HRSs TOF calibration and Coincidence time.

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HRS calibration was done using the TOF between adjacent paddles in the same plane and TOF between the two planes for absolute time determination.

LHRS:

before the calibration TOF between S2m plane and S1 plane:

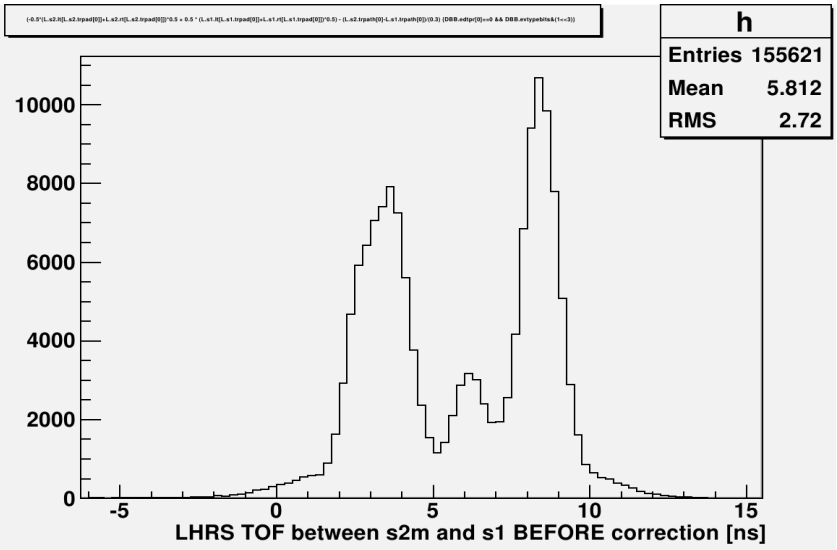

fig 1

after the alignment of the each paddle with his neighbor :

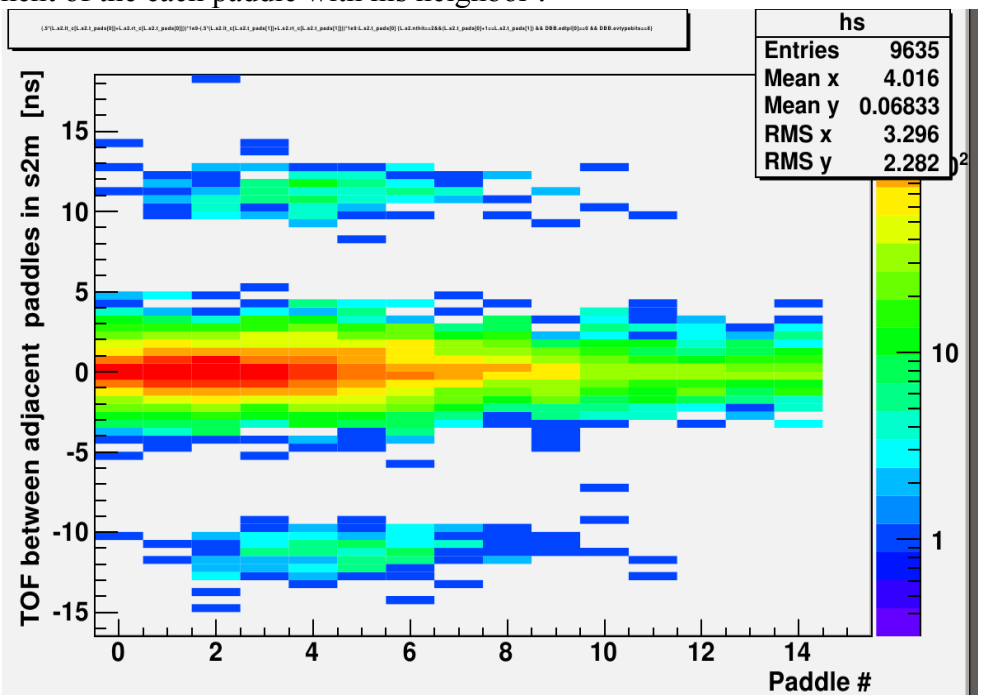

fig 2

Alignment of s1 paddles:

