

BPM status

Pengjia Zhu
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Beampackage update

Rewrite the insert and calibration part to fit the new filter method ---- still continuing

New method for insert:

Will read all of bpm datas to RAM, then deal

--- since filter program need to use all of events for input parameter

Problem1:

Don't have large enough RAM

----if there has 10 million events in one run (production run) ,

and >70 arrays will built during dealing data,each one has ~10 million length

Solution:

Use pickle package in program

----temporarily dump array to disk, delete it immediately after use, load before use

Still debugging....Seems it is working.

Problem2:

Slow.....~1 hour per production run

Solution:

Will speed up when take the second time insert, since dumped arrays already saved in disk

Beam move check and split:

3 steps:

1. using rms detection

-----calculating rms every 1000 events

average[1:1001], average[2:1002],average[3:1003],...

--- rms[1:1001],rms[2:1002],rms[3:1003],...

----- for fast beam move

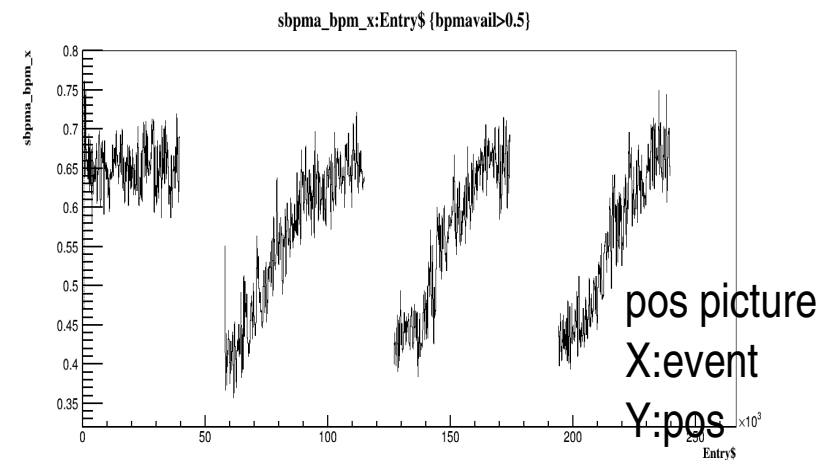
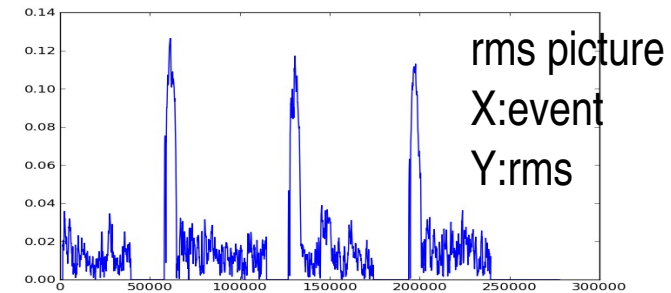
2. current trip info

