Laser Alignment System for Track-based Alignment

Beam-fit Results with CRAFT Data

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Status

stand-alone producer:
- reads root-file
- makes fit of LAS beams (TECs and Alignment Tubes)
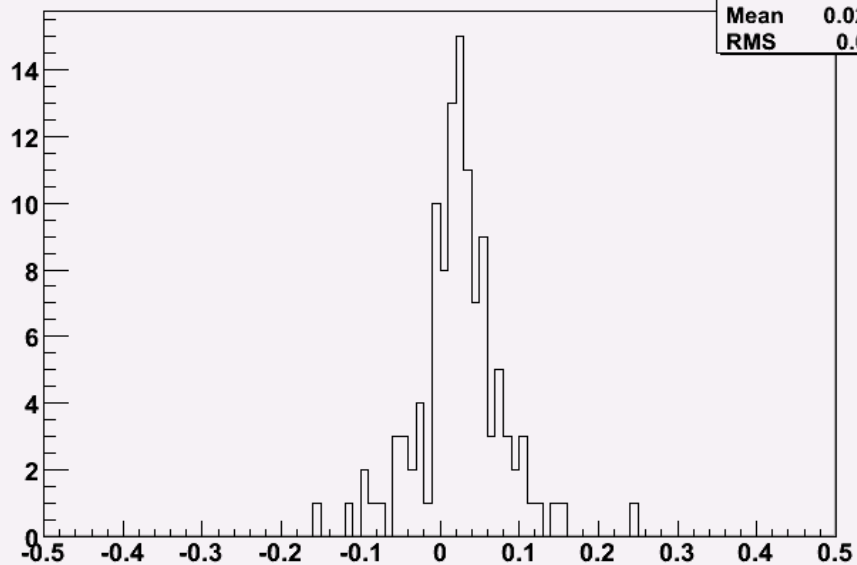- returns fit parameters, fitted hit positions, ...

shown today:
- hit distributions and residuals of LAS CRAFT data
- aligned geometry used (Aachen: MP_step1_of_Adun2)
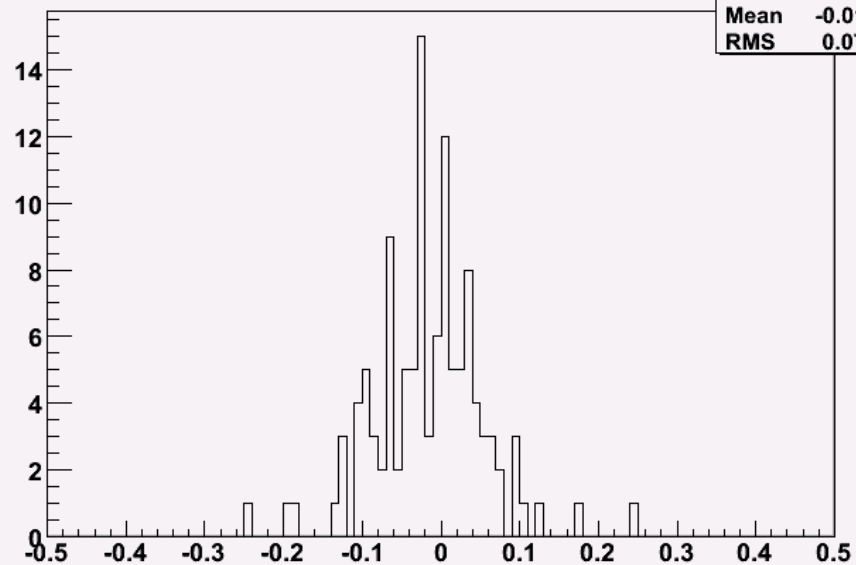- uncorrected beam model used (no BS kinks, AT movements)

