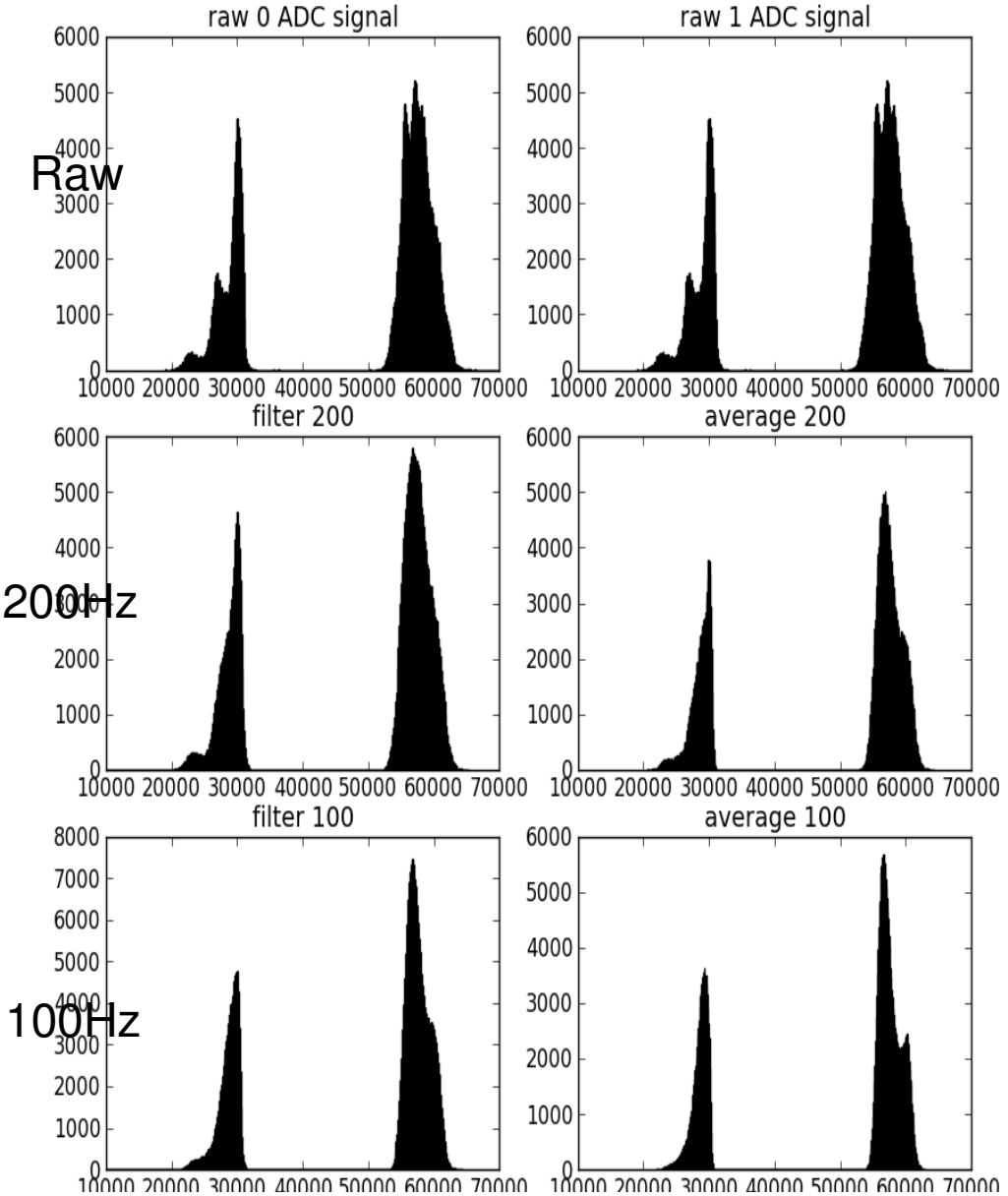
BPM signal ave vs filter & BPM noise study

