2017/04/20

Start to play using beam test data

A purpose is Z-resolution

As a first step,

just look through behaviors of Z-resolution using data and both softwares “Marlin and Japanese”

Timing of Hit objects

— Marlin

The timing of each cluster
is calculated
by a inflection method
　　or a COG method.

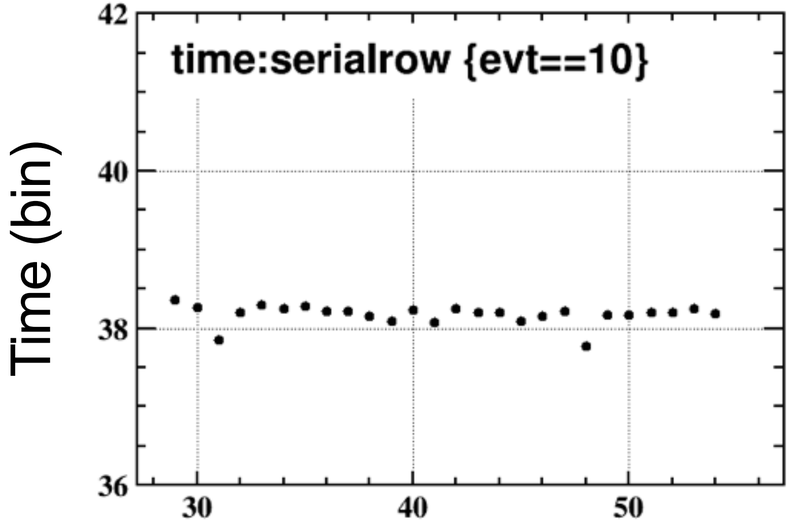
—— Decision of time

The timing of the Hit object
is decided by using information
of one cluster
which has a maximum charge.

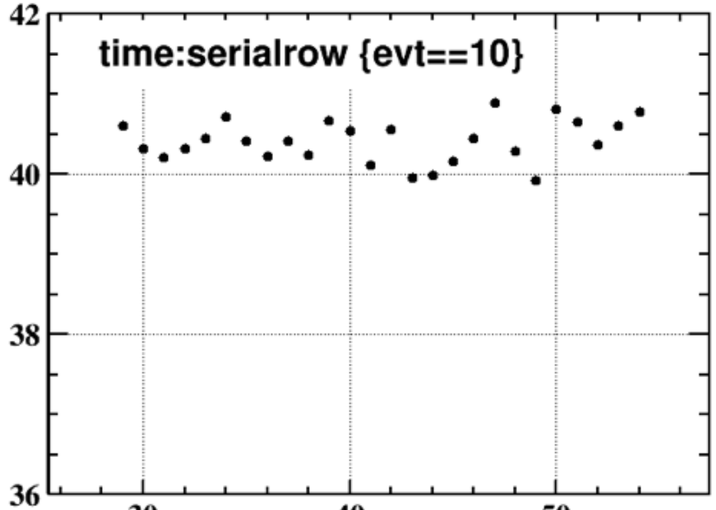
Information of several clusters
are not merged.

