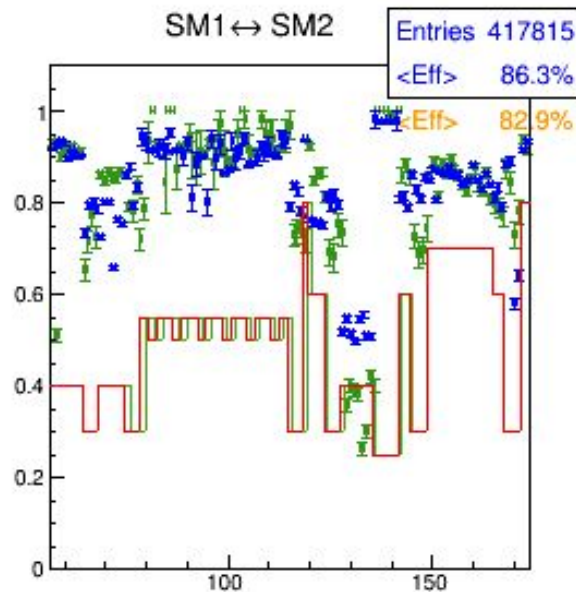
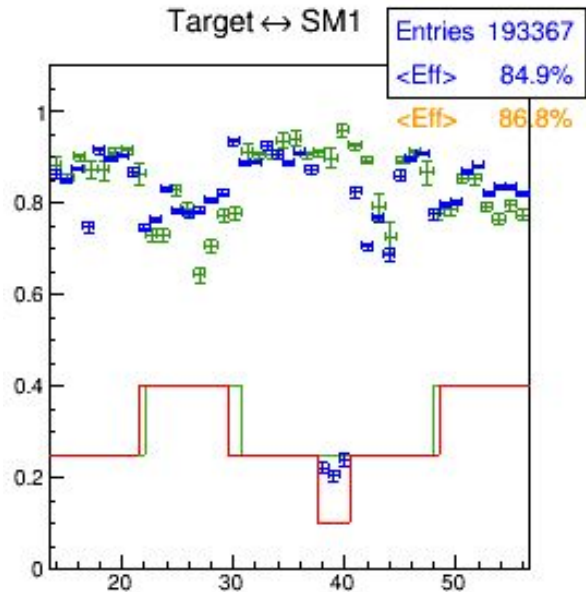