next steps:
- make an alignment with MillePede
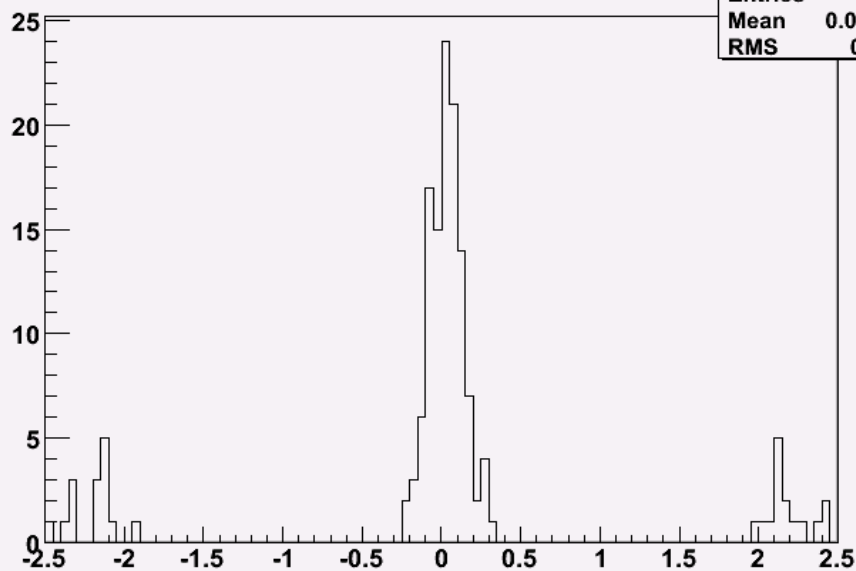- make it a CMSSW plugin

local x of LAS hits in TECplus

hitXTecPlus	
Entries	113
Mean	0.02404
RMS	0.0547

local x of LAS hits in TECminus

hitXTecMinus	
Entries	115
Mean	-0.01607
RMS	0.07043

local x of LAS hits in ATs

hitXAt	
Entries	146
Mean	0.02385
RMS	0.998

x-axis: [cm]

local x vs z in TECplus

hitXvsZTecPlus	
Entries	113
Mean x	197.8
Mean y	0.02404
RMS x	43.55
RMS y	0.0547

local x vs z in TECMinus

hitXvsZTecMinus	
Entries	115
Mean x	-198.5
Mean y	-0.01607
RMS x	42.74
RMS y	0.07043