3. split event if beam move(in bpm A) larger than 0.3 mm

----- for slow beam move

----- use 0.2 Hz very slow filter pos for judge

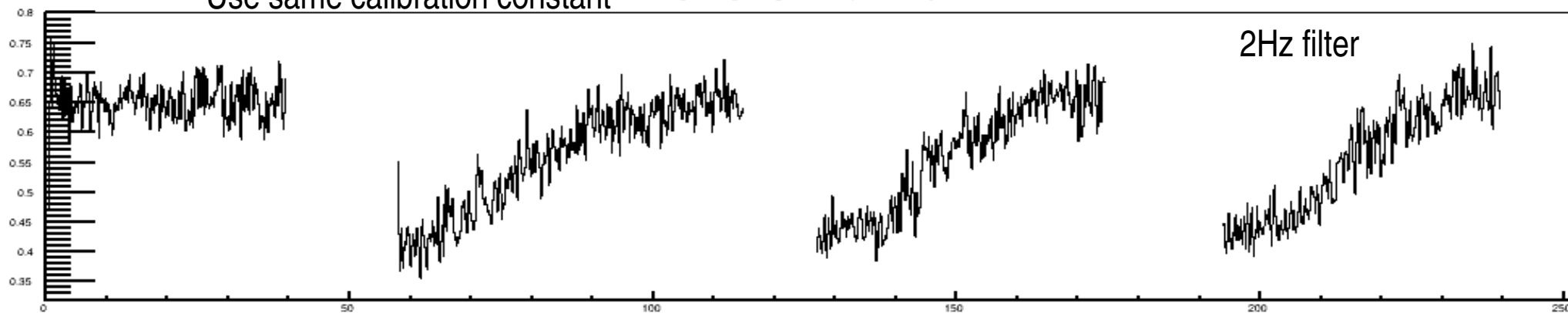
----- still debugging



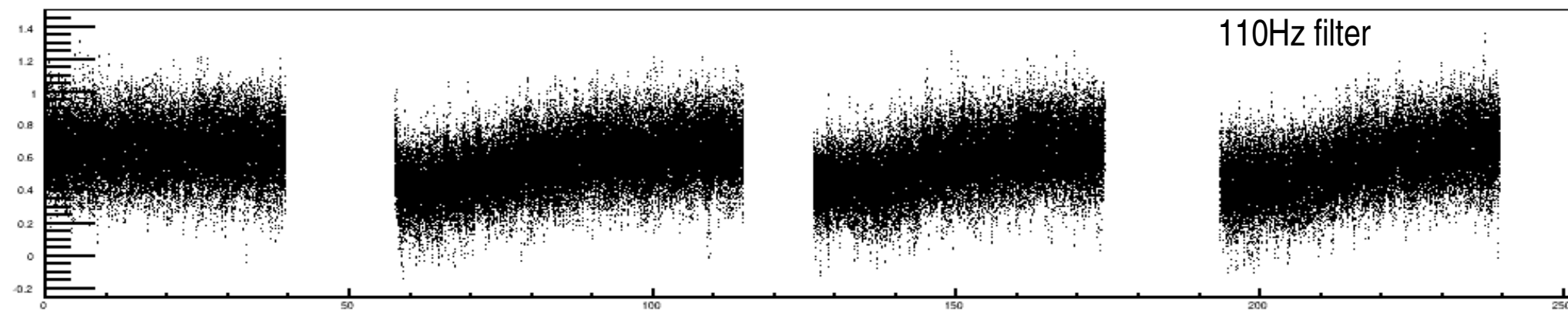
Signal comparison with different filter

Use same calibration constant

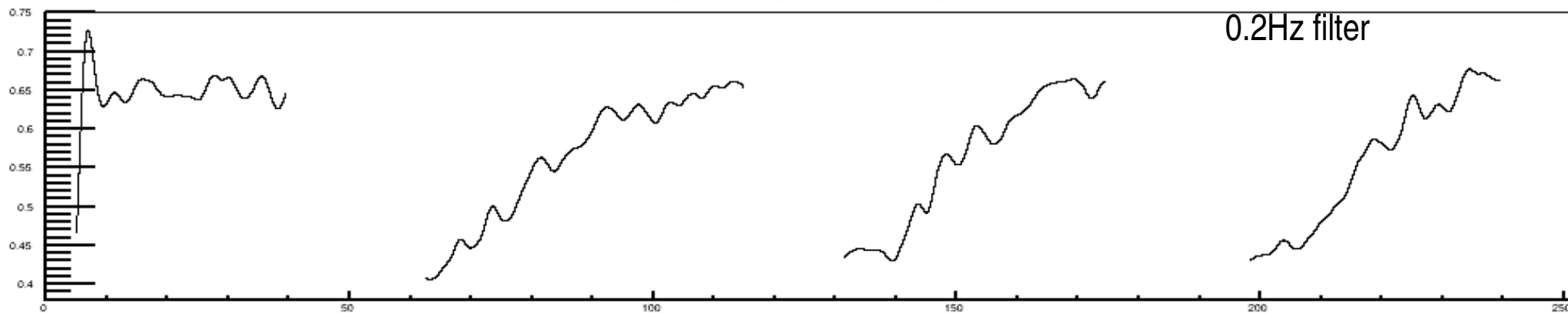
pos_sbpmbpmx:Entry\$ (raw_bpmavail>0.5)