Alignment Status

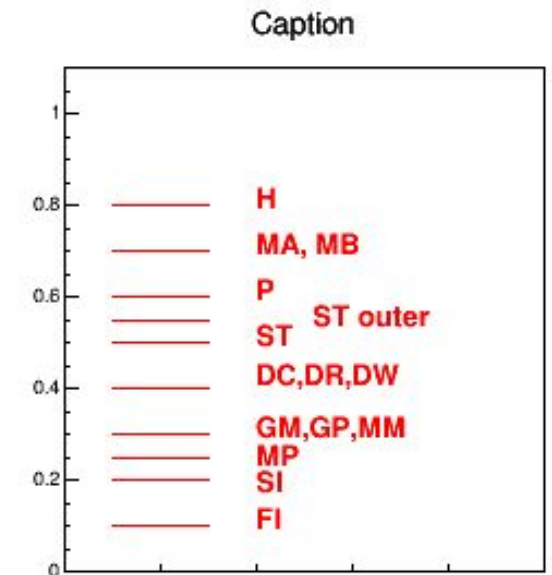
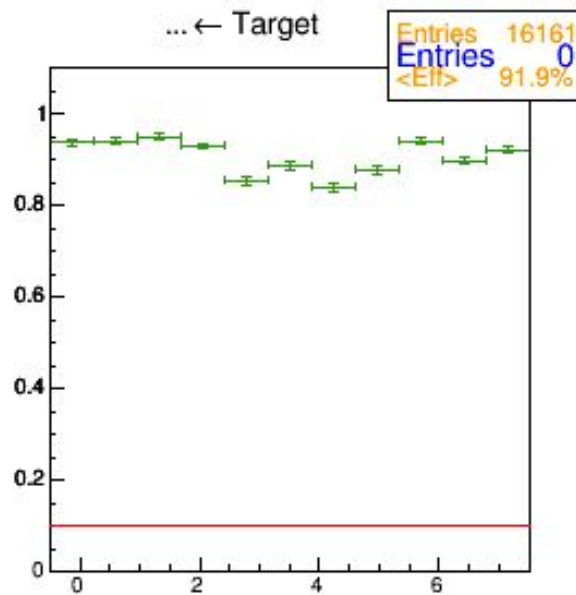
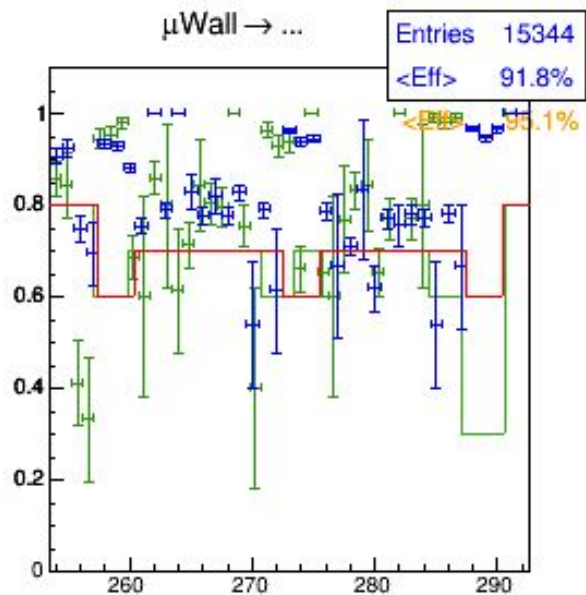
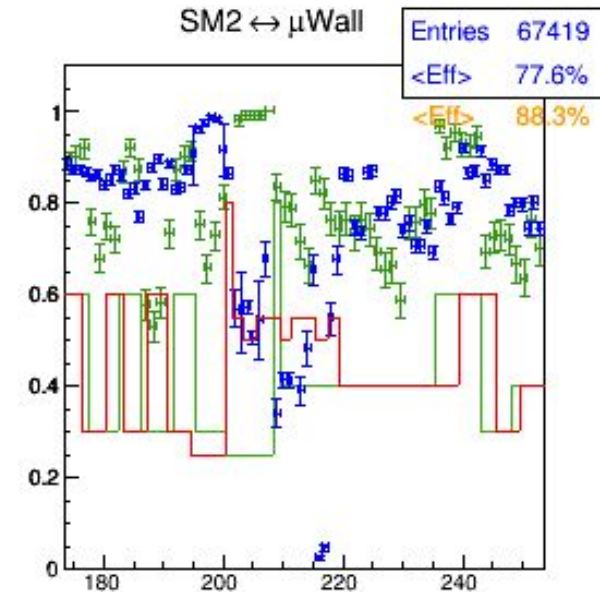
(DY 2018)

Renat Dusaev

2018 / W10 / run #285182



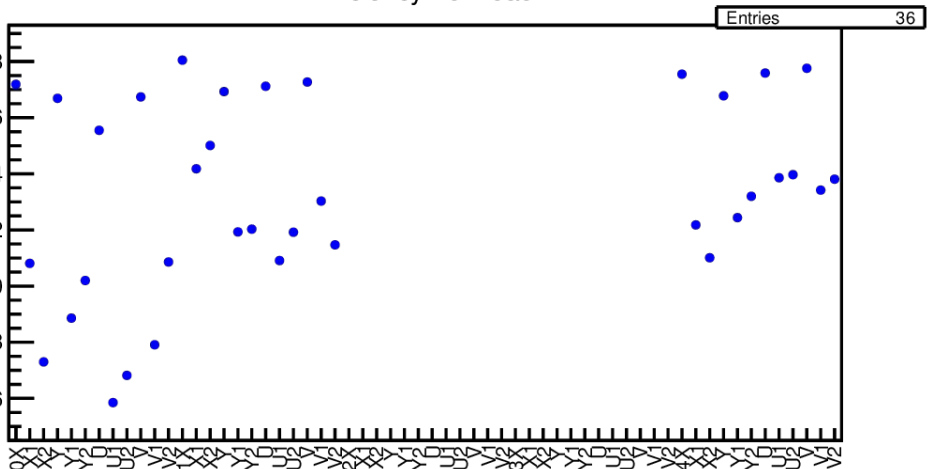
2015 / W10 / run #261554



DCs in 2015 vs 2018 (1/2)

