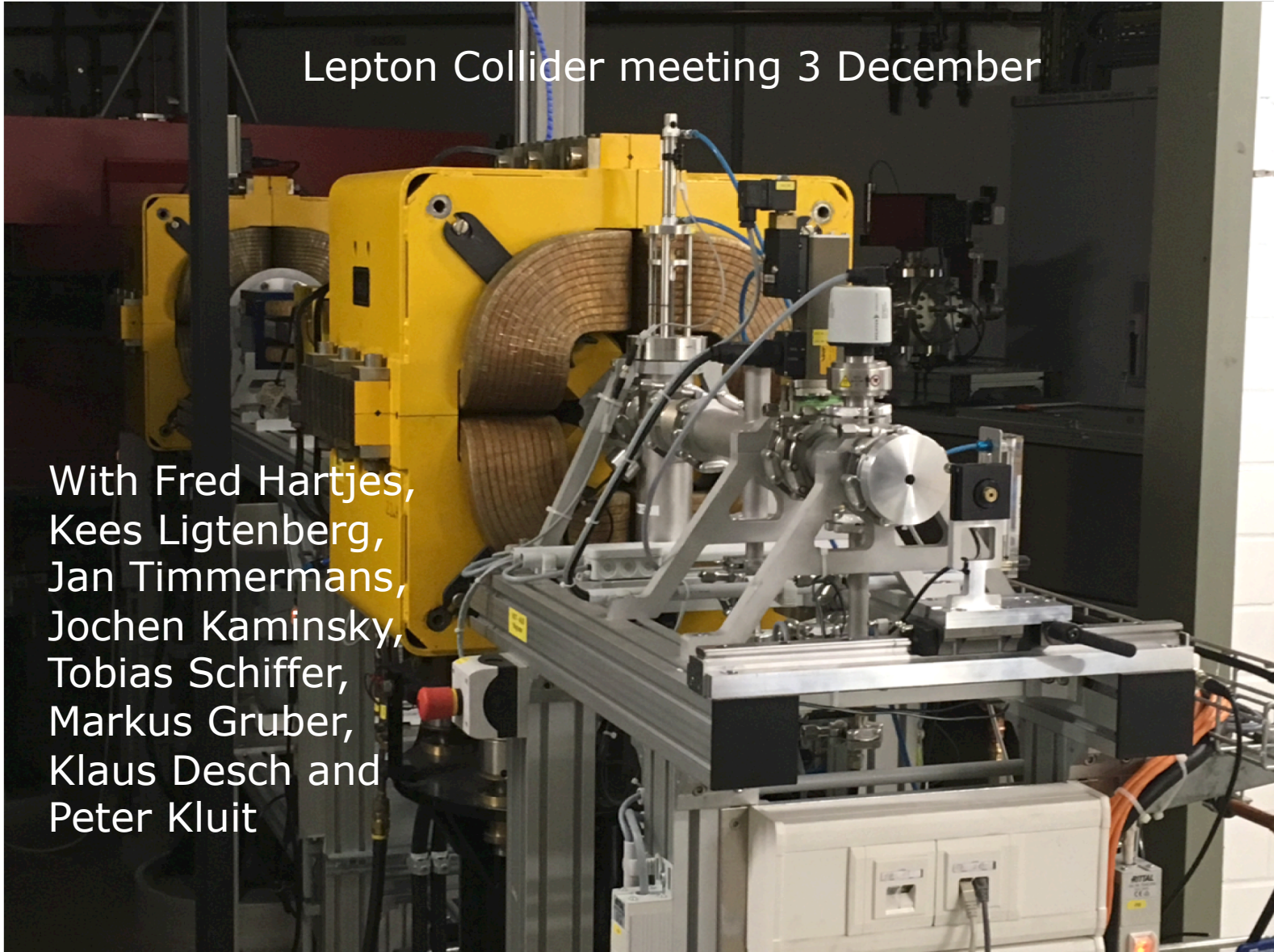


Test beam period Bonn ELSA from 2 to 6 October

Lepton Collider meeting 3 December

With Fred Hartjes,
Kees Ligtenberg,
Jan Timmermans,
Jochen Kaminsky,
Tobias Schiffer,
Markus Gruber,
Klaus Desch and
Peter Kluit