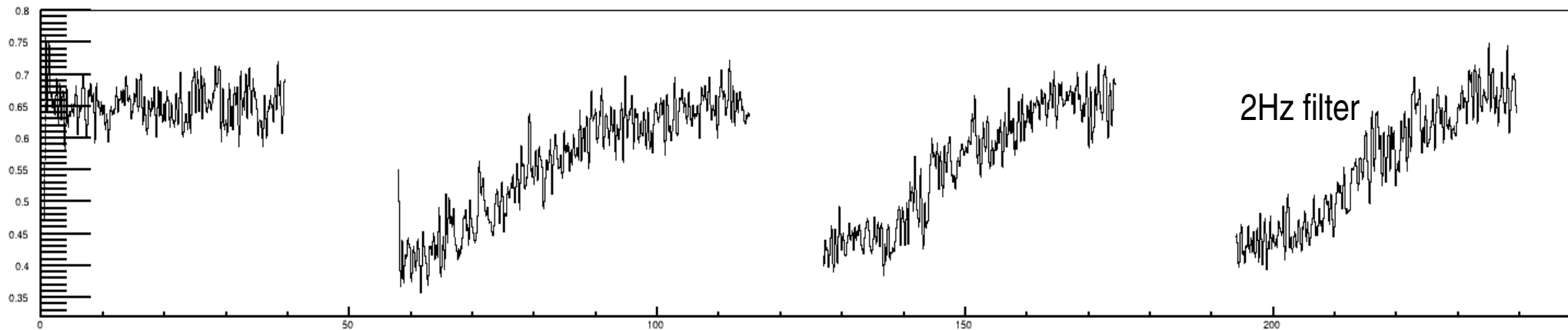
pos_fbpmbpmx:Entry\$ (raw_fbpmbpmavail>0.5)



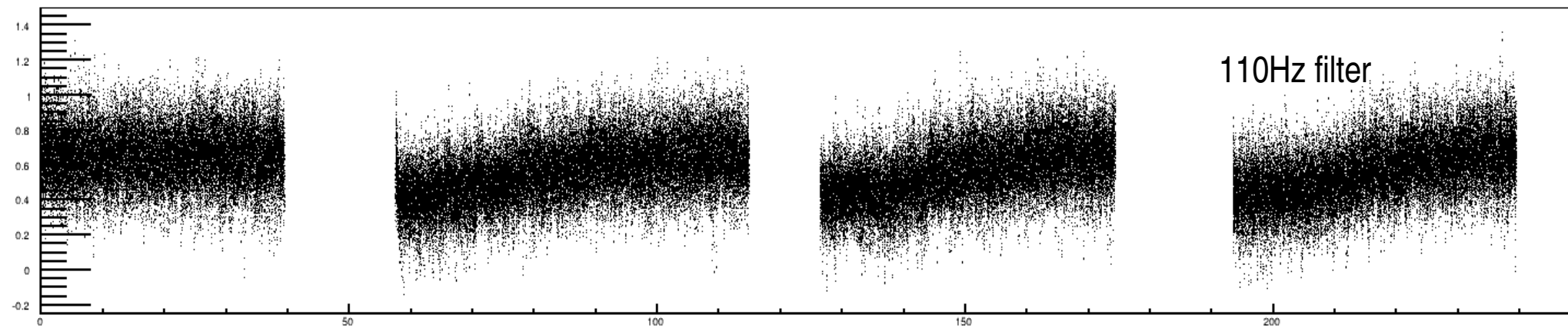
pos_ssbpmabpmx:Entry\$ (raw_ssbpmavail>0.5)