2015

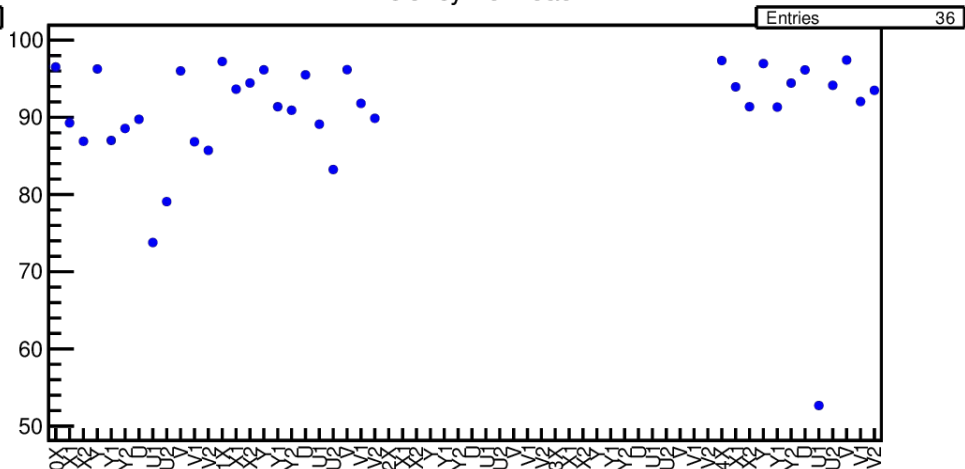
Efficiency - 0x20a01



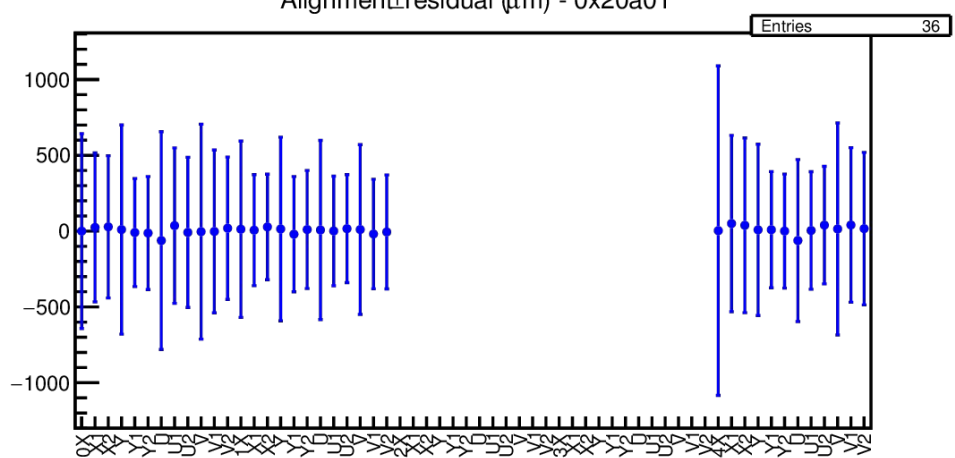
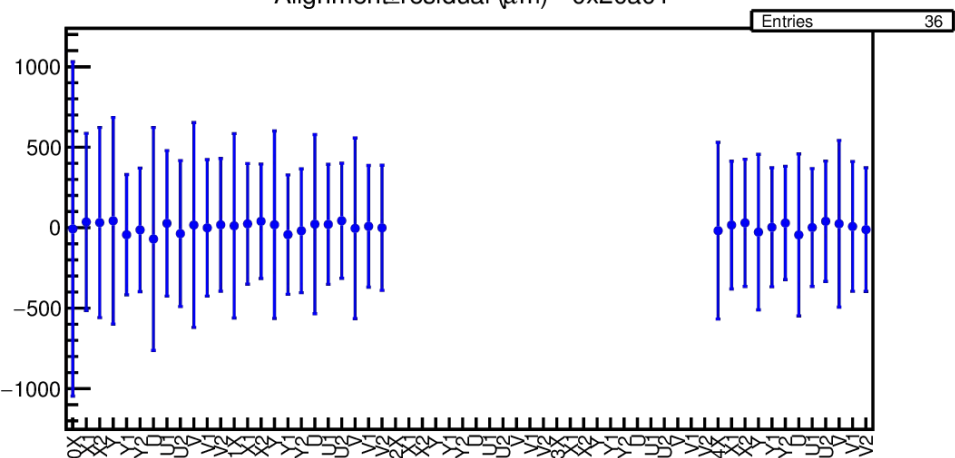
Alignment residual (μm) - 0x20a01