Test beam period Bonn

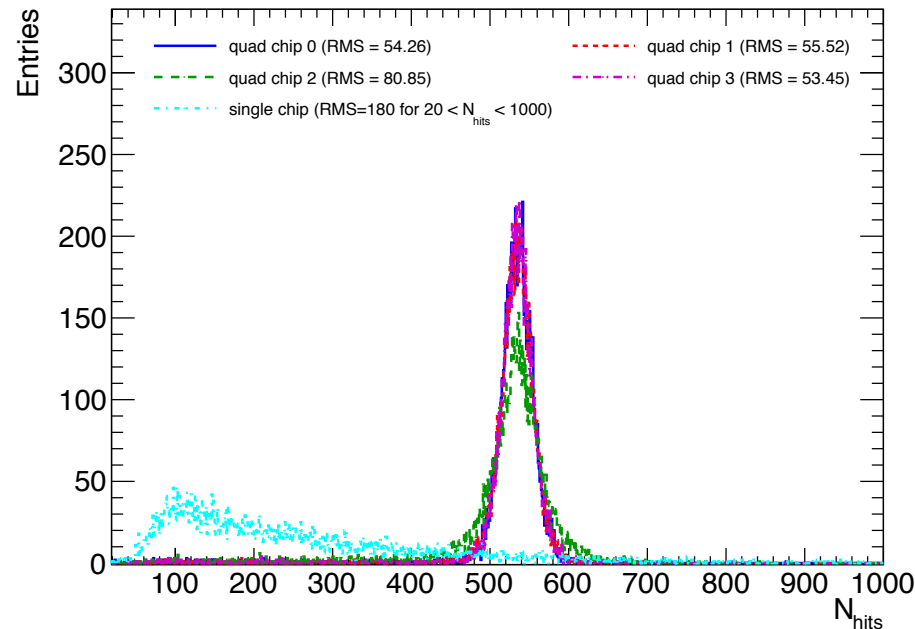
Last meeting 19 November Kees showed the issues with the Timepix synchronisation.

Here we report the progress in diagnosing and understanding this aspect. The basic idea (from Martin) is that due to the high rate the Timepix data is shifted and gets another Spider time stamp.

By looking at different data sets we can diagnose this using the nr of hits per 409 microsec.