Drift 10 cm

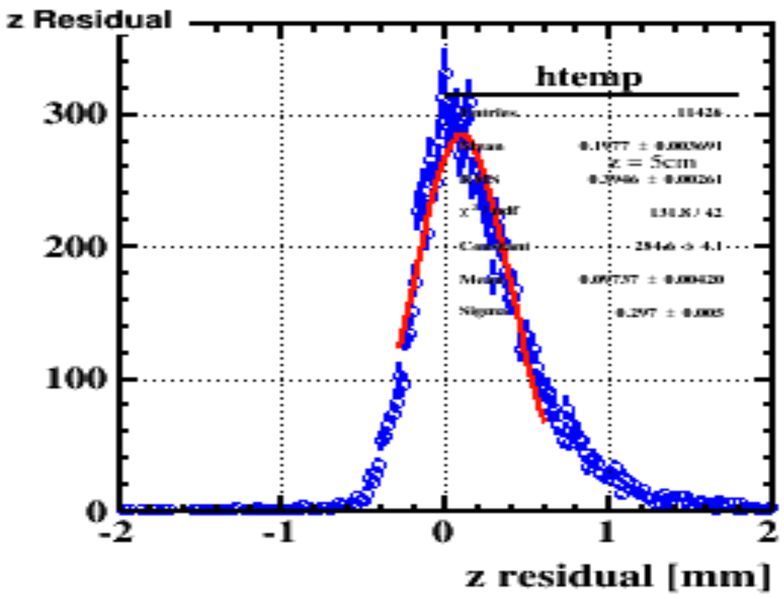
Inflection point



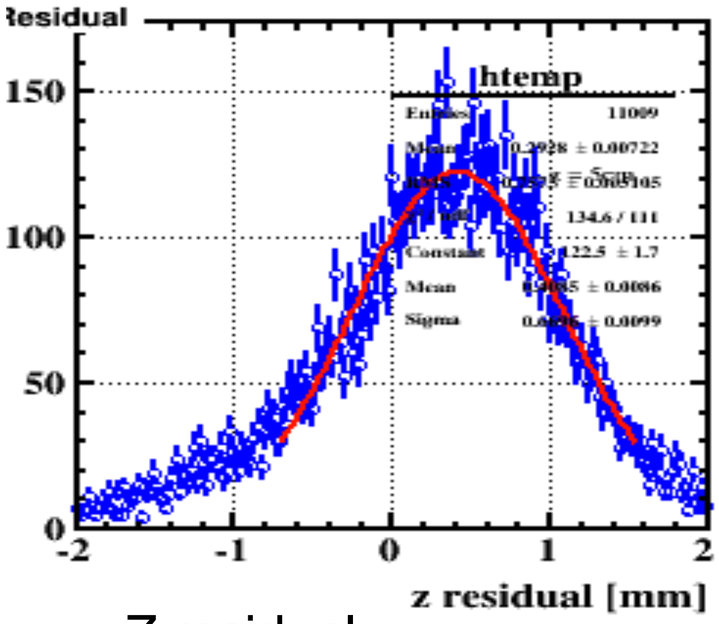
COG



Row number



Z residual



Z residual

Timing of Hit objects

— Japanese

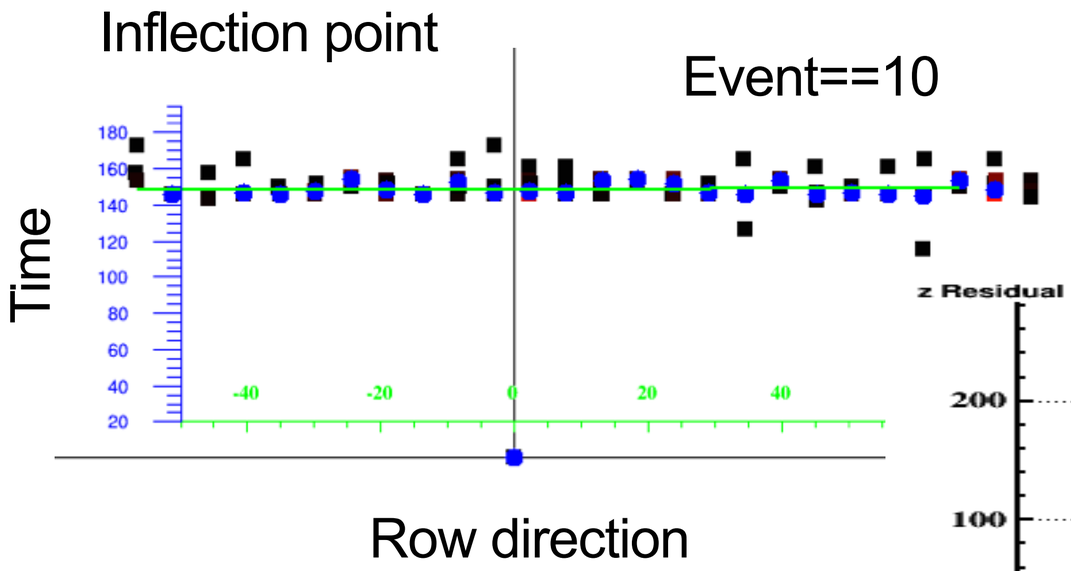
The timing of each cluster
is calculated
by a inflection method
or a COG method.