2018

Efficiency - 0x20a01



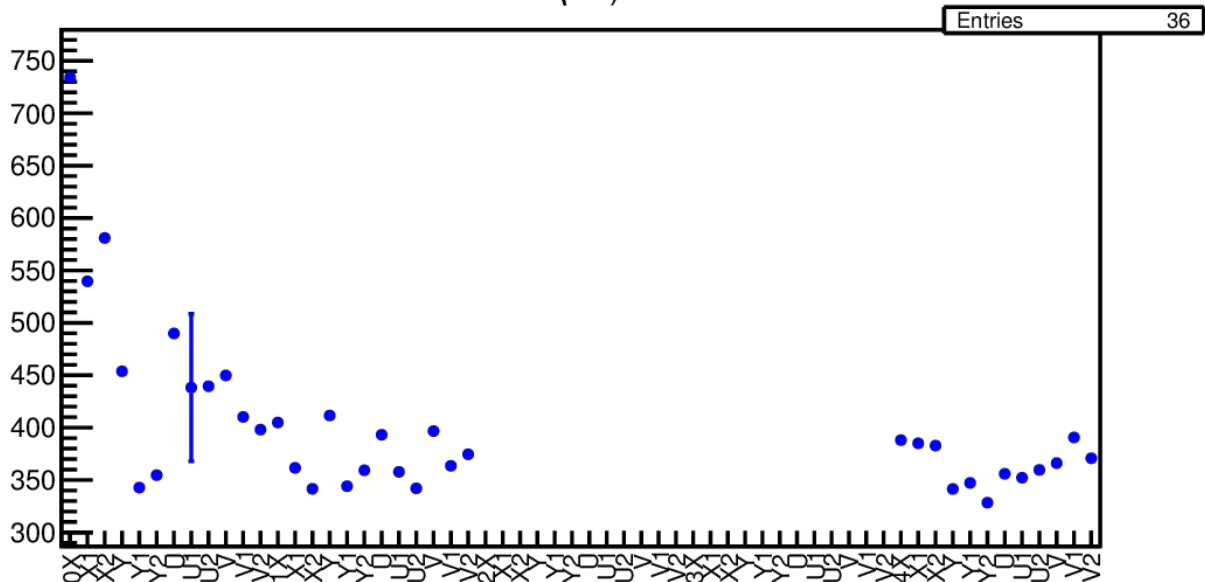
Alignment residual (μm) - 0x20a01



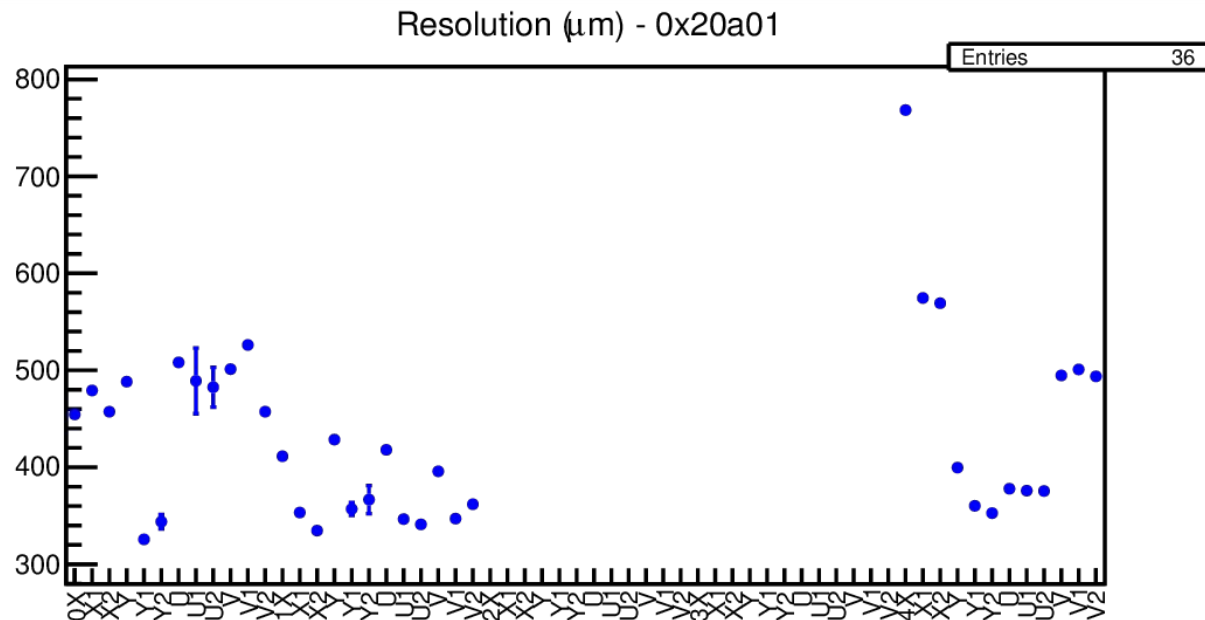
DCs in 2015 vs 2018 (2/2)