Run668
Latest Quad

The blue:
published
low rate test
beam

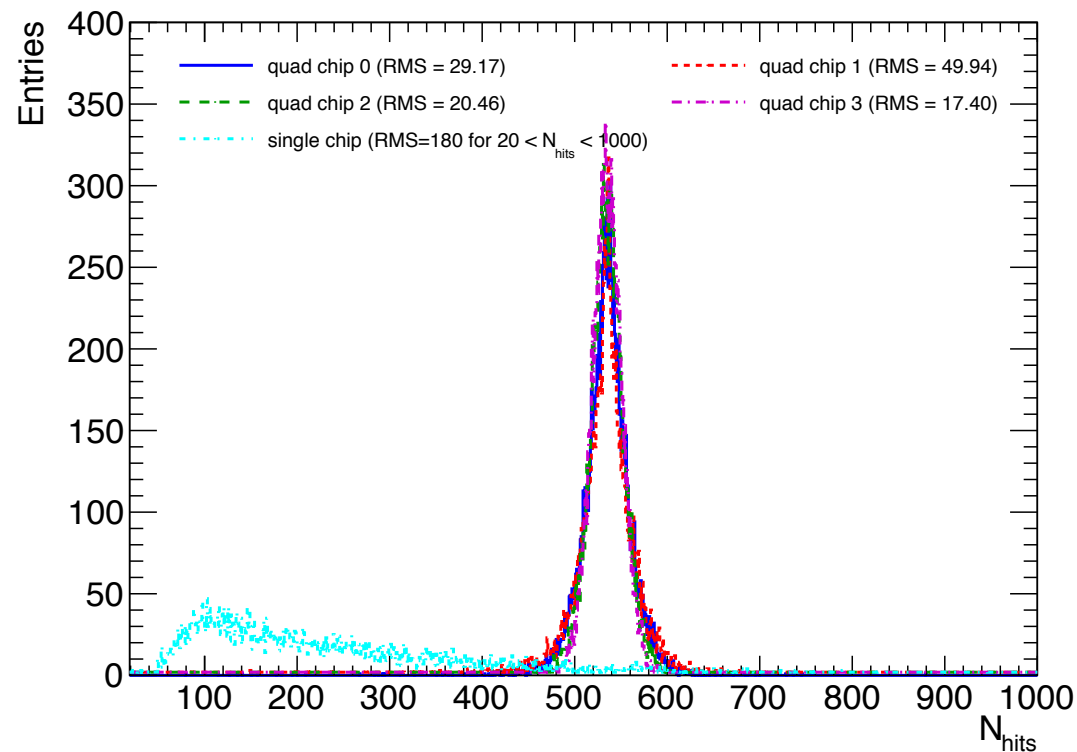


Test beam period Bonn

Run 667 with the new (second) quad was taken at a higher threshold. It is a bit better but still saturation at 550 hits per chip per 409 microsec.

Run667
Latest Quad

The blue:
published
low rate test
beam



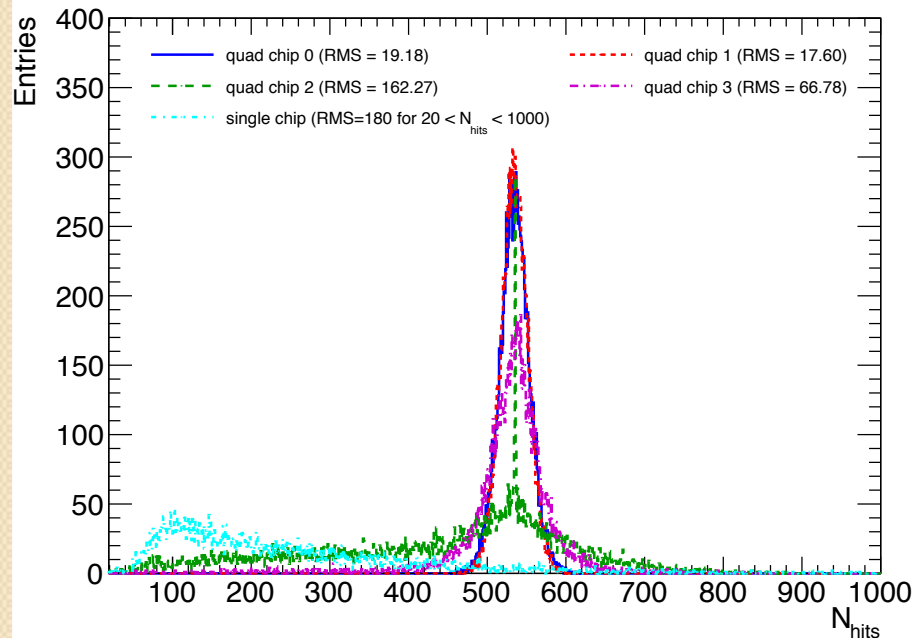
Test beam period Bonn

Run 632 with the first quad was taken at a higher threshold. It is a bit better than the other runs.