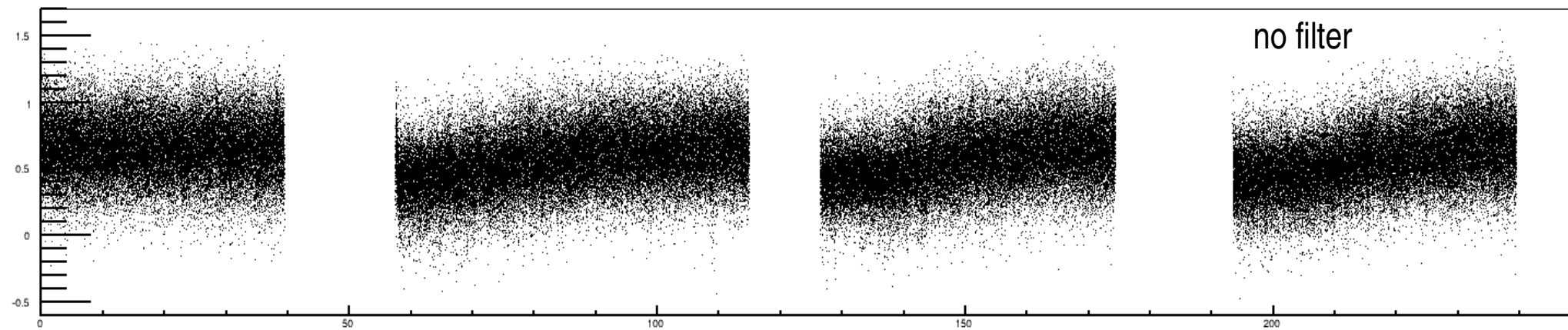
pos_sbpmbpmx:Entry\$ (raw_bpmavail>0.5)



pos_fbpmbpmx:Entry\$ (raw_fbpmbpmavail>0.5)

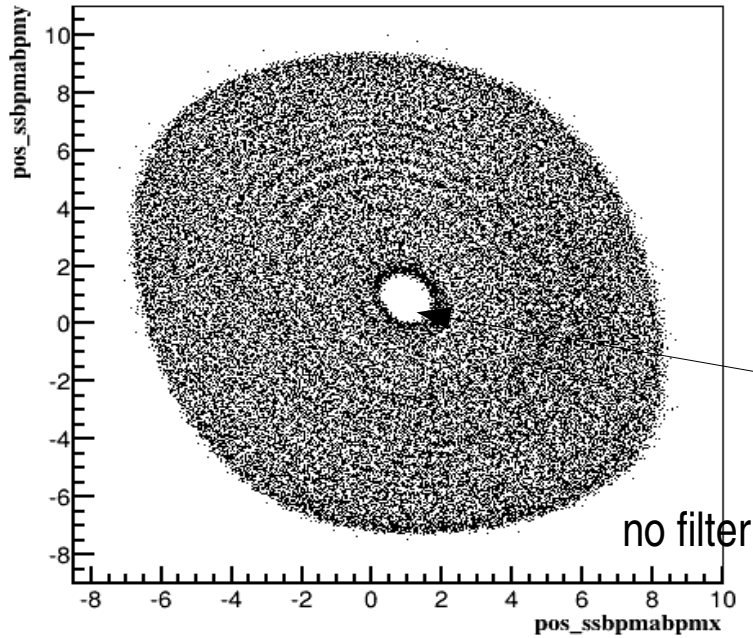


pos_ssbpmmbpmx:Entry\$ (raw_ssbpmmbpmavail>0.5)

