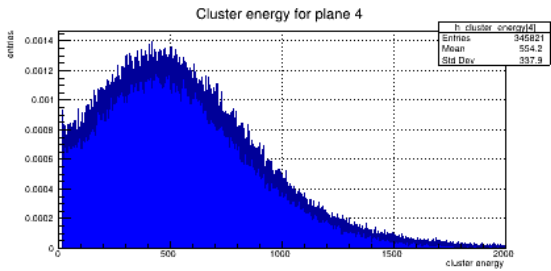
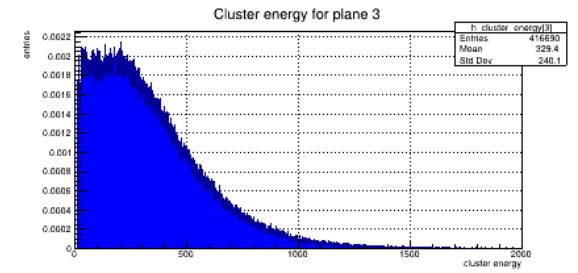
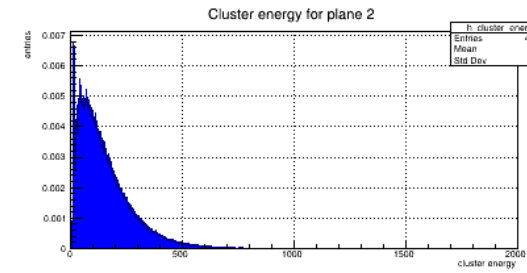
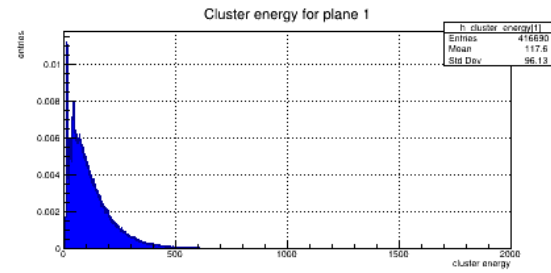
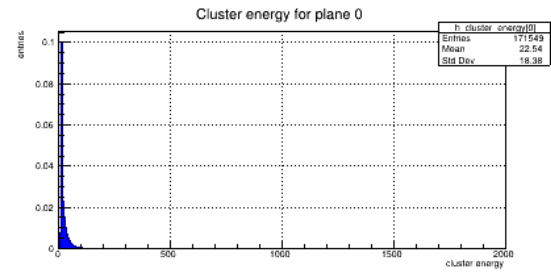