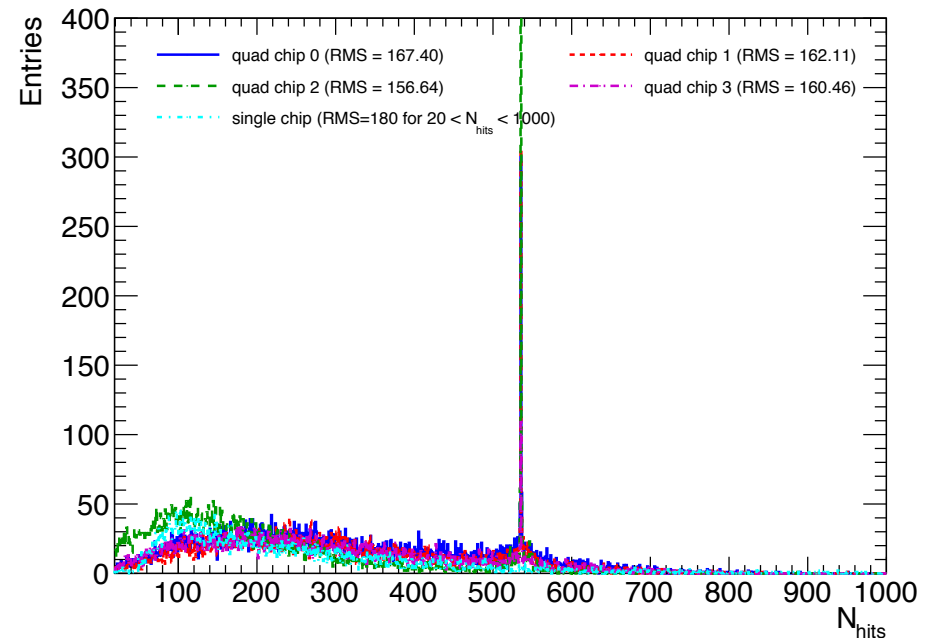
It is however clear that run627 taken at a lower HV is in much better shape. So a lower hit rate.