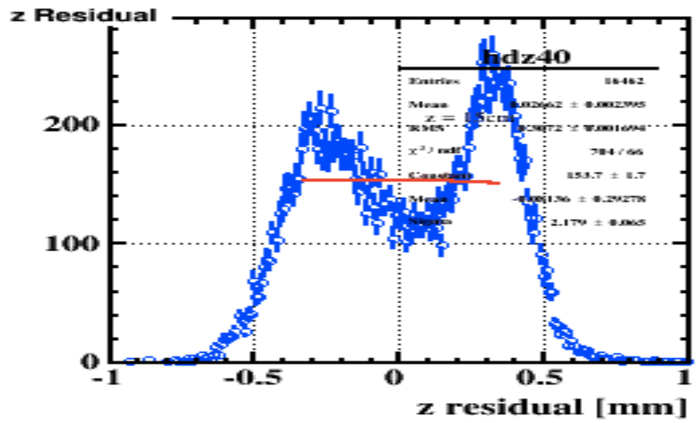
—— Decision of time

The timing of the Hit object
is decided by using information
of several clusters

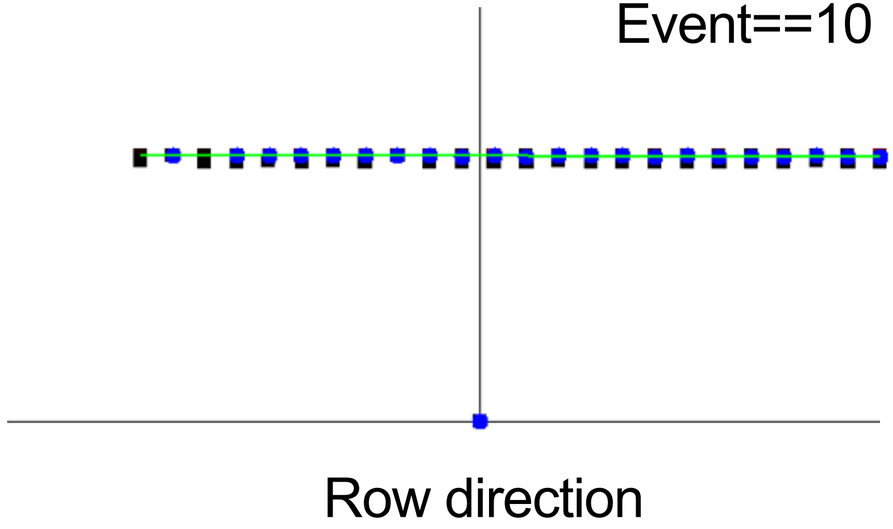
(information of time is merged)

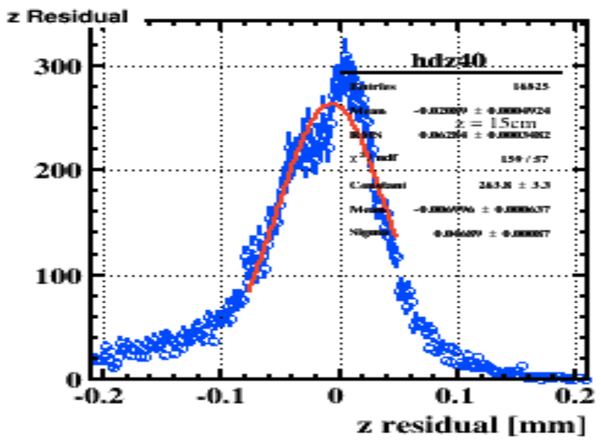
A weighted method with charge is used
(charge centroid)