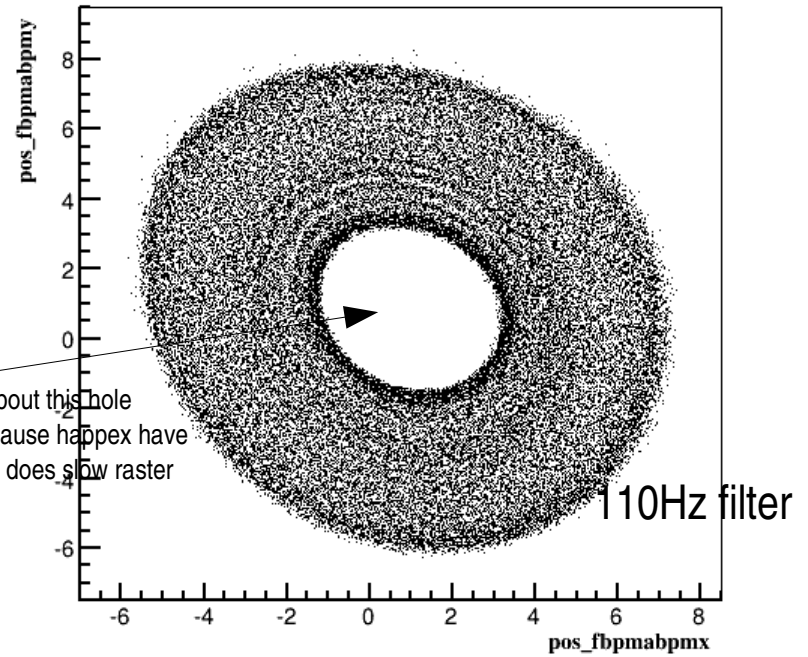


Raster shape in BPM comparison with different filter

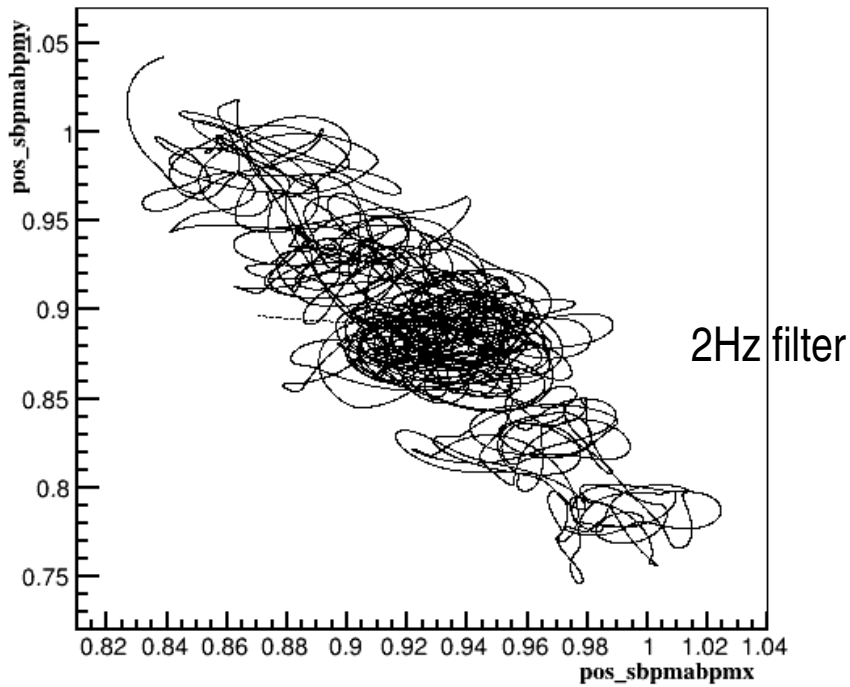
pos_fbpmapbmy:pos_fbpmapbmx {raw_bpmavail>0.5}