For the Conference results we decided to focus on run 627.

Run632 first quad



Run 627 at lower HV

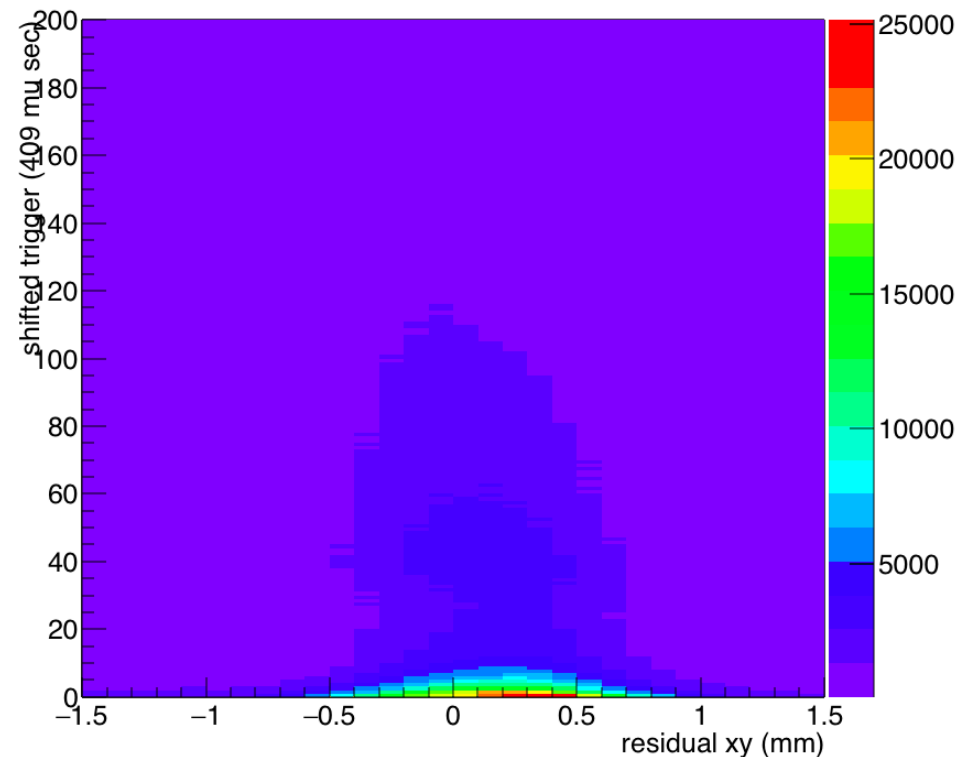
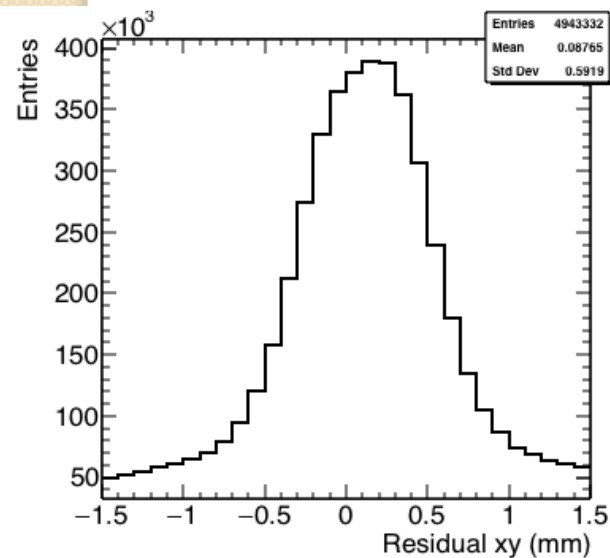