Pengjia Zhu

7/3/2012

Filtered raw signal

averaged raw signal



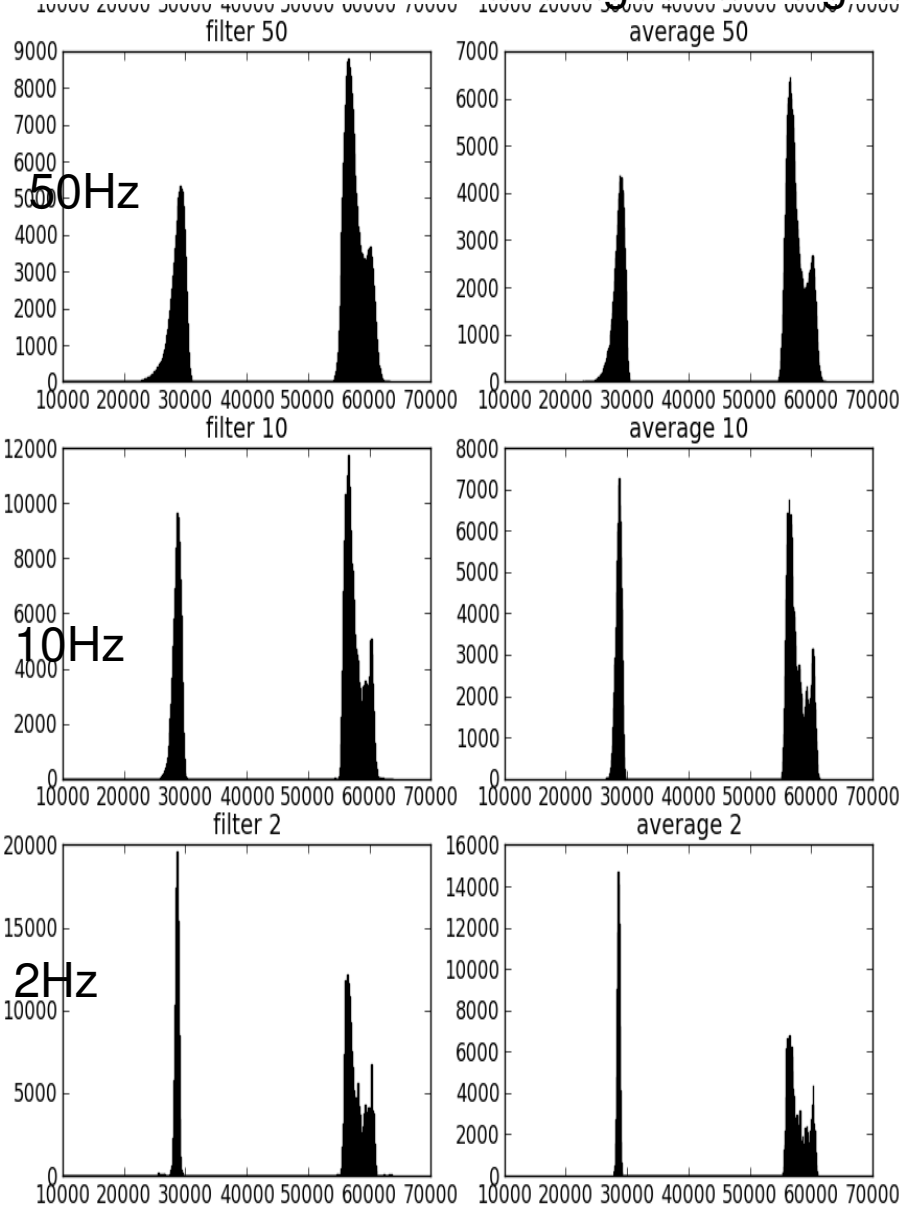
Raw

200Hz

100Hz

Filtered raw signal

averaged raw signal

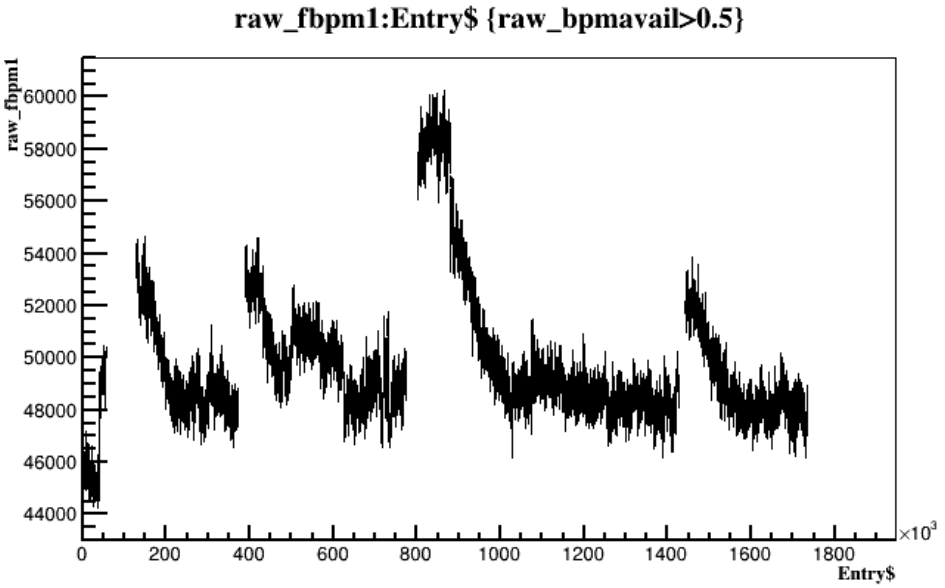


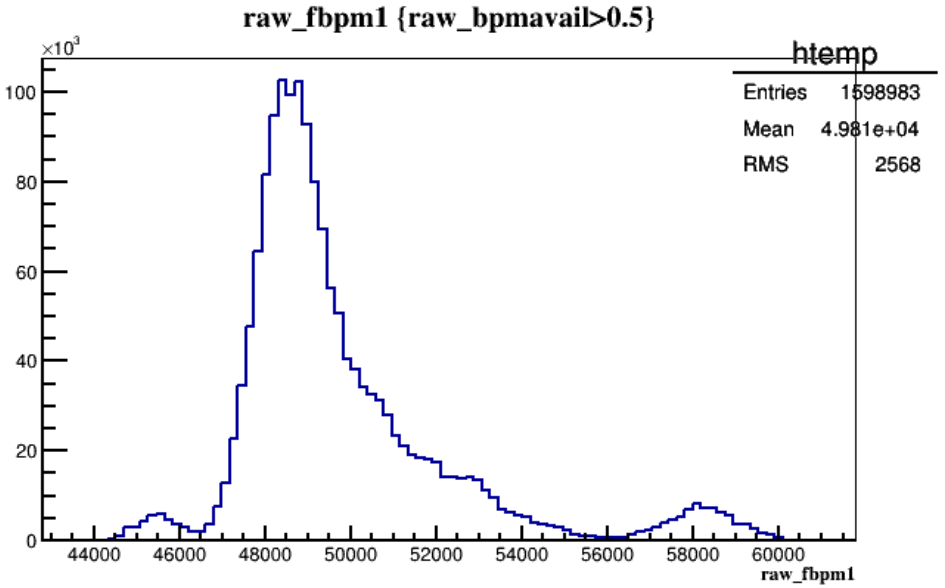
50Hz

10Hz

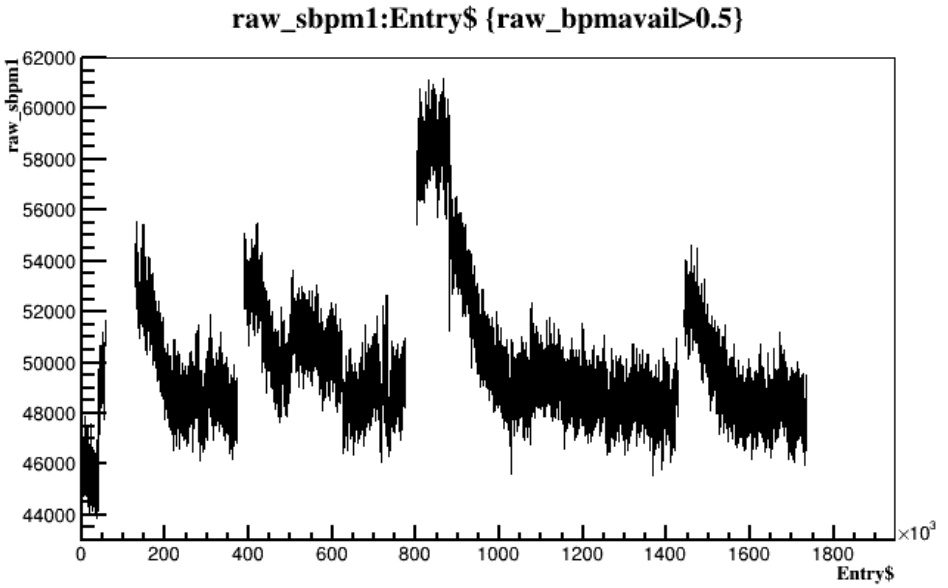
2Hz

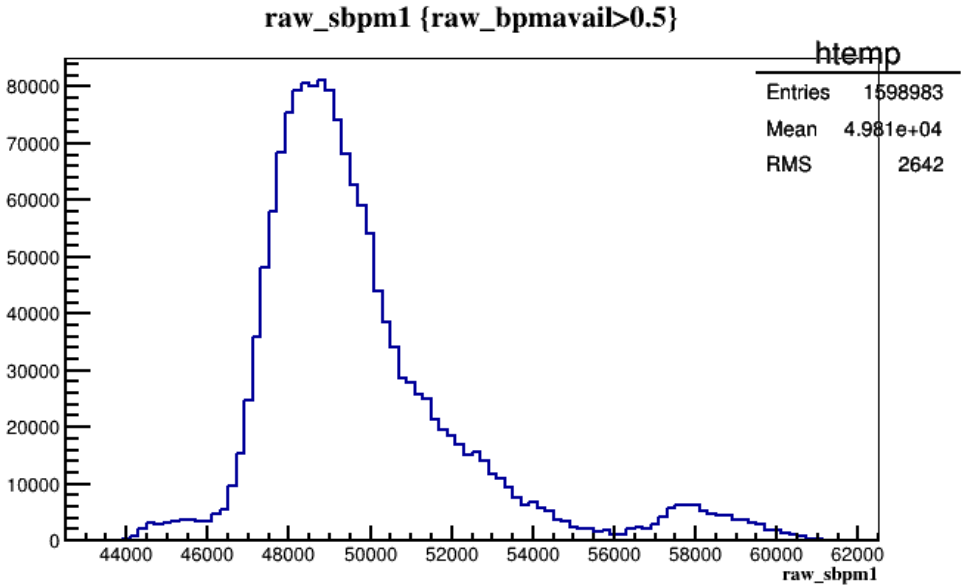
2Hz average

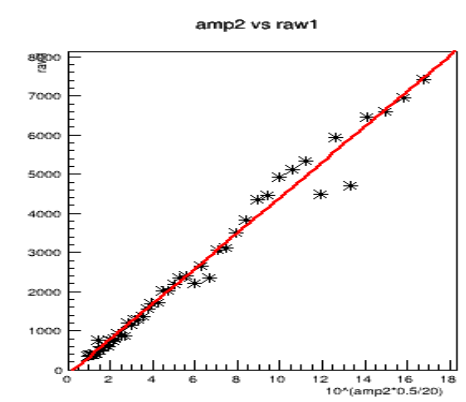