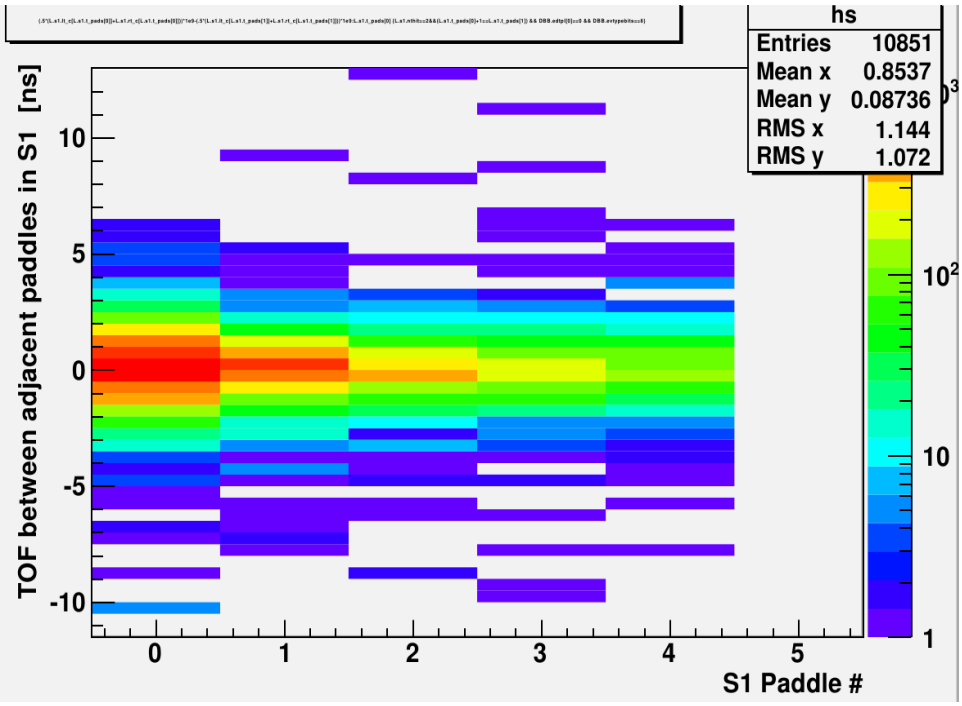

fig 3

Then, the TOF between two planes becomes:

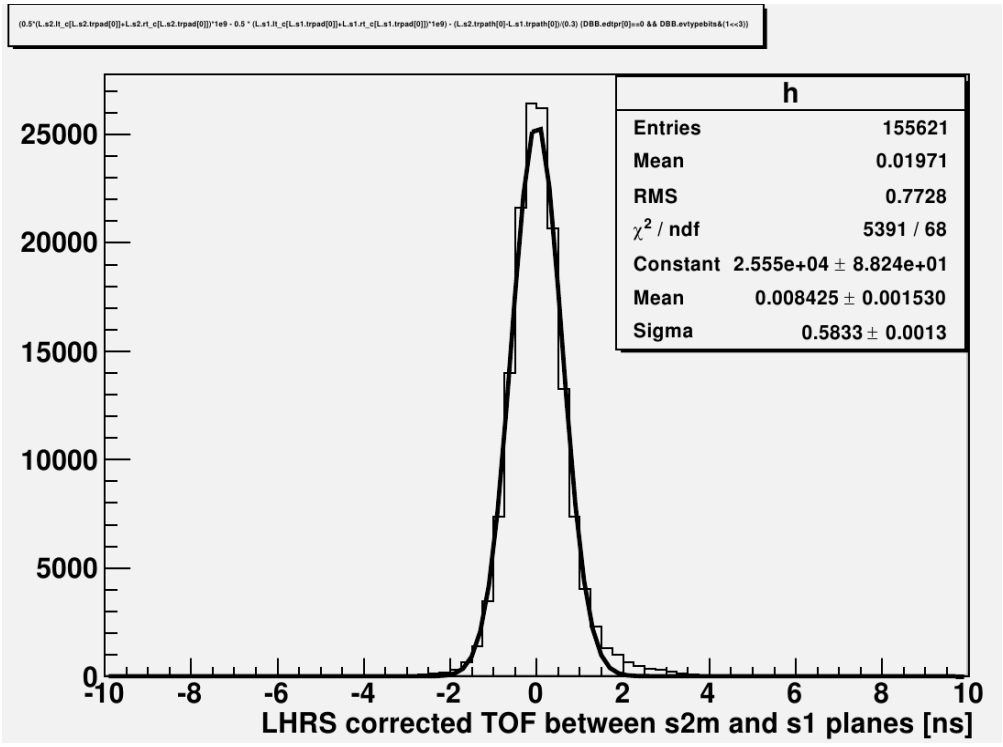

fig 4

However, If we look on the TOF between the planes vs **s2m** paddle number:

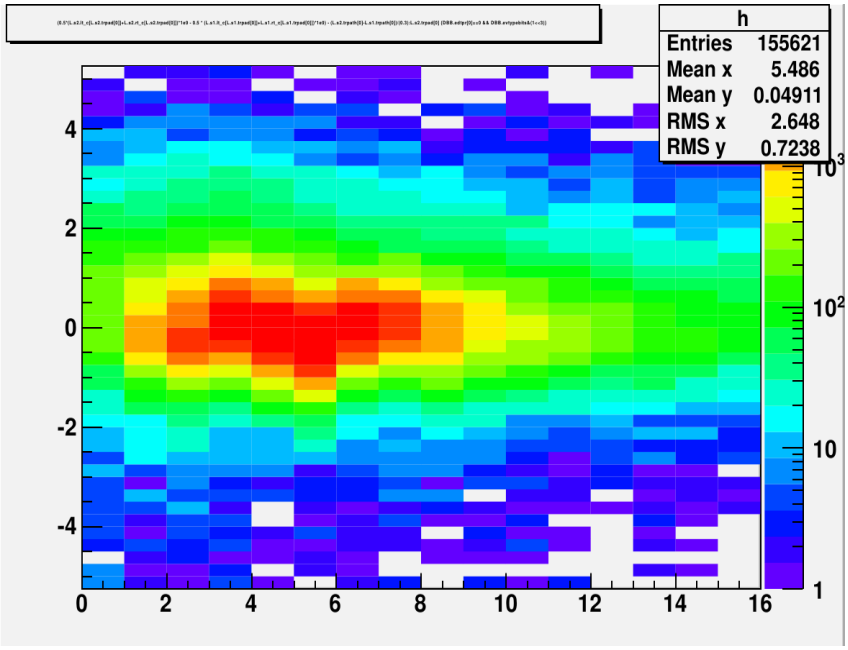

fig 5

and vs **s1** paddle number

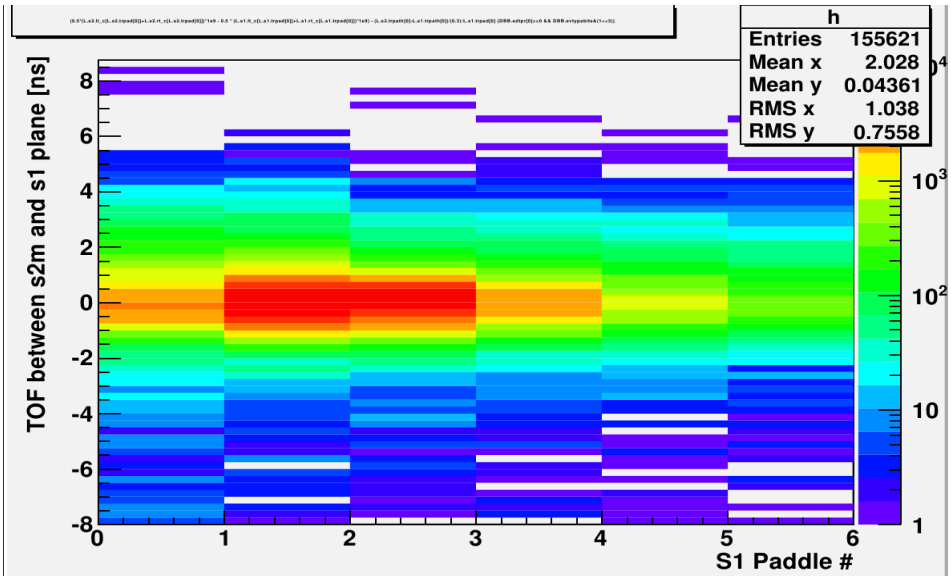

fig 6

In fig 5 we see that we have some jitter in TOF, nevertheless the TOF resolution is around 0.5 ns. Could it be due to the optic calibration?