Test beam period Bonn

Can we recuperate the data that is trigger shifted?
How far should we look “forward” (up to 200)?

To study this we use the Telescope track and plot the residuals (in xy or drift) vs nr of shifted triggers.

A difficult run
Run 667

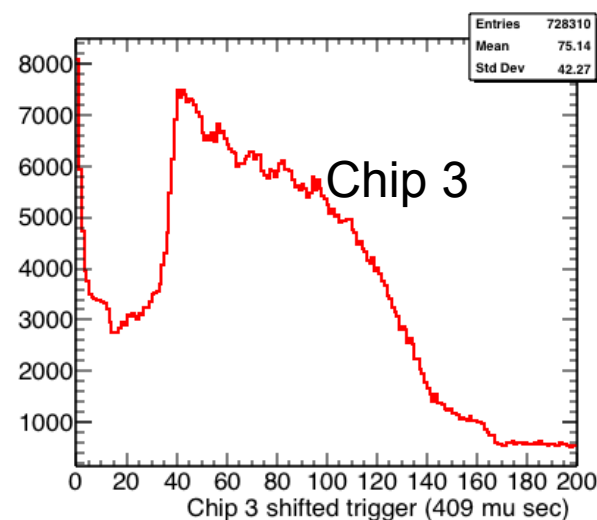
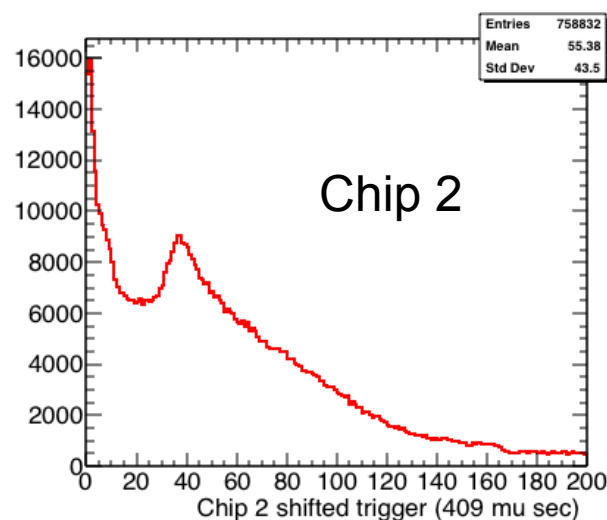
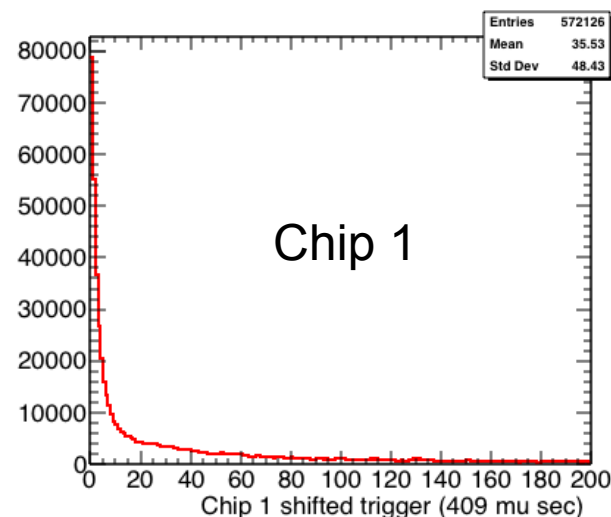
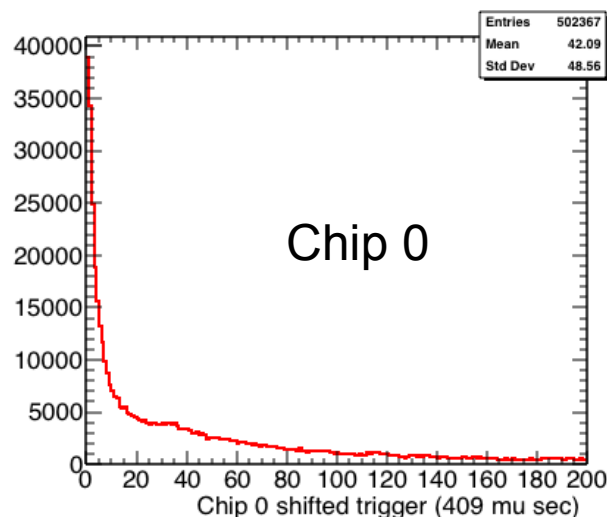


Test beam period Bonn

Can we recuperate the data that is trigger shifted?
Yes if we go up to 200 triggers (worst case)