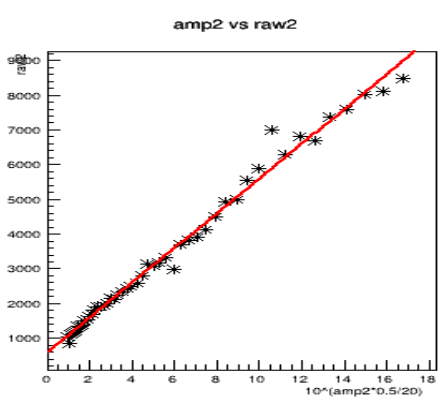


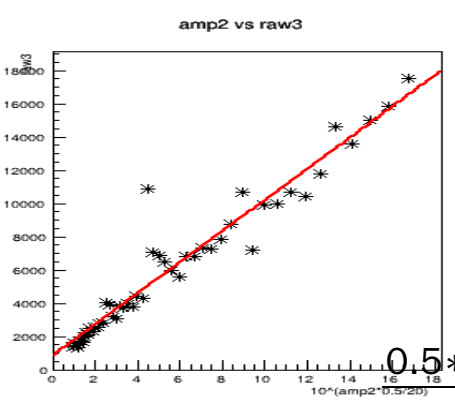
2Hz filter

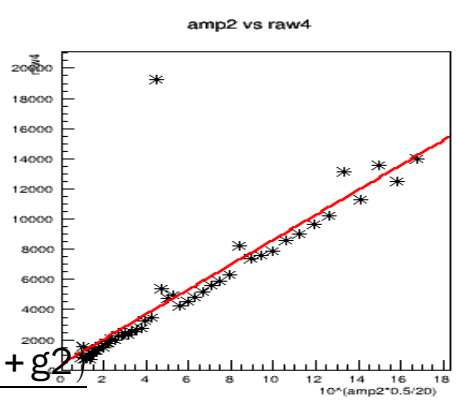






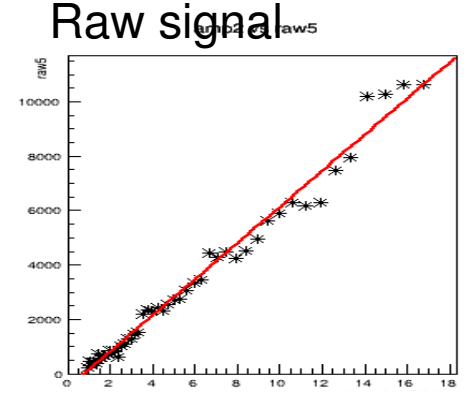


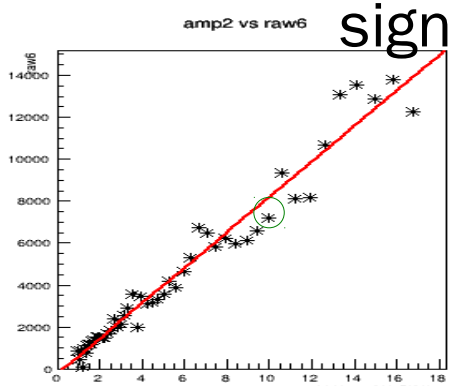


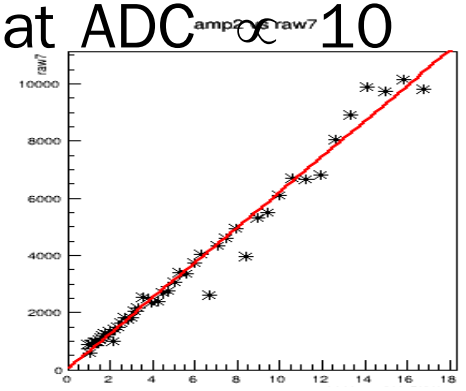


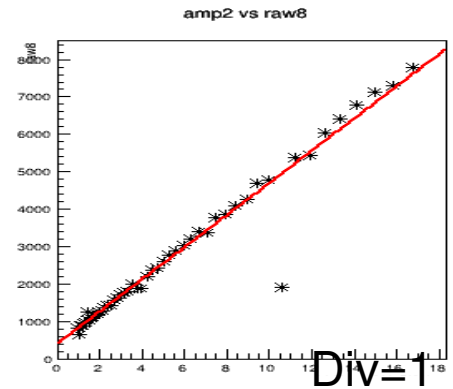
Raw signal

signal at ADC $\propto 10^{\frac{0.5*(g1+g2)}{20}}$