local x vs z in ATs

hitXvsZAt	
Entries	146
Mean x	3.045
Mean y	0.0315
RMS x	114.9
RMS y	0.1084
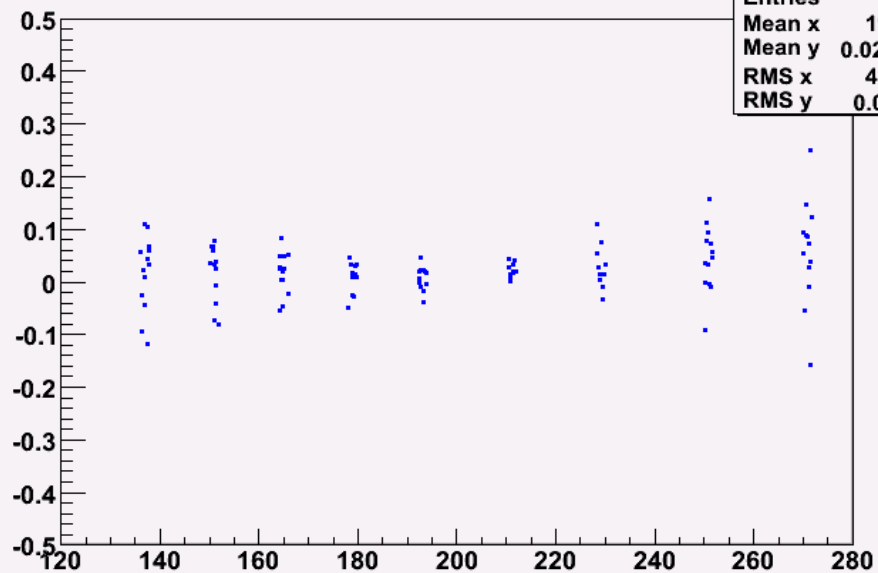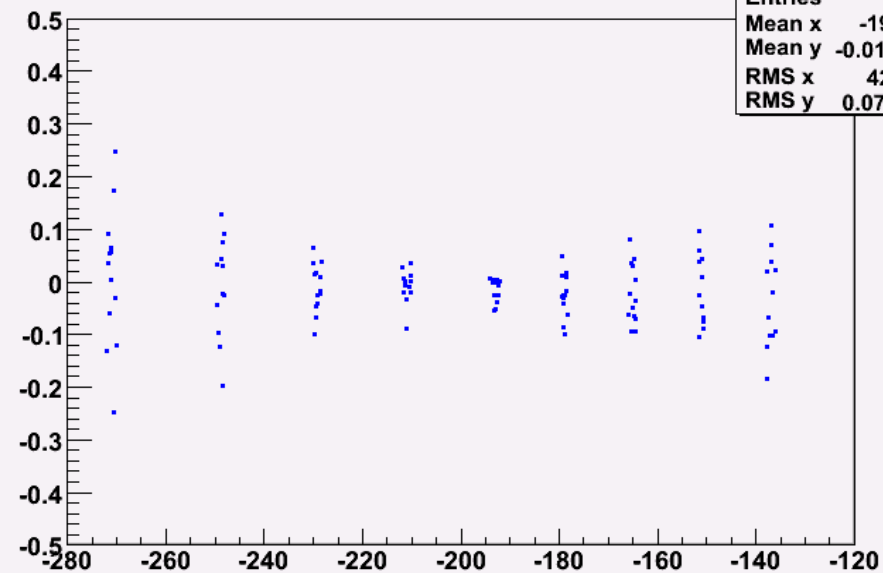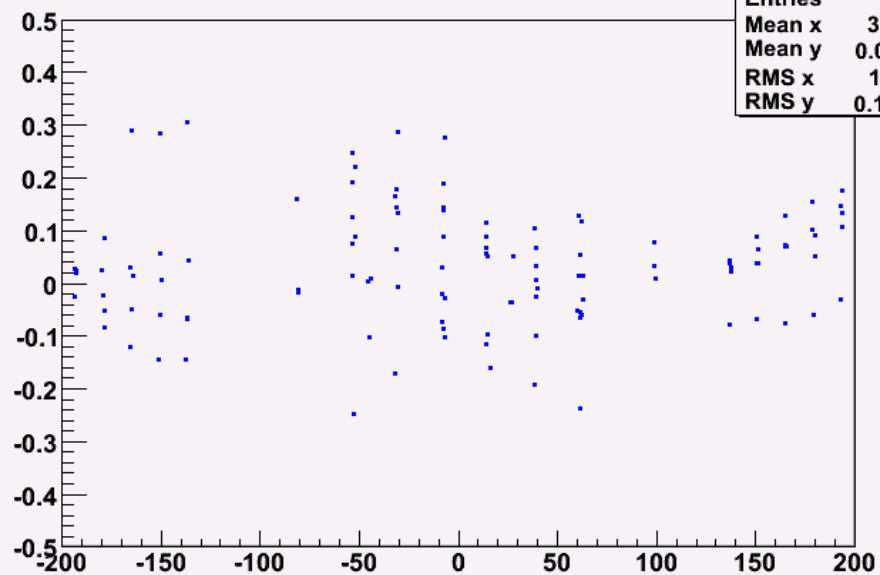
x-axis: [cm]

y-axis: [cm]