REMINDER: CLUSTER ENERGY ANALYSIS – LOW ENERGY ENTRIES ISSUE



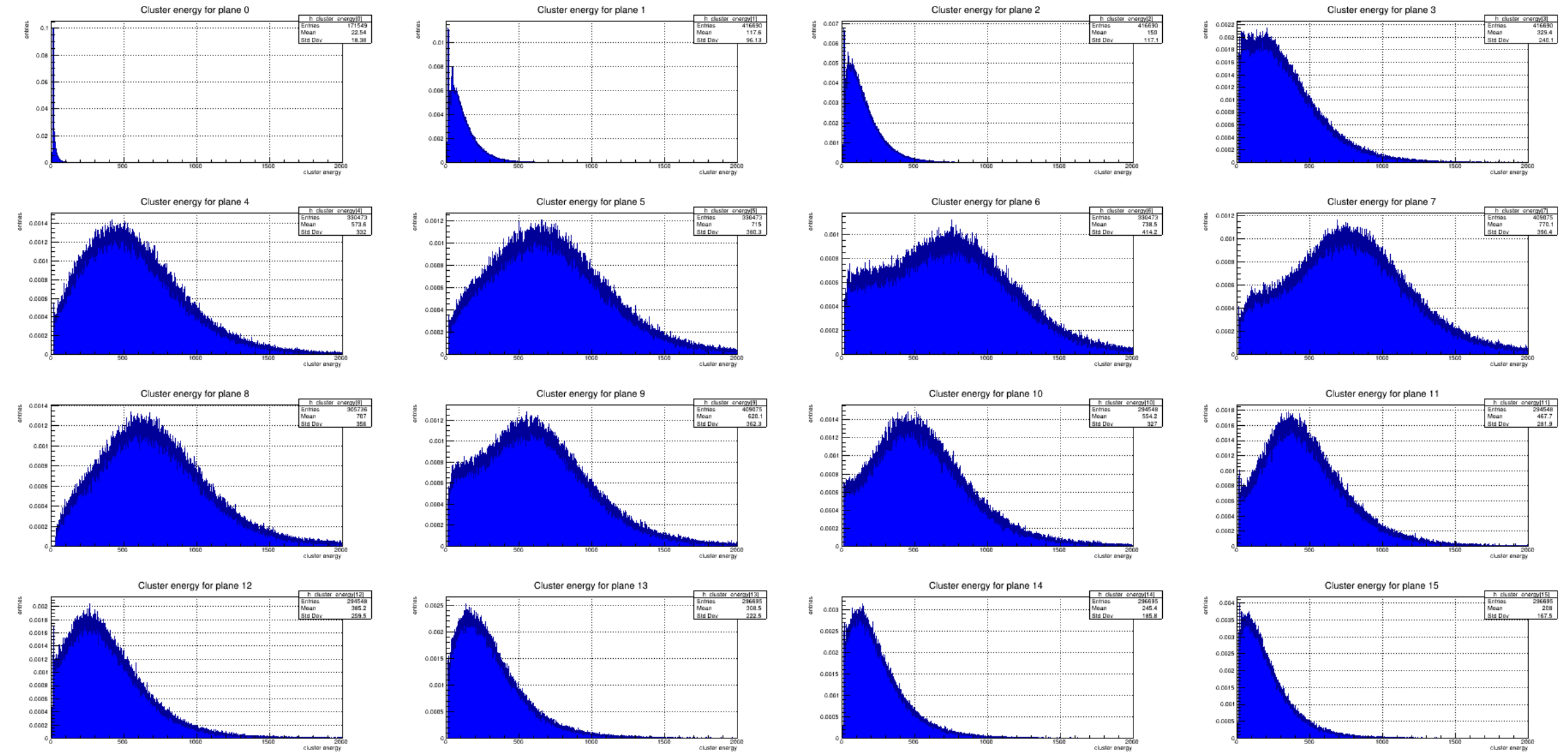
Cuts: - Full events only

CLUSTER ENERGY ANALYSIS



Cuts: - Full events only - Cluster size: $c_{l4}+c_{l5}+c_{l6} > 6$
 $c_{l7}+c_{l9} > 3$
 $c_{l8} > 2$

CLUSTER ENERGY ANALYSIS

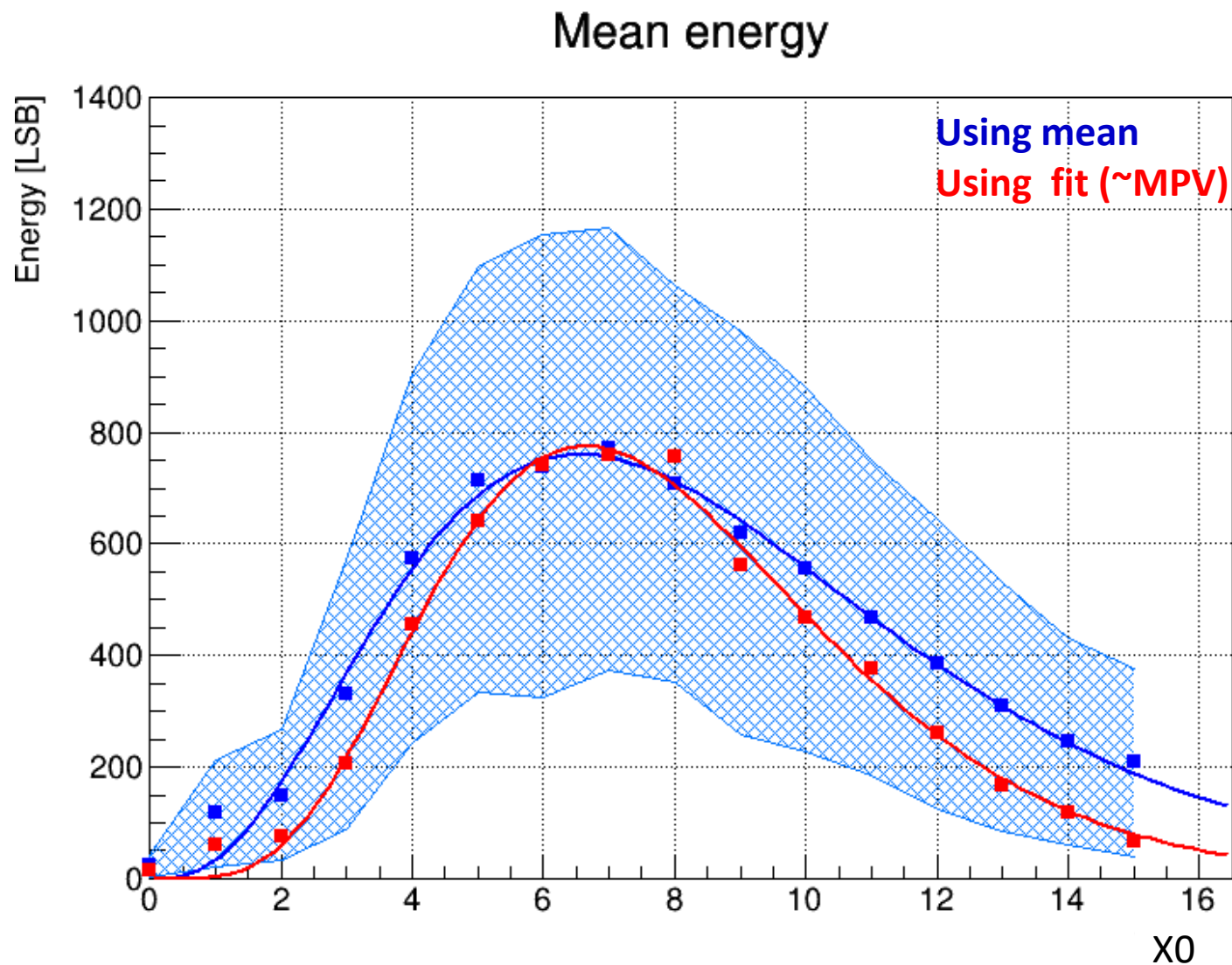


CLUSTER ENERGY ANALYSIS

- The maximum energy deposition for 5 GeV electrons at around $7X_0$
→ as expected
- Longitudinal shower parametrisation fitted:

$$\frac{dE}{dt} = E_0 t^\alpha \exp(-\beta t)$$

where $t = x/X_0$



THANK YOU FOR ATTENTION