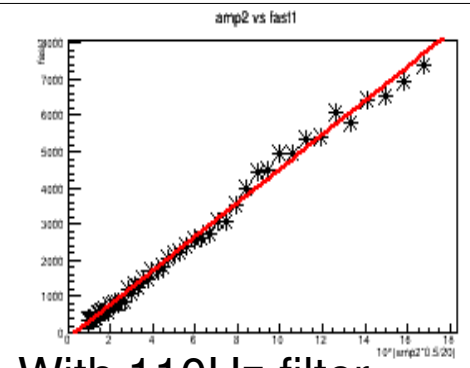


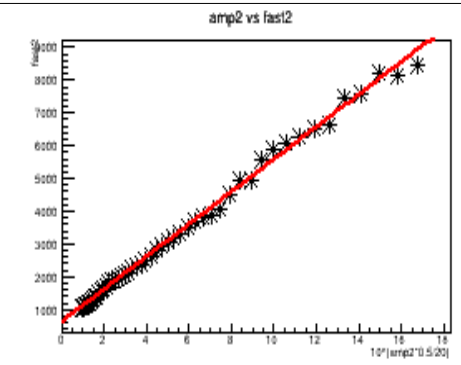


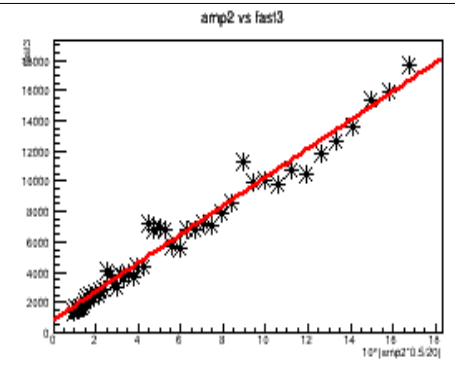


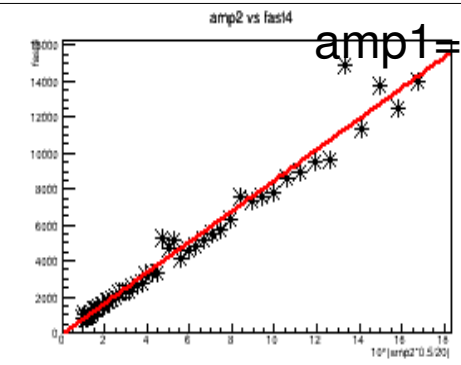
Div=1

amp1=1

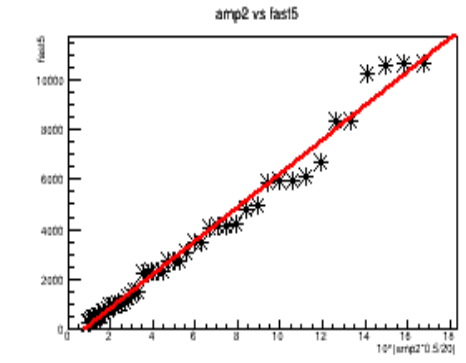


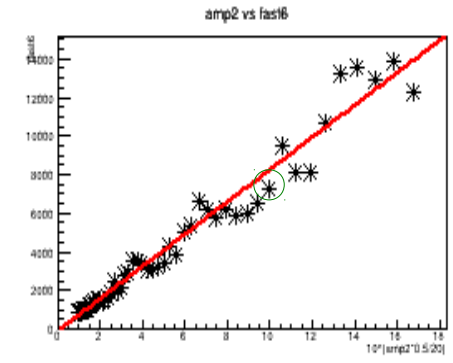


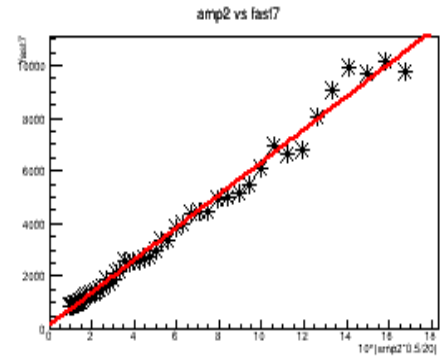


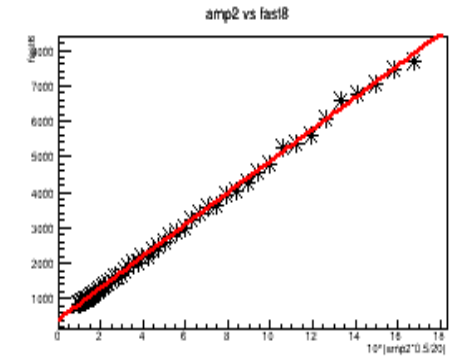


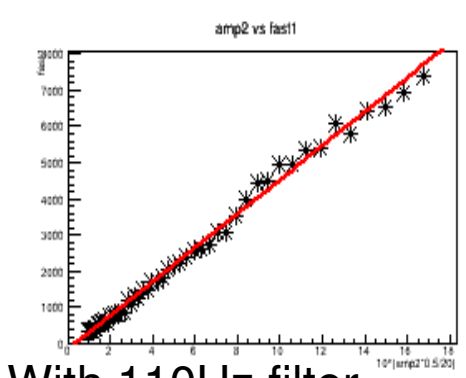