Resolution (μm) - 0x20a01

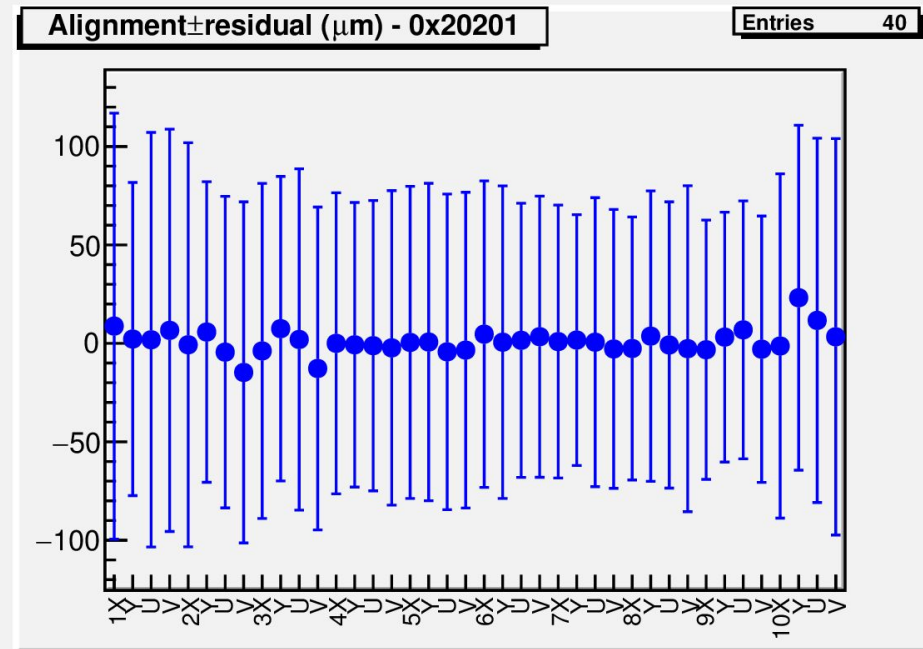
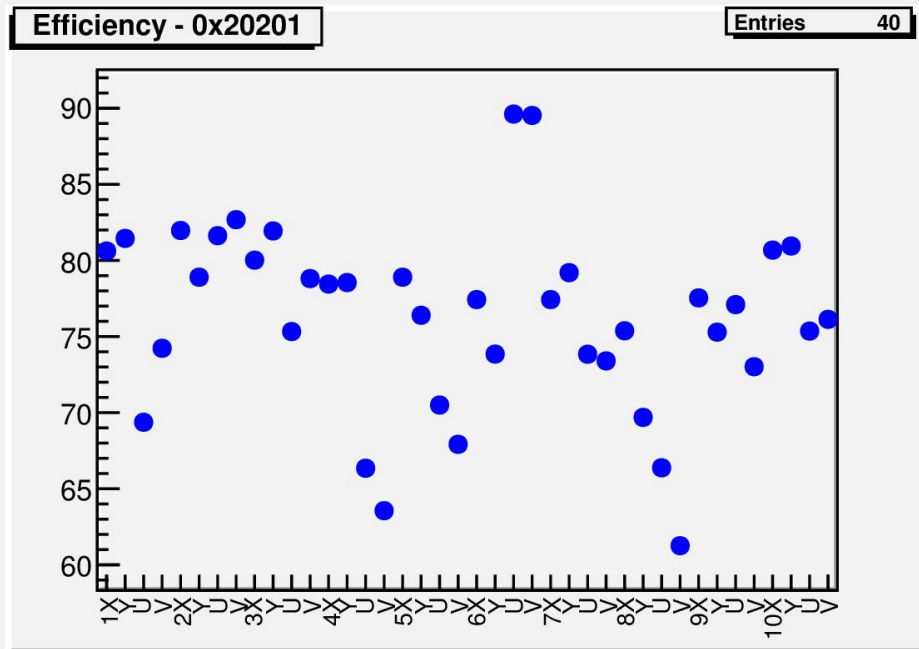