COG





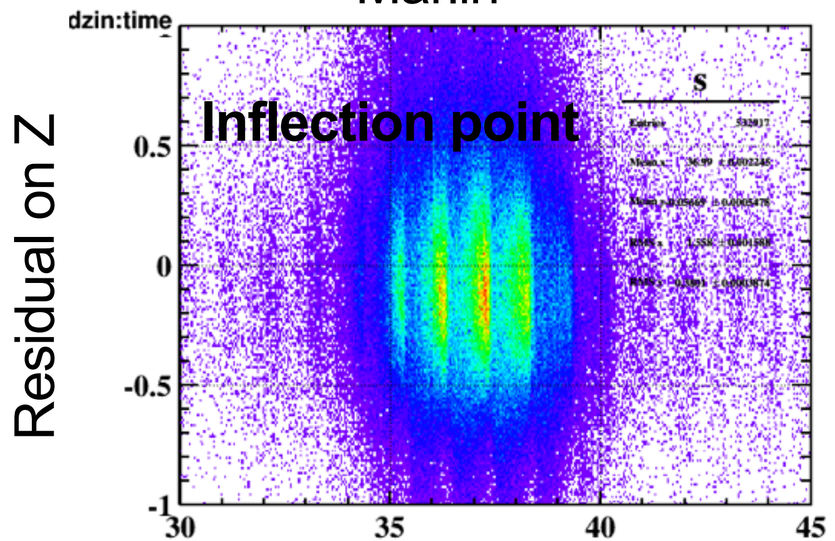
Residual on Z vs Timing of Hit objects

Clock time

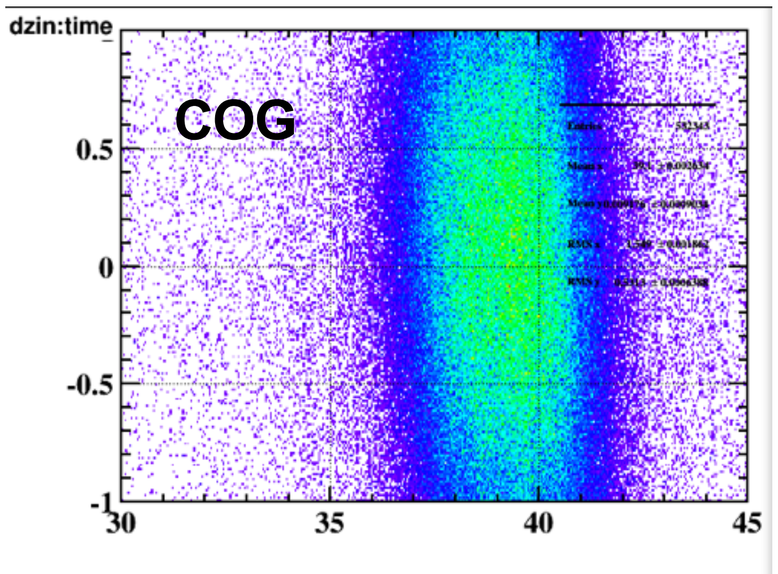
Depending on trigger timing

50[ns] is shifted

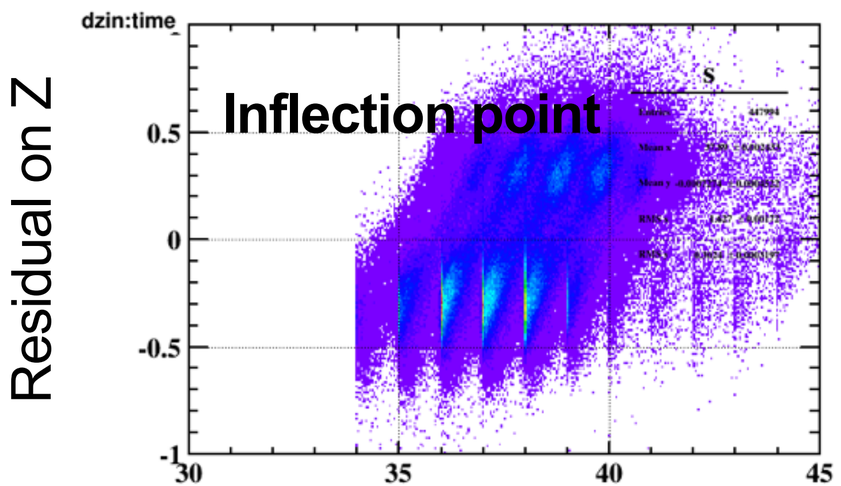
Marlin



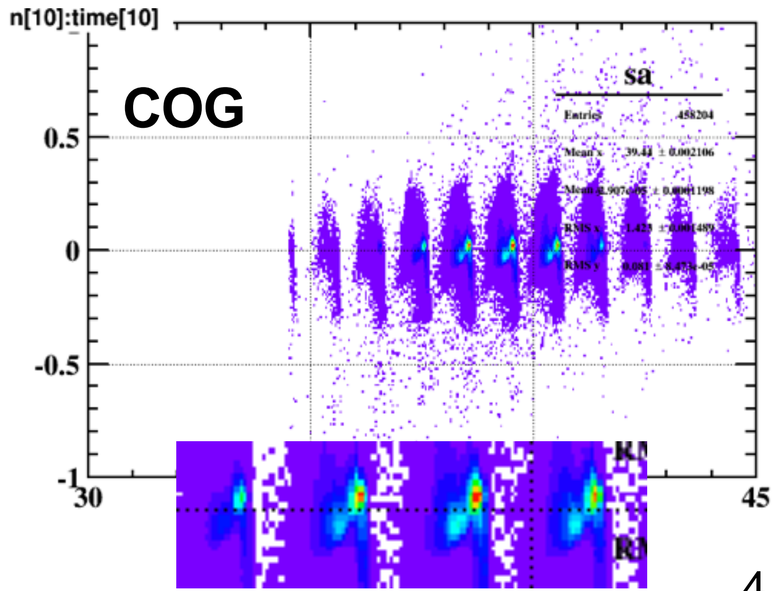
Time (bin)



Japanese



Time (bin)



Resolution on Z (difference is time estimation)

—— Marlin

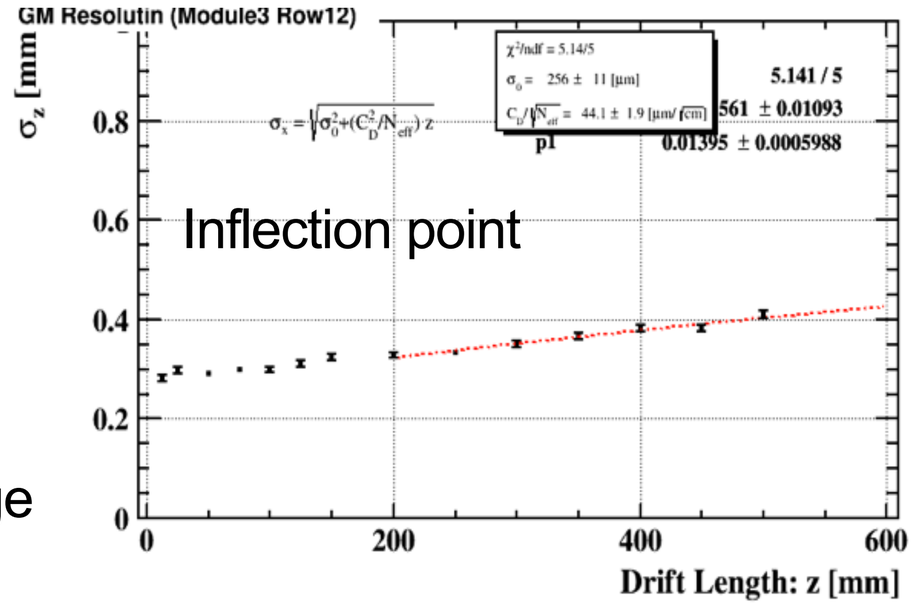
Inflection estimation gives me a similar results with papers and reports