With 110Hz filter

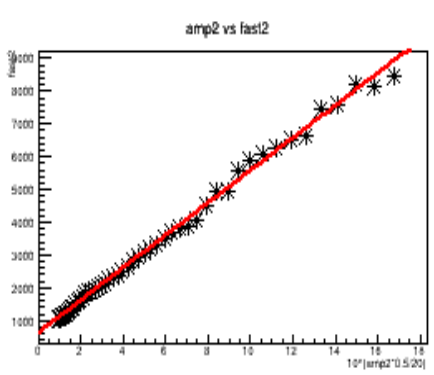


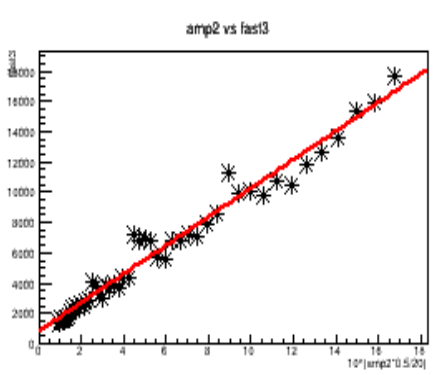


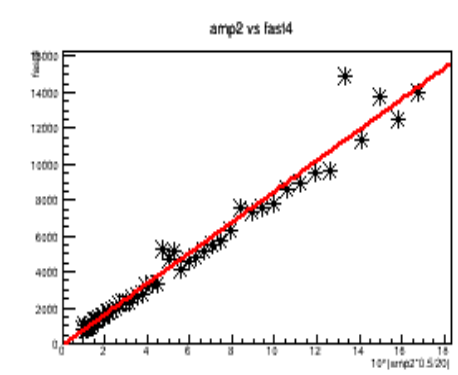




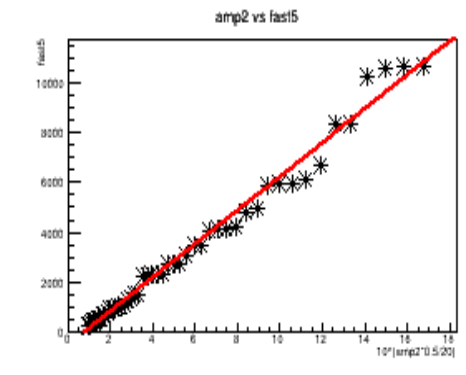


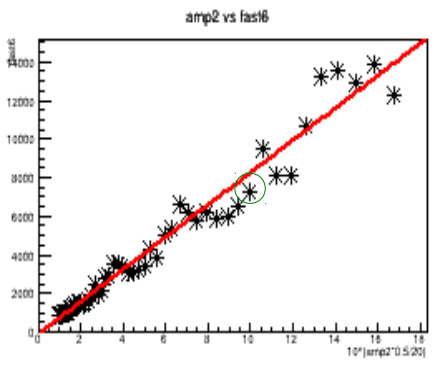


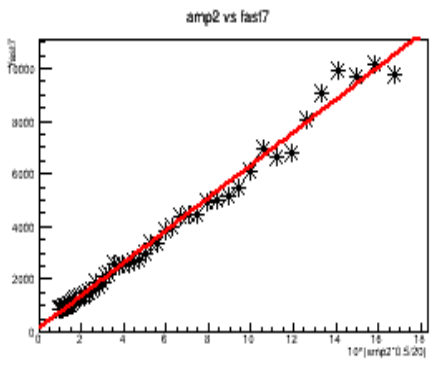


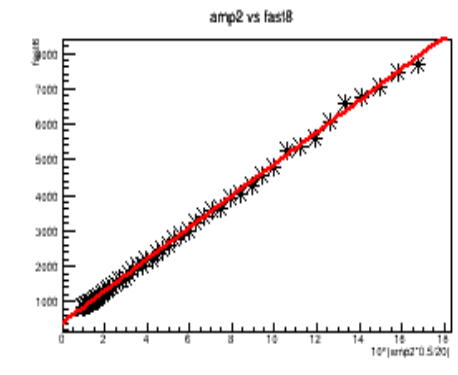


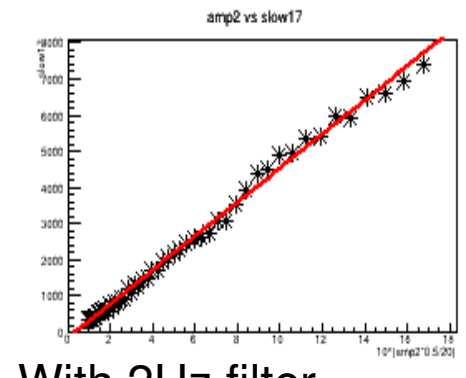
With 110Hz filter