phi residuals in TECplus
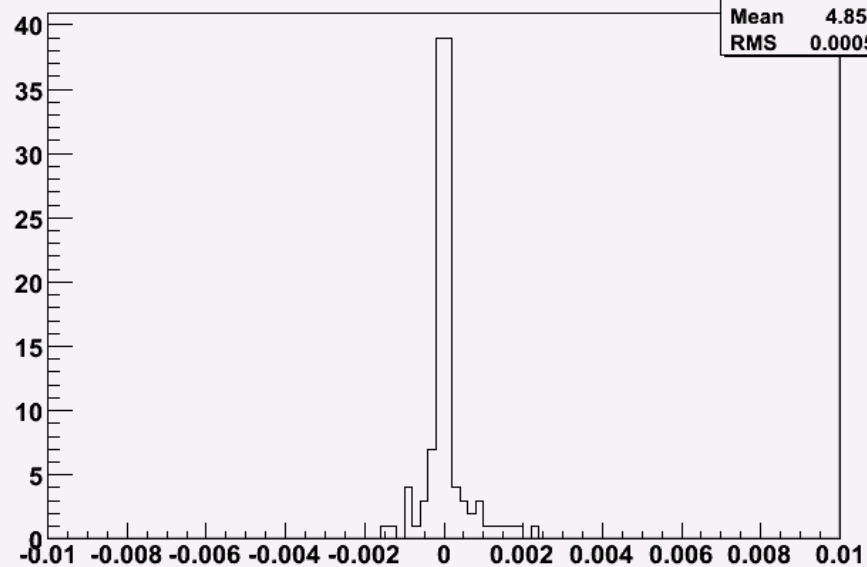
resTecPlus	
Entries	113
Mean	4.85e-05
RMS	0.0005112

phi residuals in TECminus
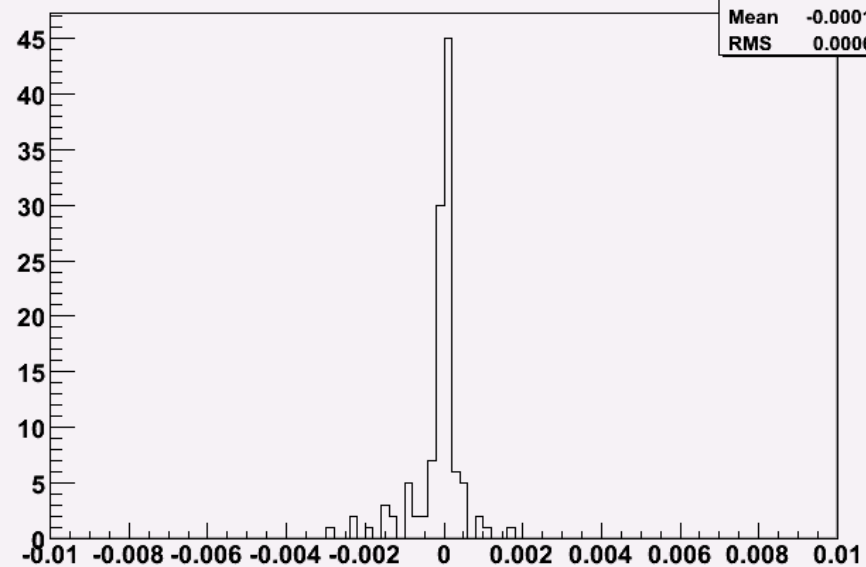
resTecMinus	
Entries	115
Mean	-0.0001264
RMS	0.0006108