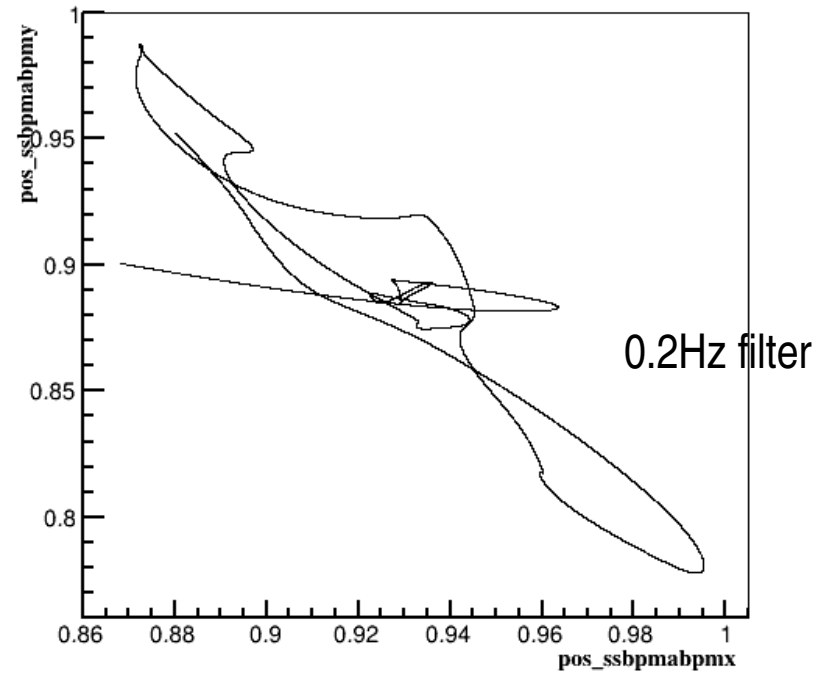
Don't worry about this hole
that's just because happex have
Fixed rate, so does slow raster



pos_sbpmapbmy:pos_sbpmapbmx {raw_bpmavail>0.5}



pos_ssbmapbmy:pos_ssbmapbmx {raw_ssbmapavail>0.5}



For pedestal subtract during bpm calculation

Before:

Use signal peak mean – pedestal peak mean for pure peak mean

Problem:

Large current dependent for calculated position

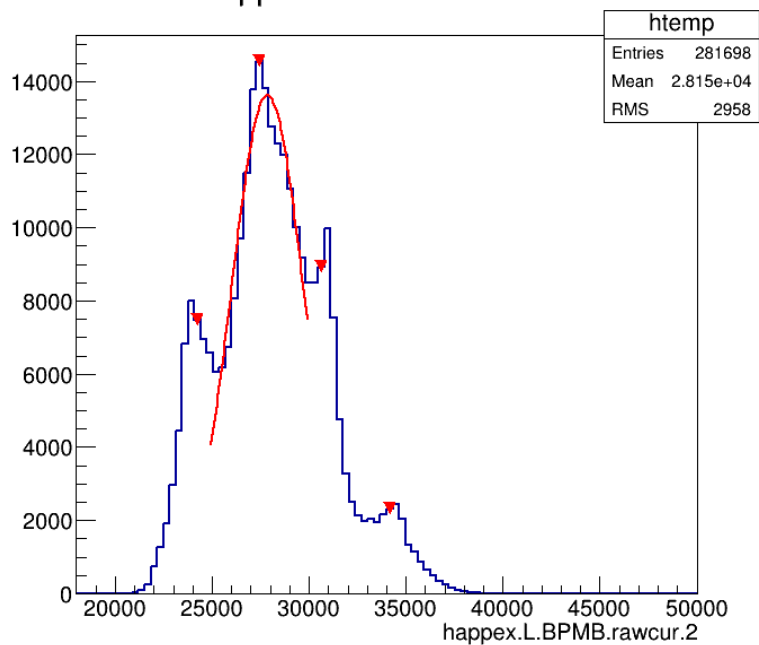
Want to test:

Use signal peak mean directly

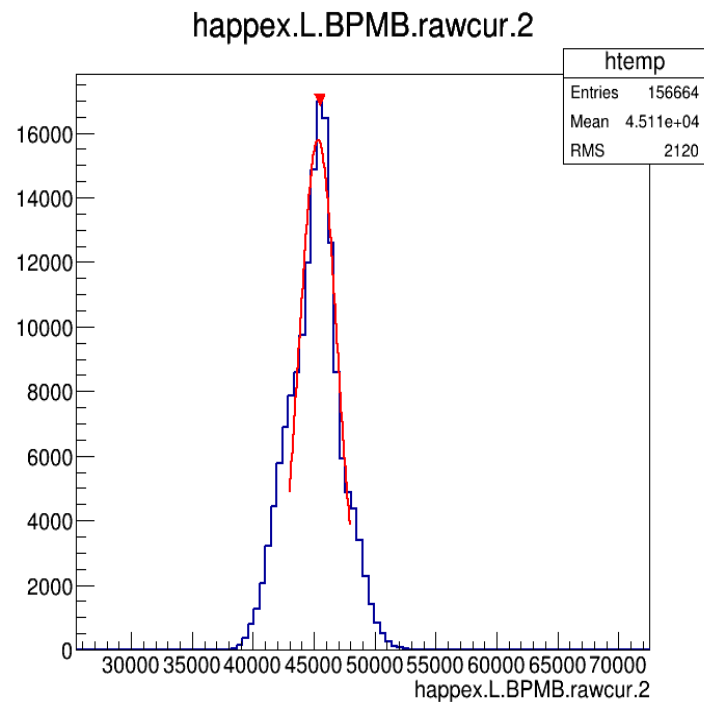
First result: less current dependent than before
(even if after filter)

Don't have picture for show(lost), Will study more

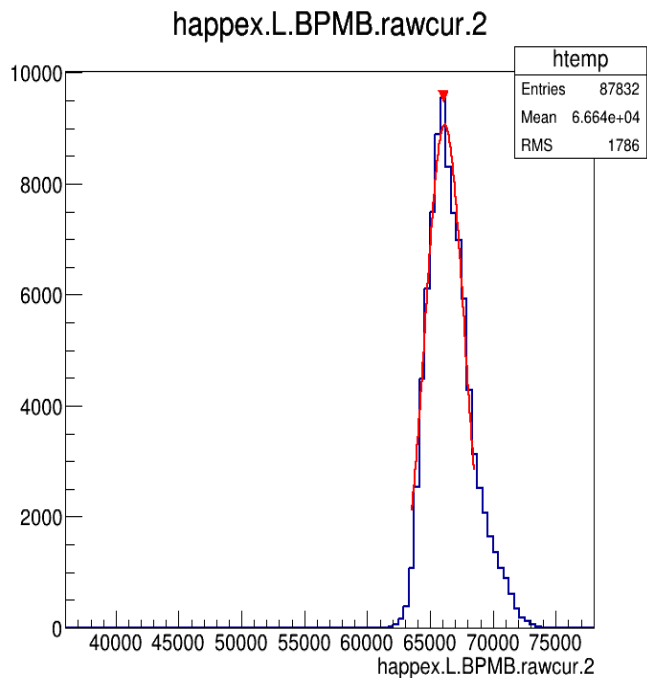
Pedestal VS signal comparison (before filter)



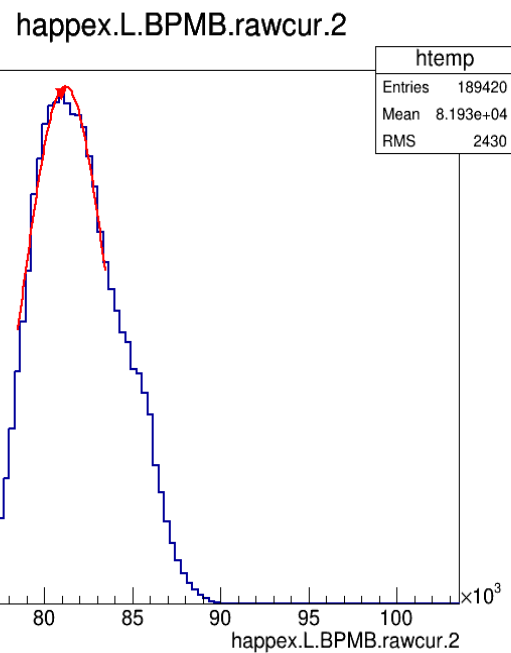
Pedestal run



50nA



75nA



100nA

28150->45110->66640->81930