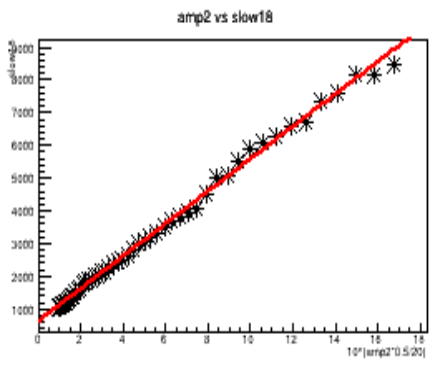


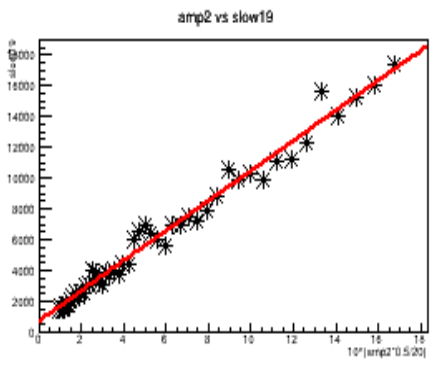


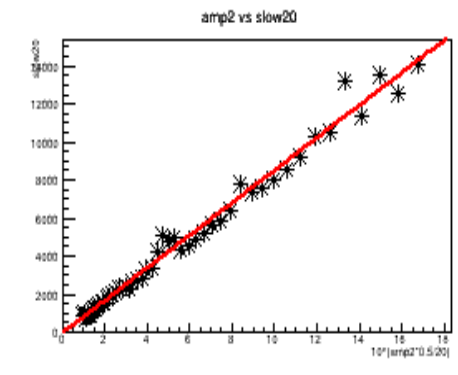




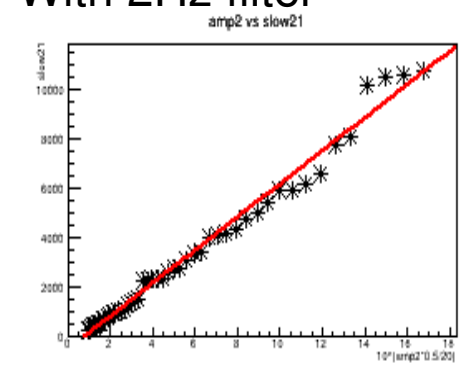


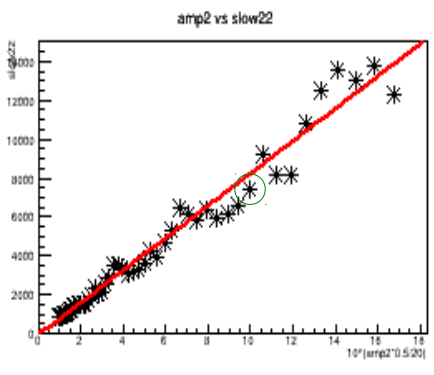


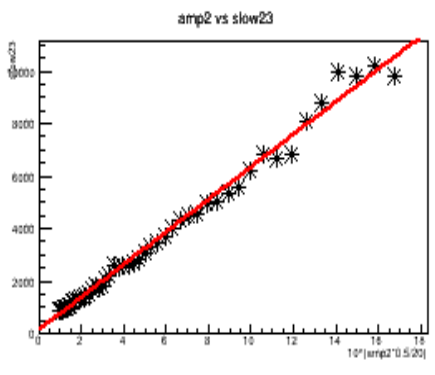


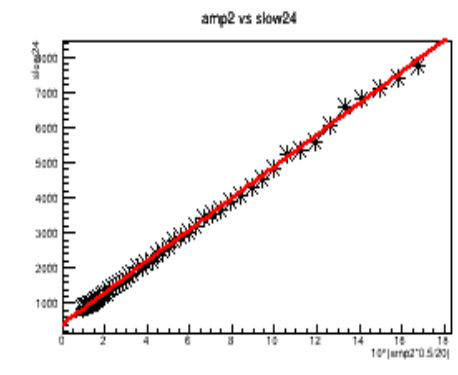


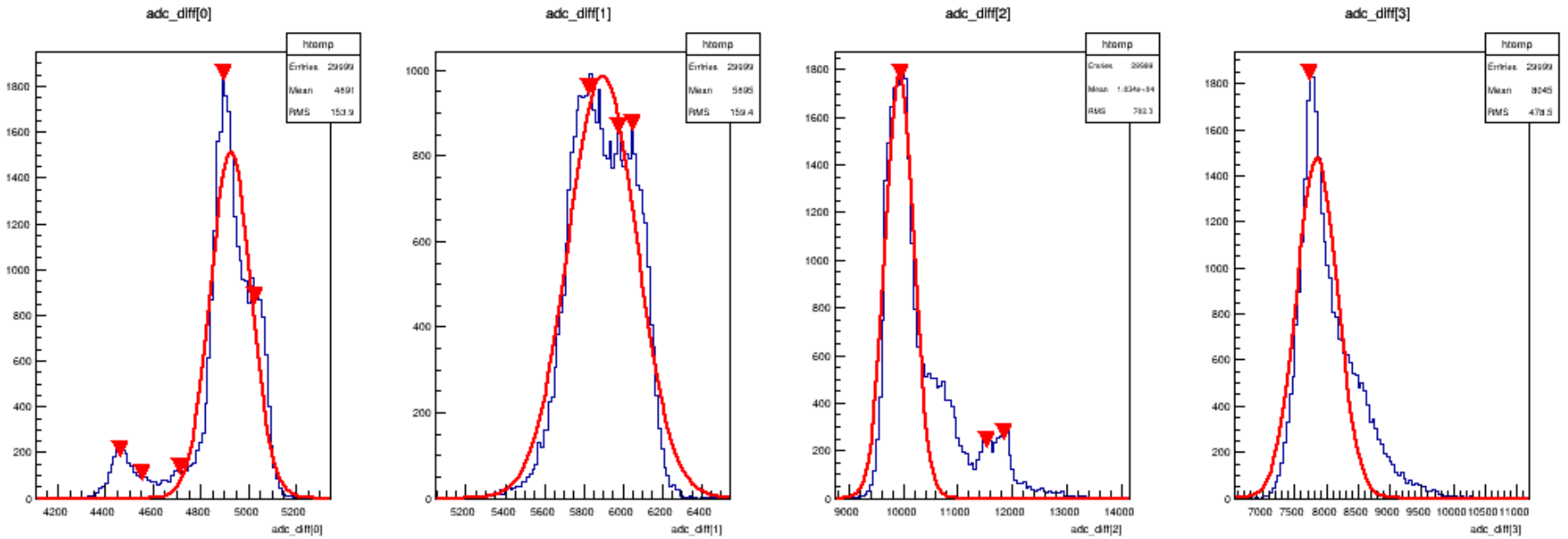
With 2Hz filter