I see similar effect in RHRS.
TOF between the adjacent paddles:

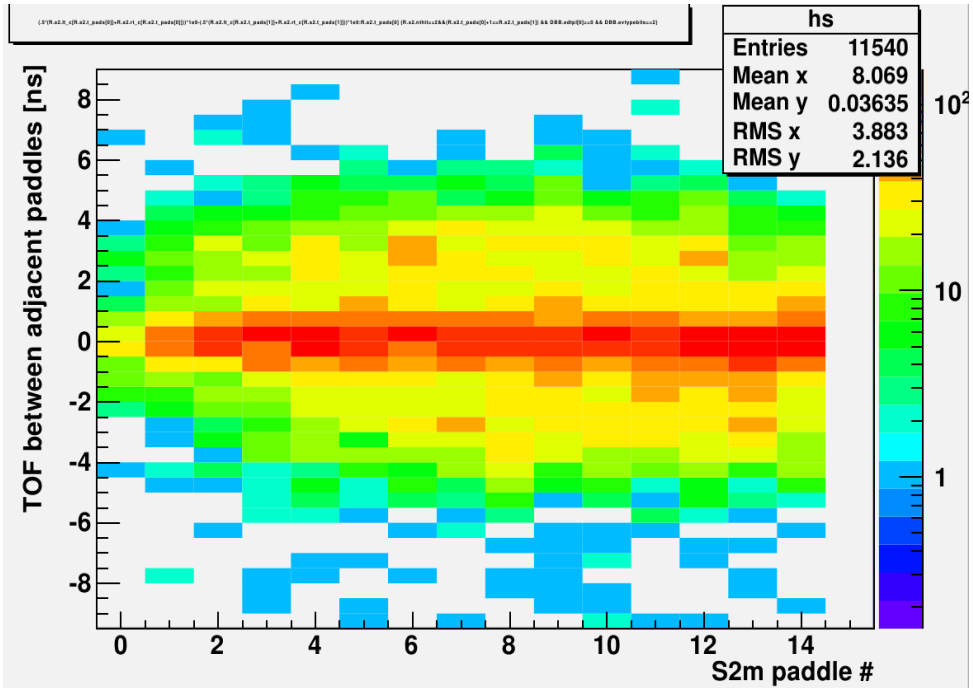

fig 7

and than looking on TOF between s2m and s1 planes:

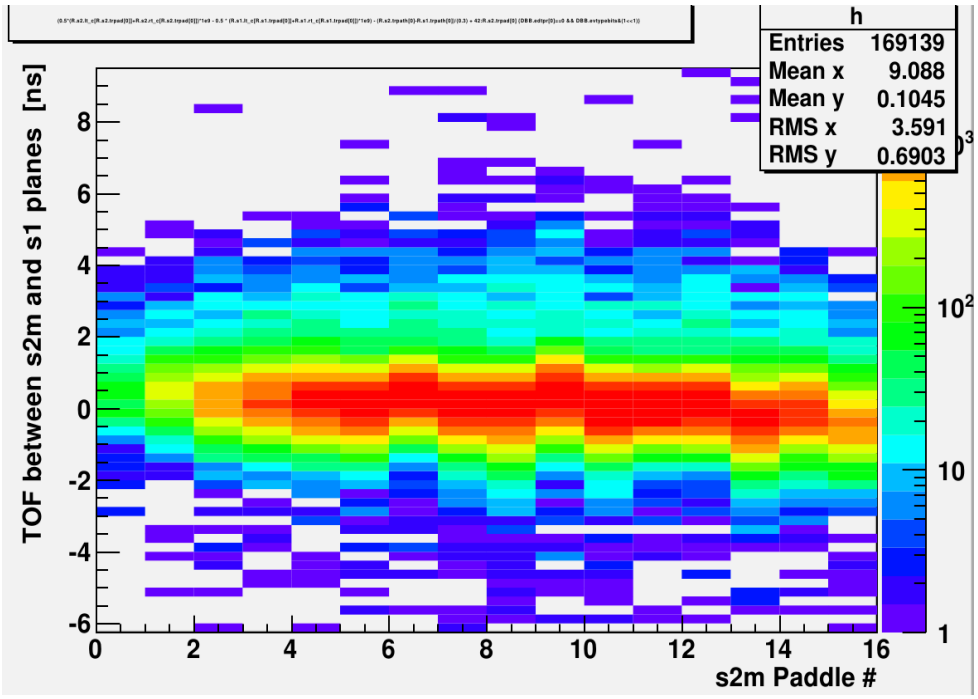

fig 8

and the TOF resolution ~ 0.5 ns:

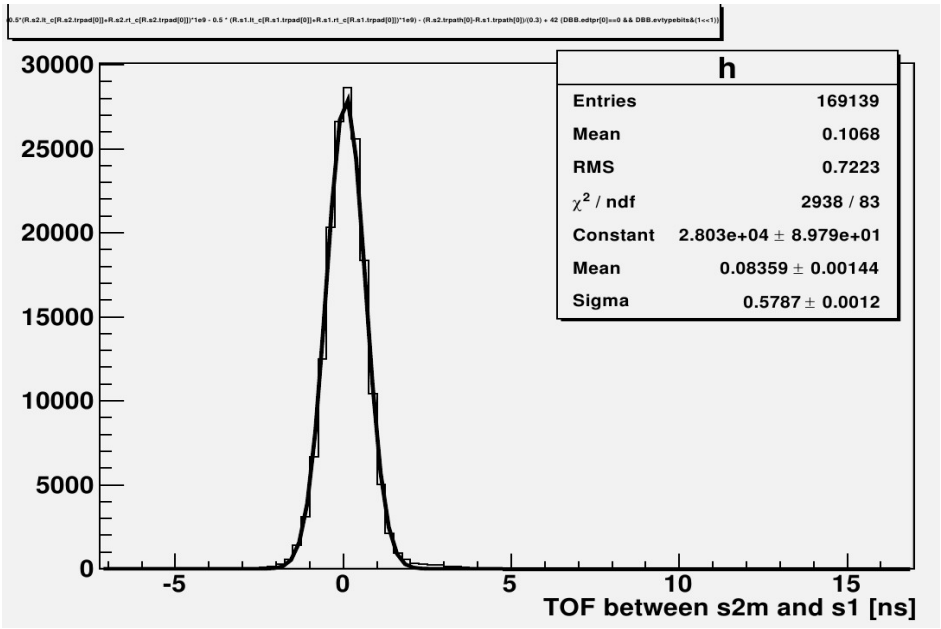

fig 9

Coincidence Time Between HRSs:

Kinematics: LD2 target, X>1
LHRS at 16 deg (during the production was at 20.3).

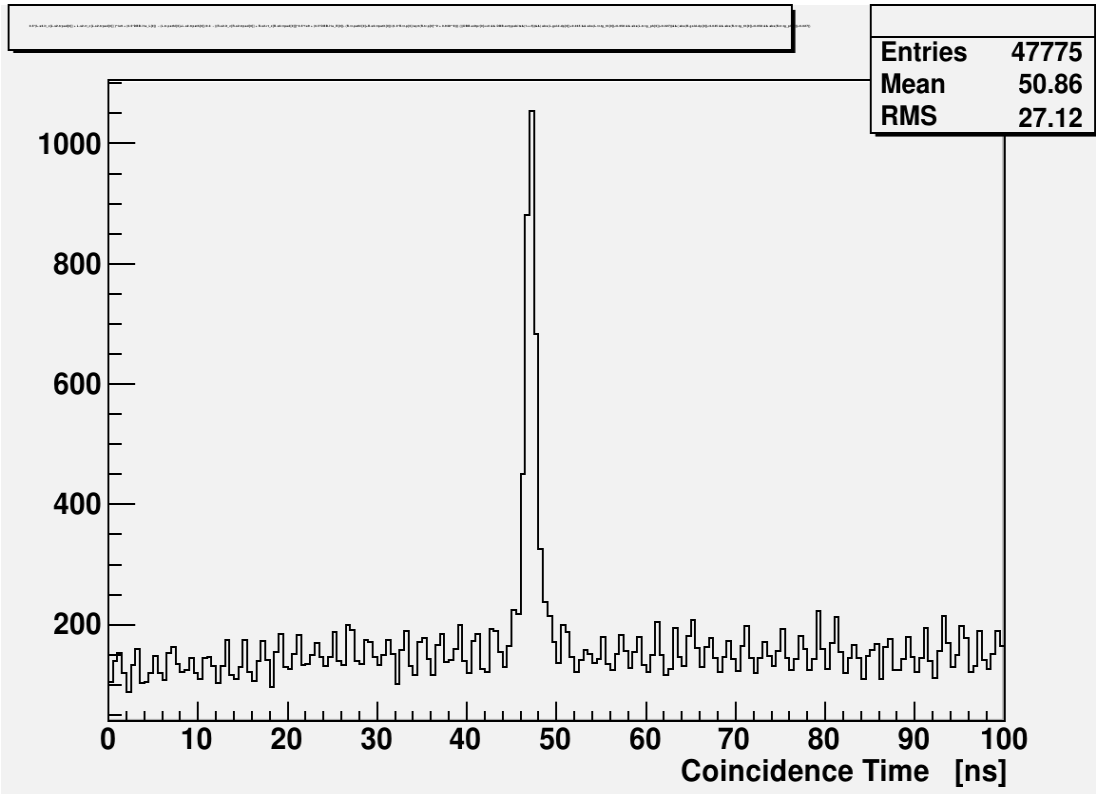

fig 10