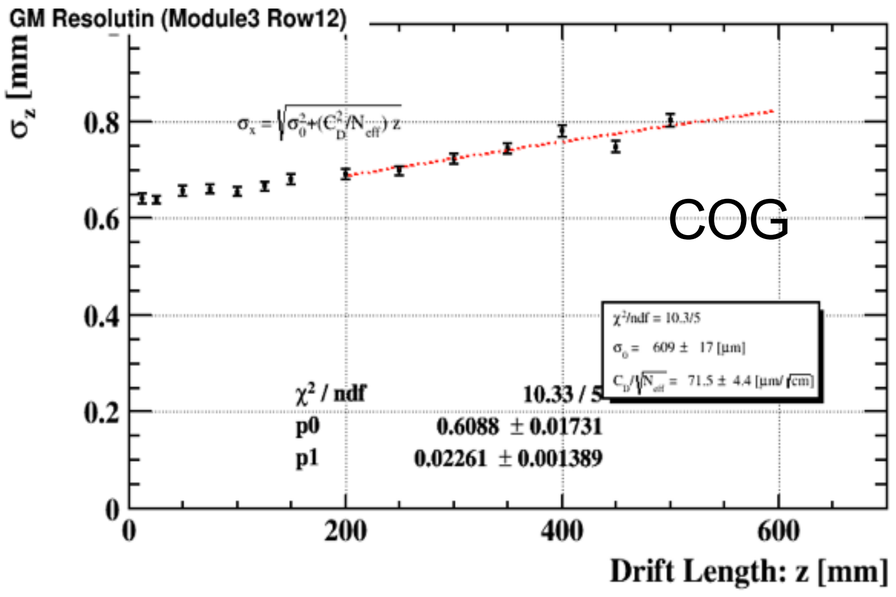
Diff. between inf. cog is huge

—— Japanese

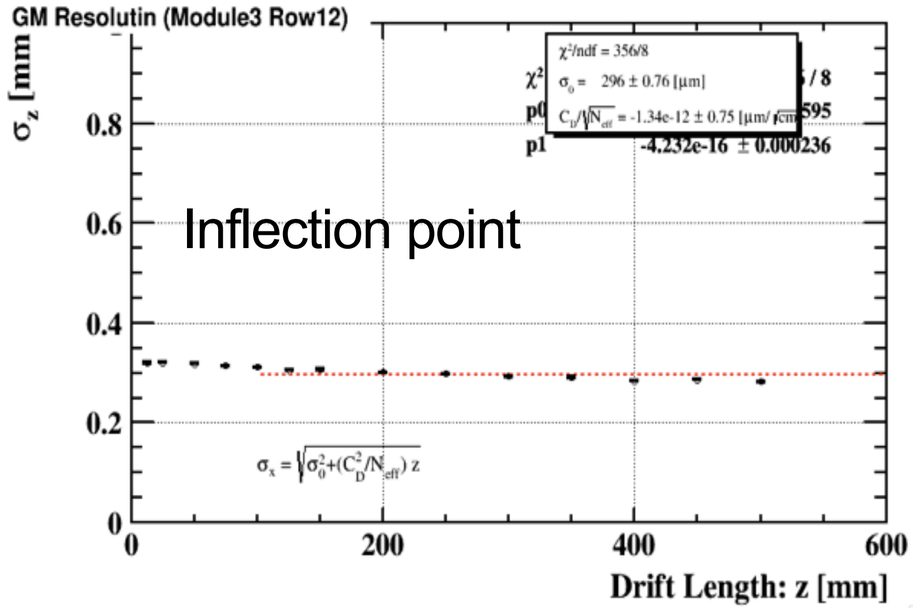
It gives me …

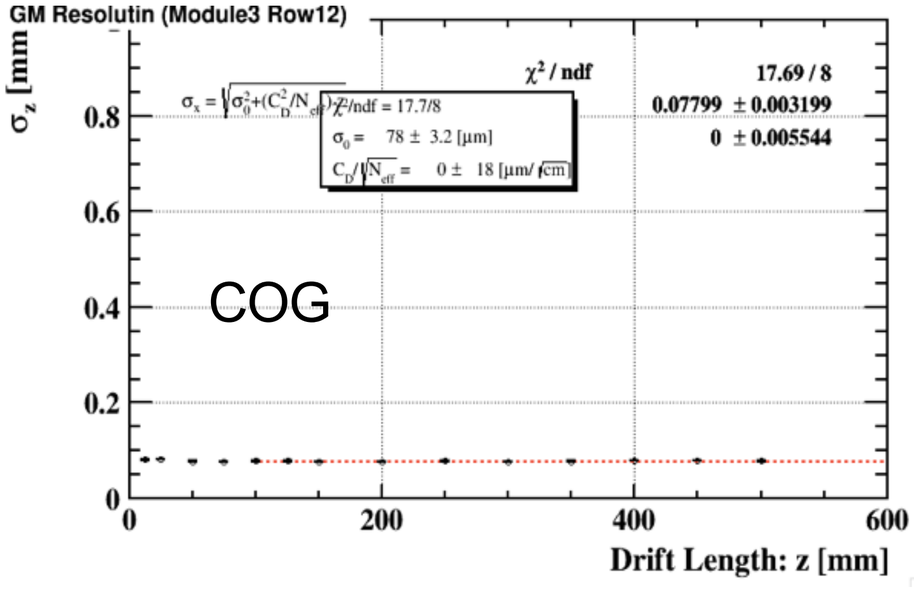
Marlin





Japanese





Resolution on X (difference is time estimation)