Different
for every
chip due to
the rate

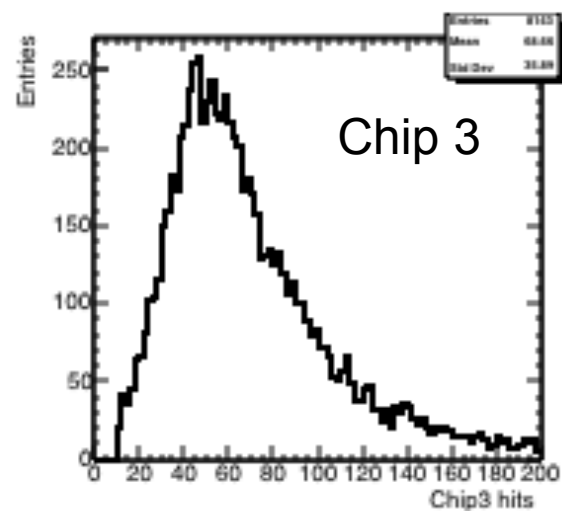
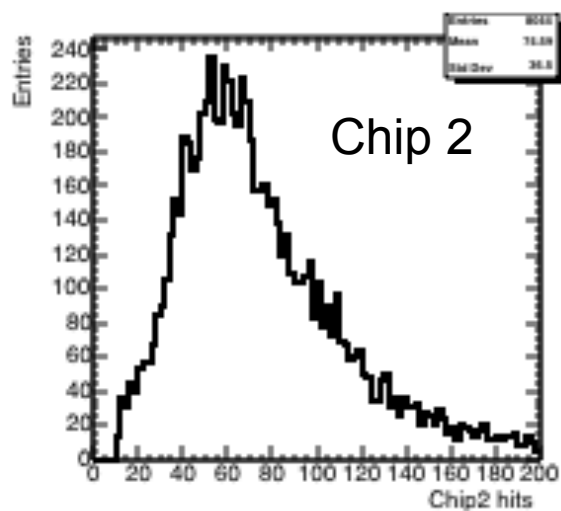
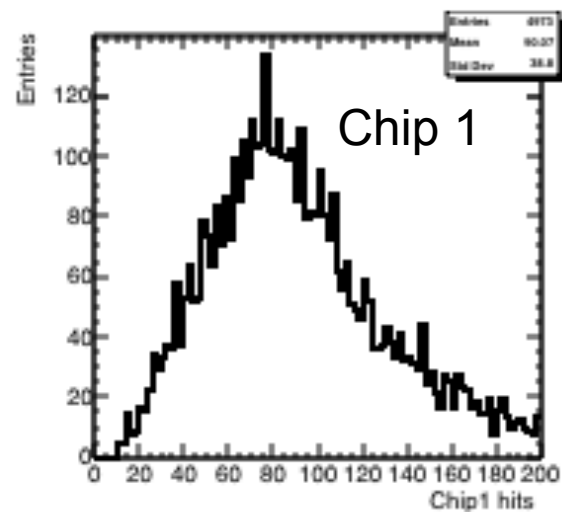
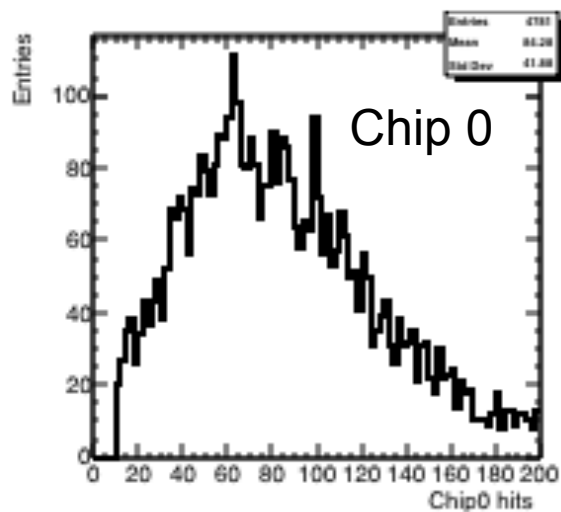
For Chip 1
one does
not have to
go that far