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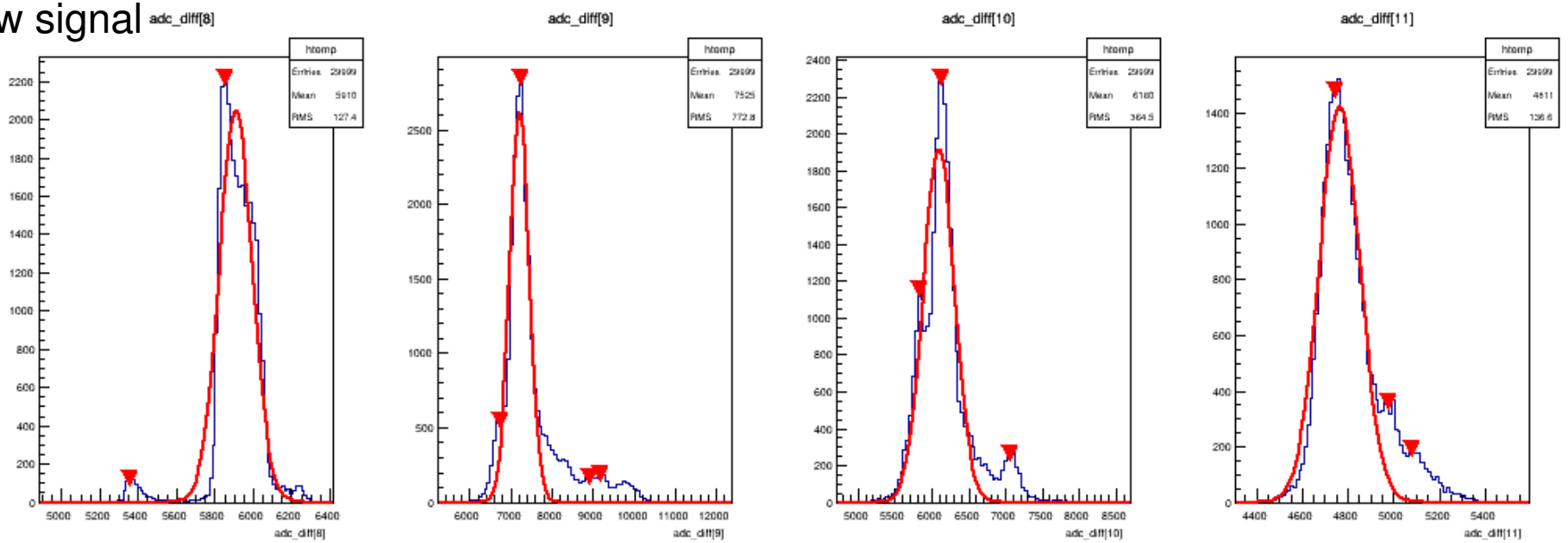
adc_diff[1]
adc_diff[2]
adc_diff[3]
htemp

Raw signal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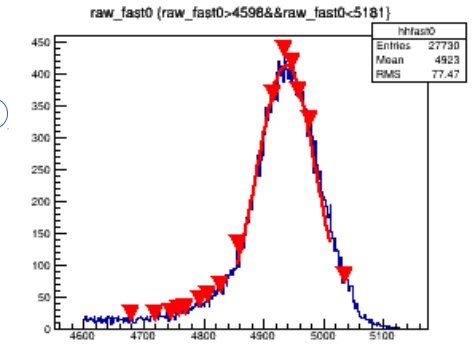
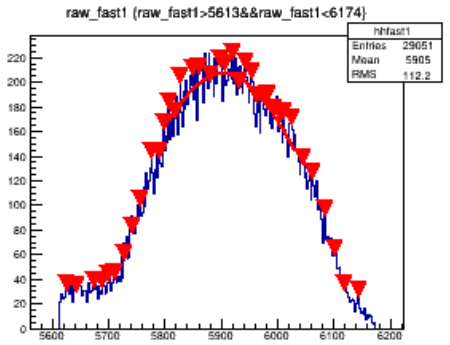
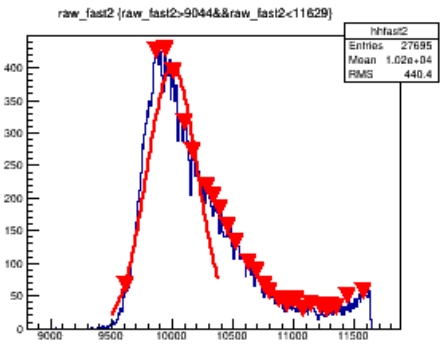
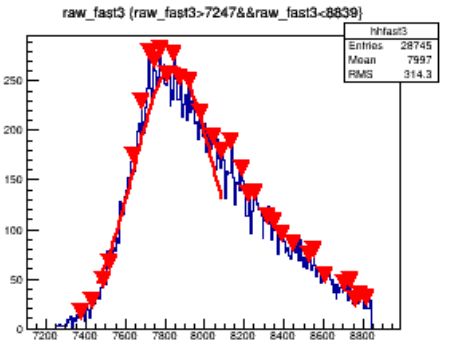
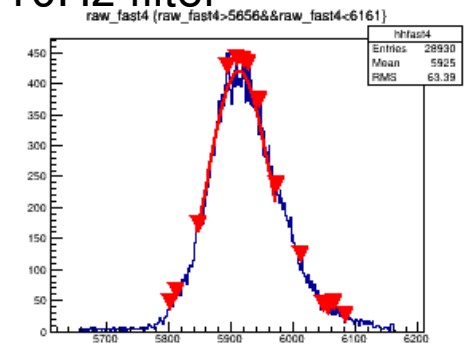