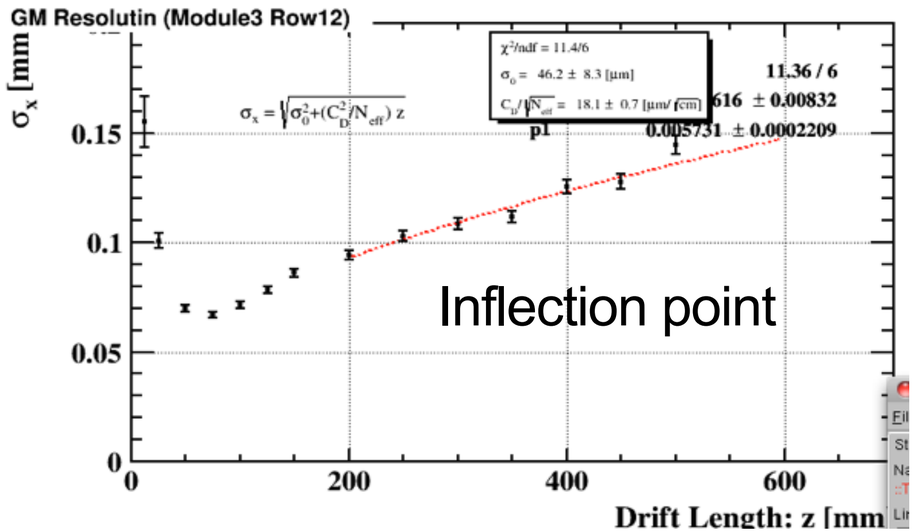
—— Marlin

—— Japanese

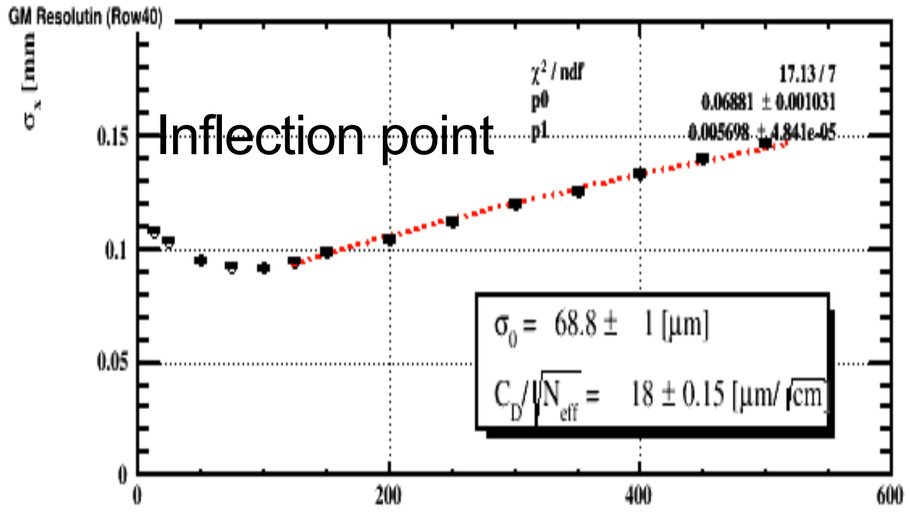
COG gives better results

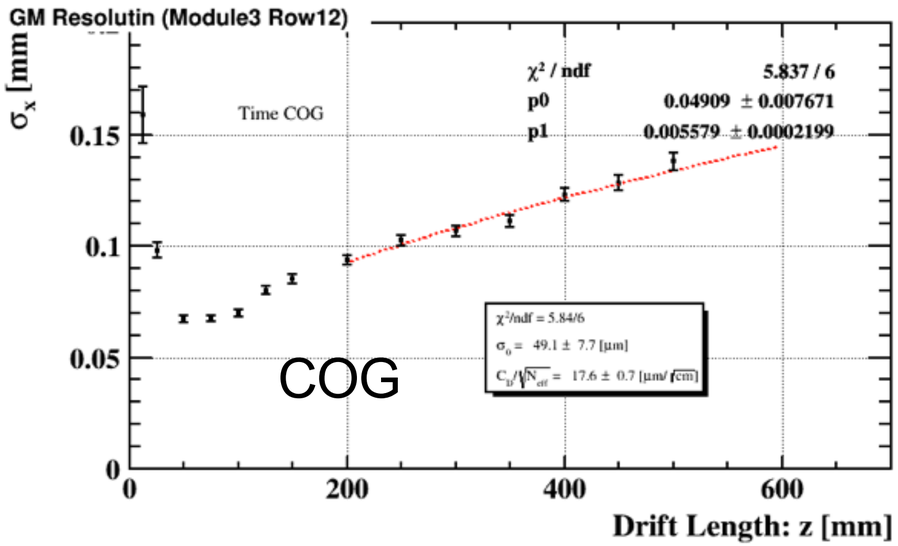
Diff. of sigma0 is huge

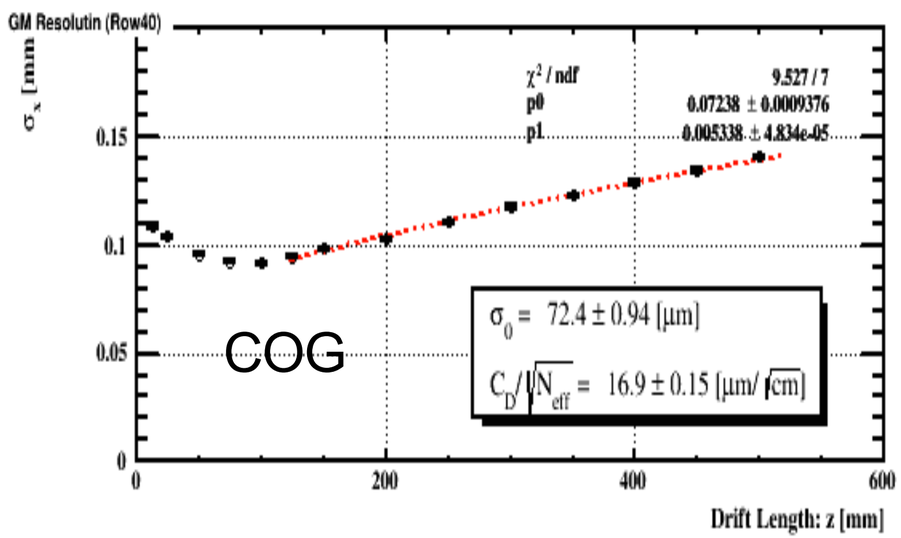
Marlin