phi residuals in ATs
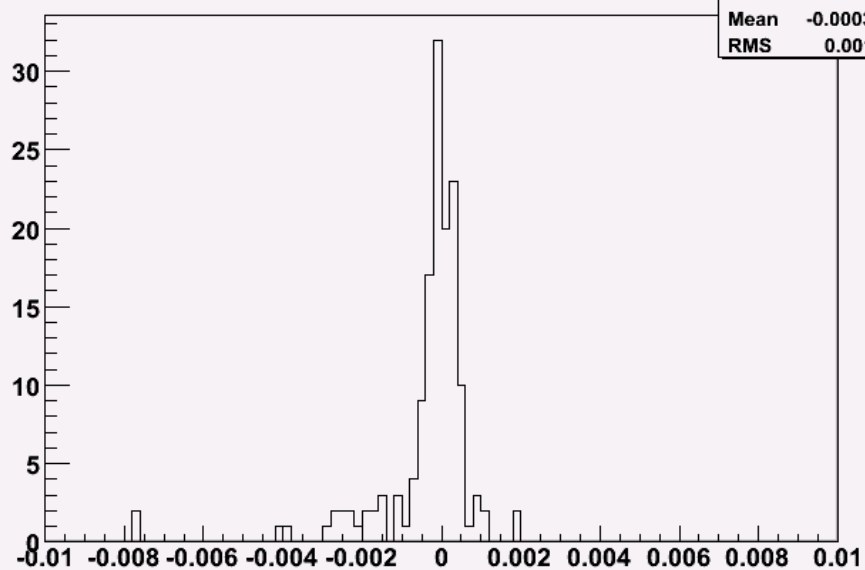
resAt	
Entries	146
Mean	-0.0003526
RMS	0.001256

x-axis: [rad]

phi residuals vs. z in TECplus

resVsZTecPlus	
Entries	113
Mean x	197.8
Mean y	4.85e-05
RMS x	43.55
RMS y	0.0005112

phi residuals vs. z in TECminus

resVsZTecMinus	
Entries	115
Mean x	-198.5
Mean y	-0.0001264
RMS x	42.74
RMS y	0.0006108