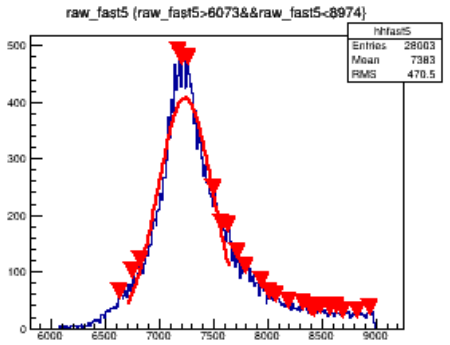


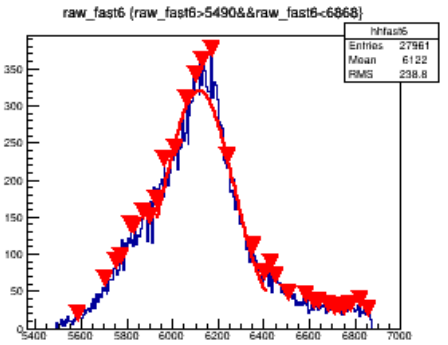


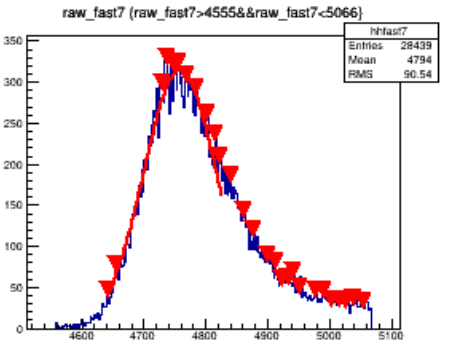


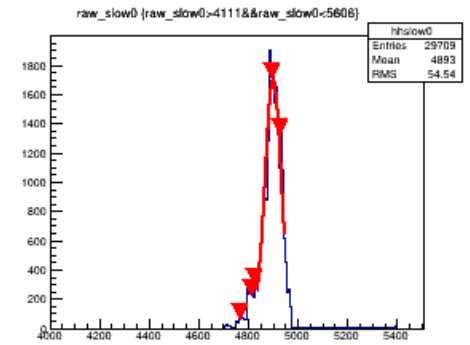
110Hz filter

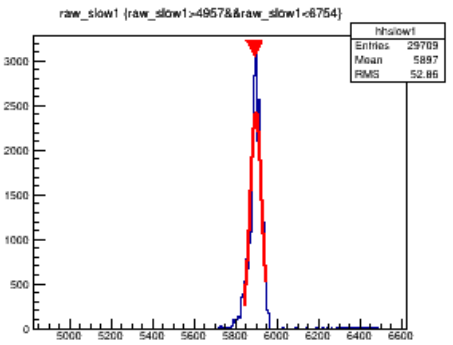


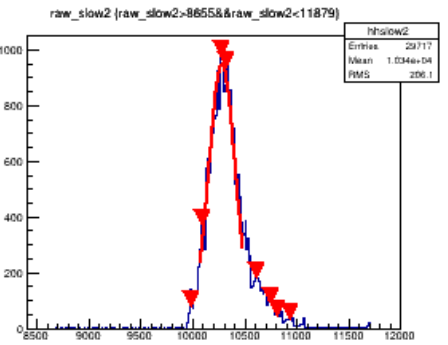


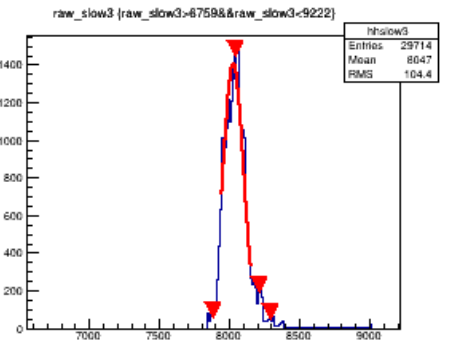




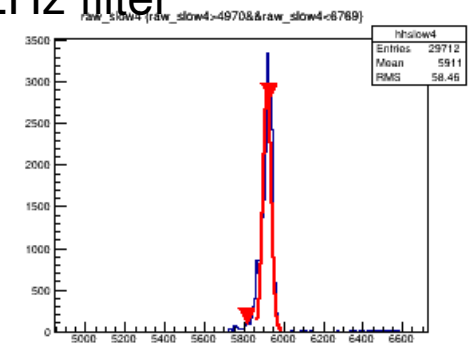


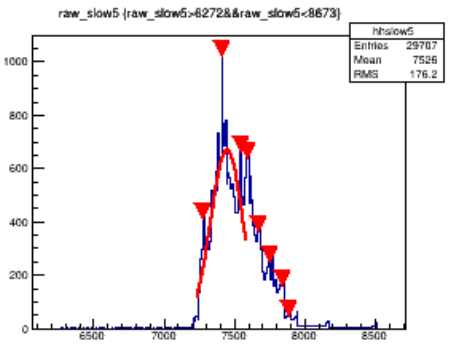


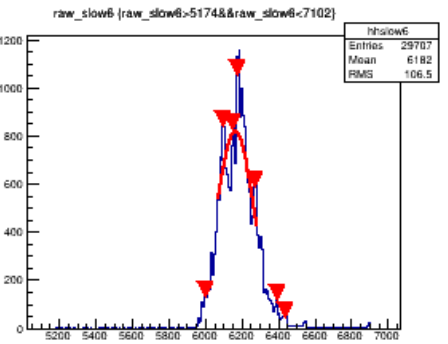


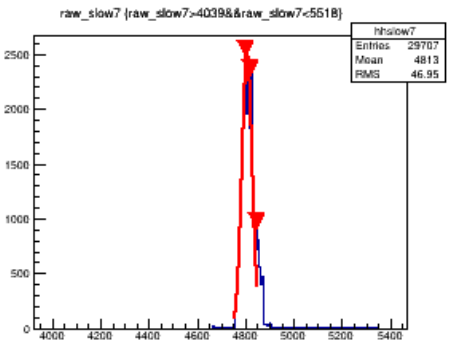


2Hz filter









bpm job remain

Mix raster related code back to beampackage
Find a method to let current effect minimum
Carefully calibrate bpm for all periods
Calibrate fast raster and slow raster
Technote & wikipage