Test beam period Bonn

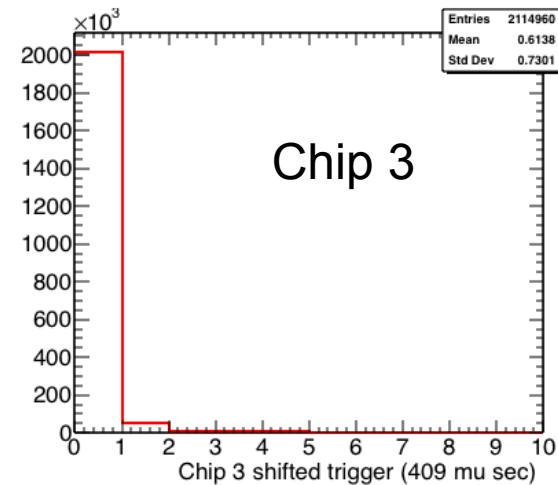
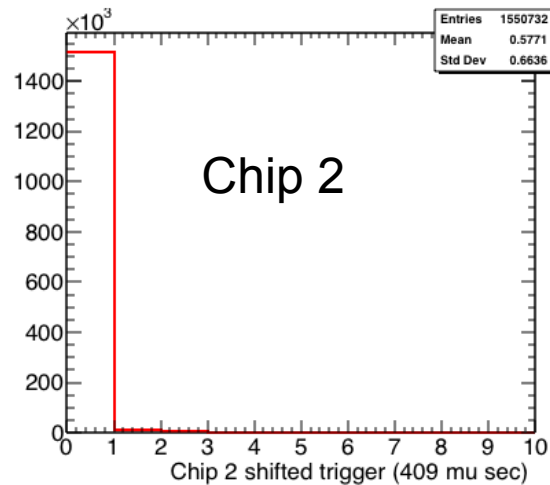
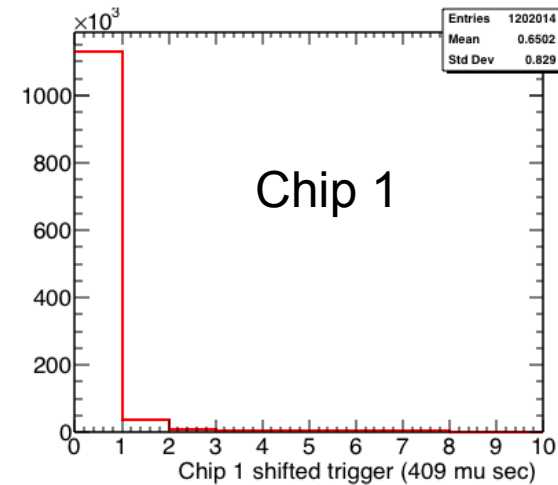
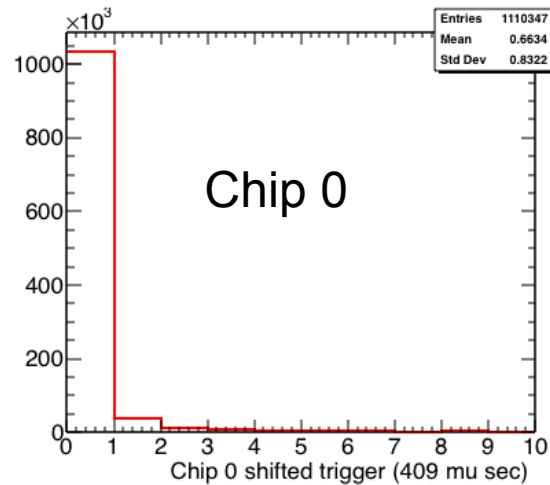
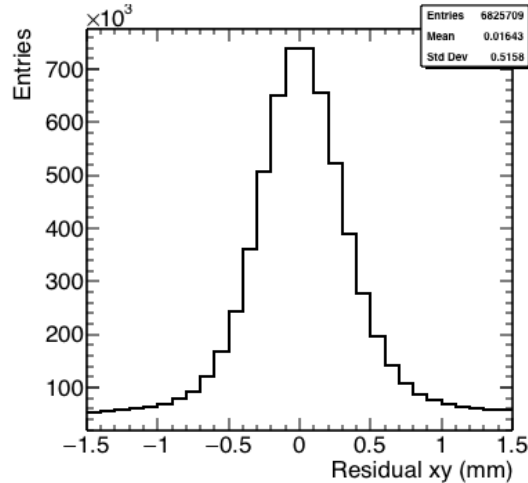
After recuperation the nr of hits on track for all chips.
This looks quite fine.

A difficult run
Run 667



Test beam period Bonn

Now an easy case: run 627 same distributions
Clearly just going up to 4 is good enough.





Conclusions

We know how to deal with the time synchronization.

In general just look forward by 200 trigger time stamps (of 409 micro sec) for data with high hit rates.

There is an easier case - run 627 - where the hit rate was lower and one can just has to go up to 4 stamps.

For the conference results of the quad we will first analyse run 627 with the first quad.

Later we can include also the other runs with the second quad.