phi residuals vs. z in ATs

resVsZAt	
Entries	146
Mean x	4.351
Mean y	-0.0003526
RMS x	106.2
RMS y	0.001256
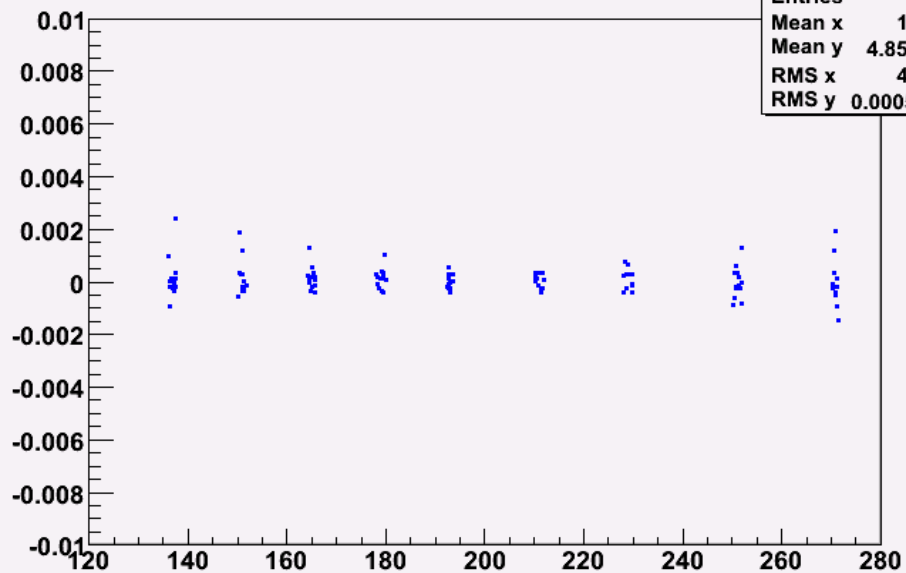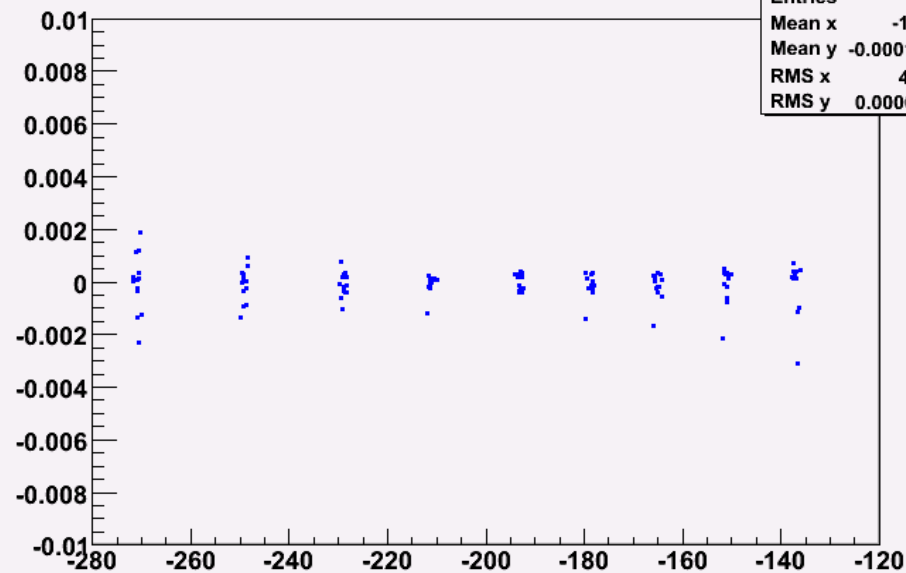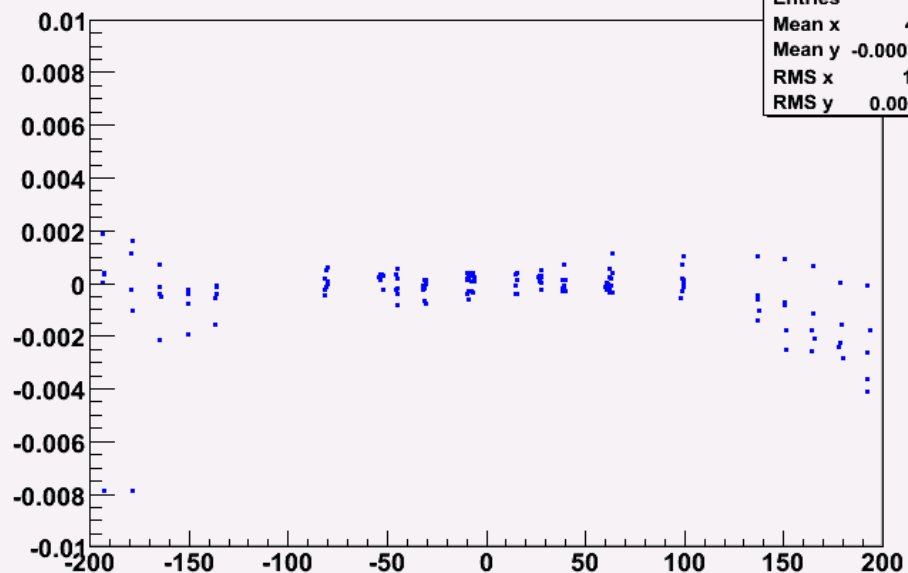
x-axis: [cm]

y-axis: [rad]

phi residuals vs. hits in TECplus

resVsHitTecPlus	
Entries	113
Mean x	81.75
Mean y	4.85e-05
RMS x	38.69
RMS y	0.0005112

phi residuals vs. hits in TECminus

resVsHitTecMinus	
Entries	115
Mean x	81.33
Mean y	-0.0001264
RMS x	39.11
RMS y	0.0006108

phi residuals vs. hits in ATs

resVsHitAt	
Entries	146
Mean x	90.03
Mean y	-0.0003526
RMS x	51.5
RMS y	0.001256

x-axis: [hit no.]

y-axis: [rad]