Japanese



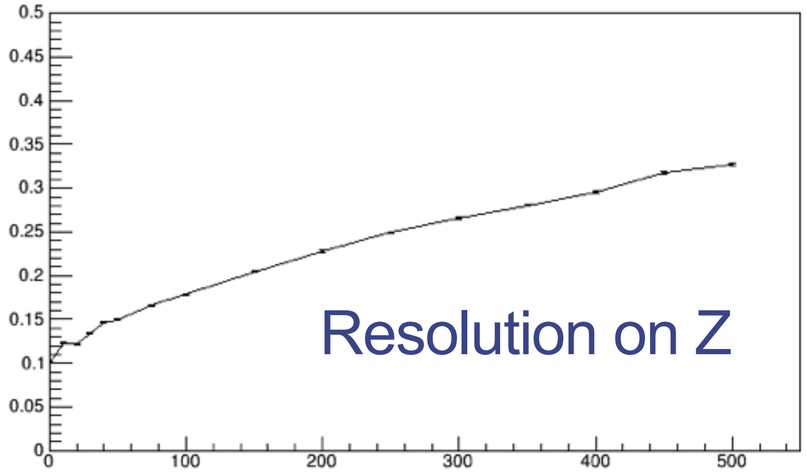


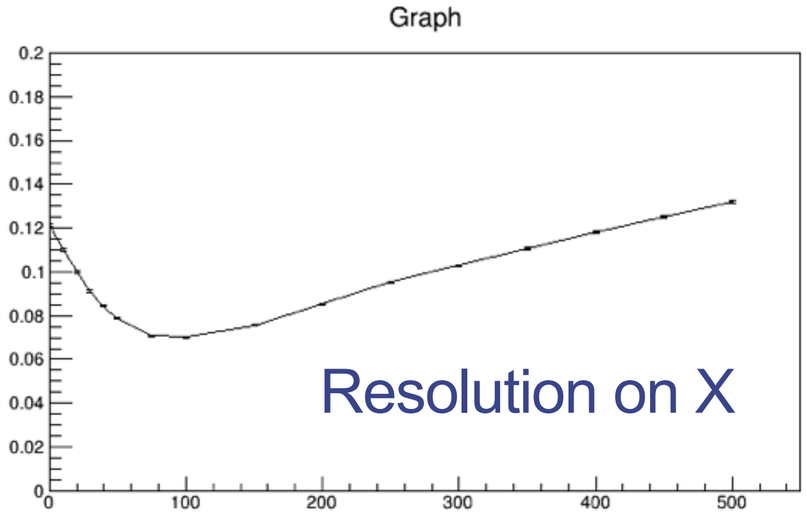


Fujii-san's soft

Fujii

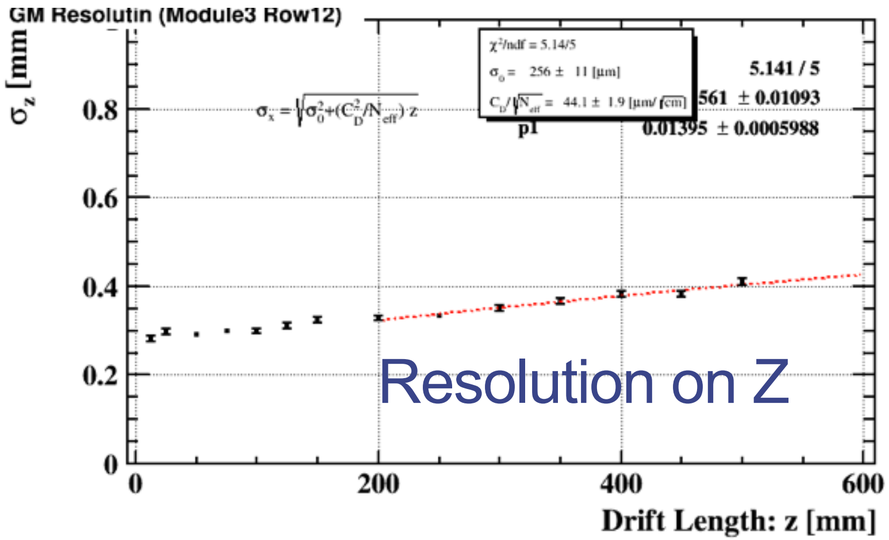
Timing : COG

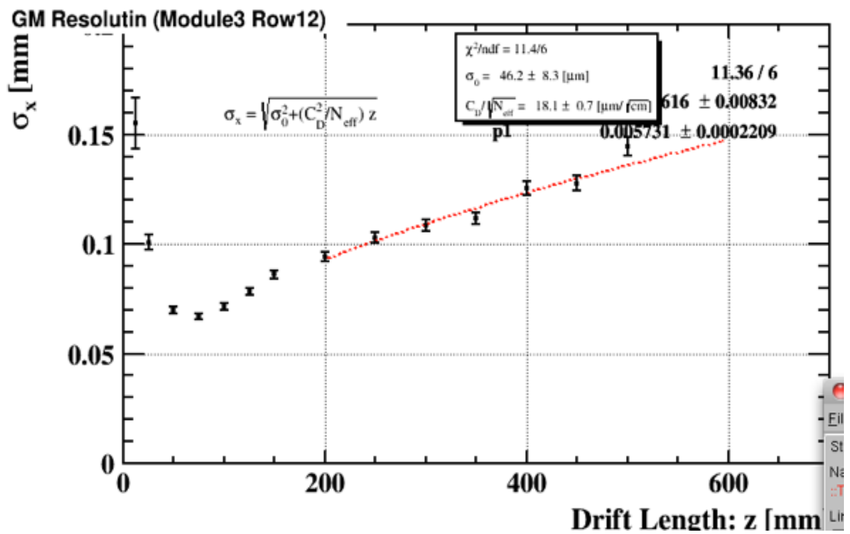




Marlin

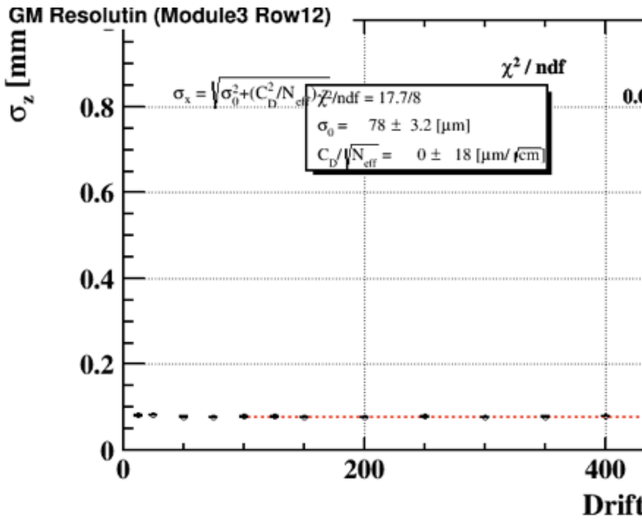
Timing : Inflection point

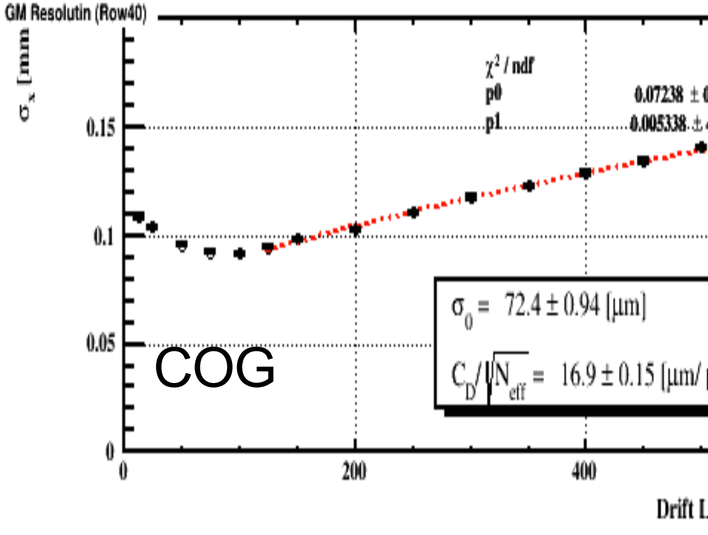




Japanese

Timing : COG





Summary

Why is the time estimation of Japanese soft strange?

Understanding Fujii-san’s soft

Follow Yonamine-Fujii fomula.