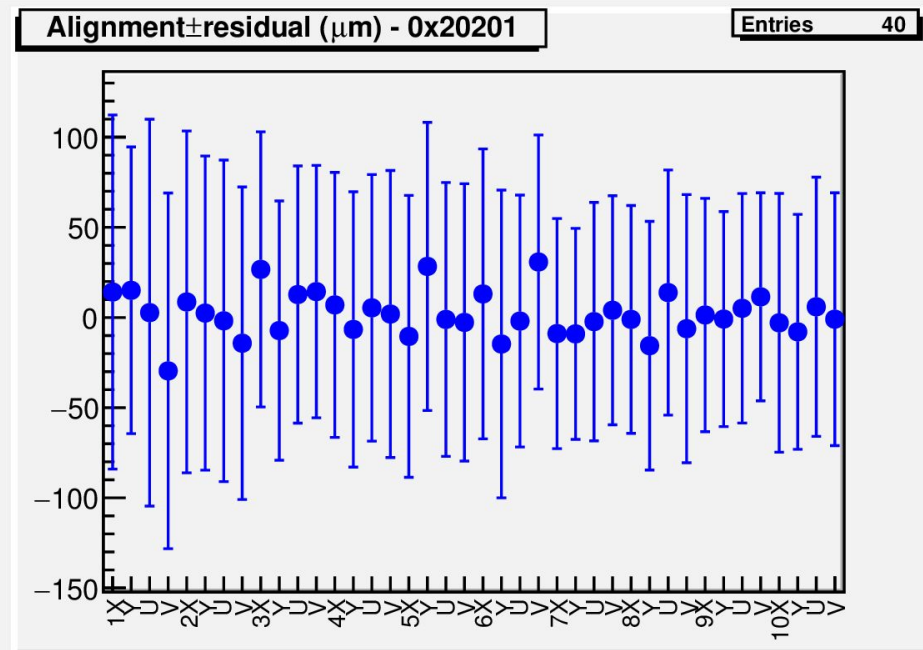
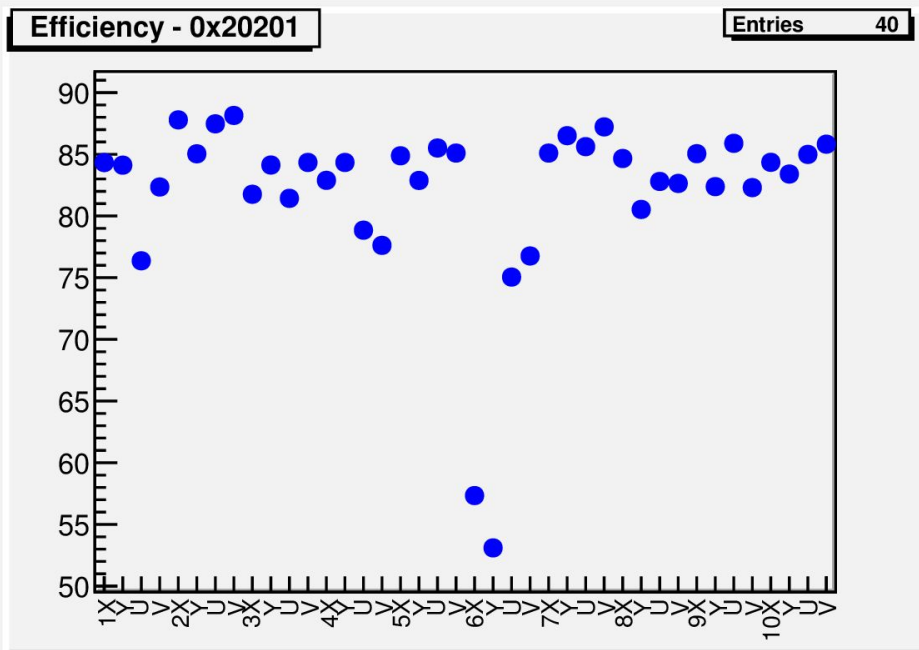
2015



2018



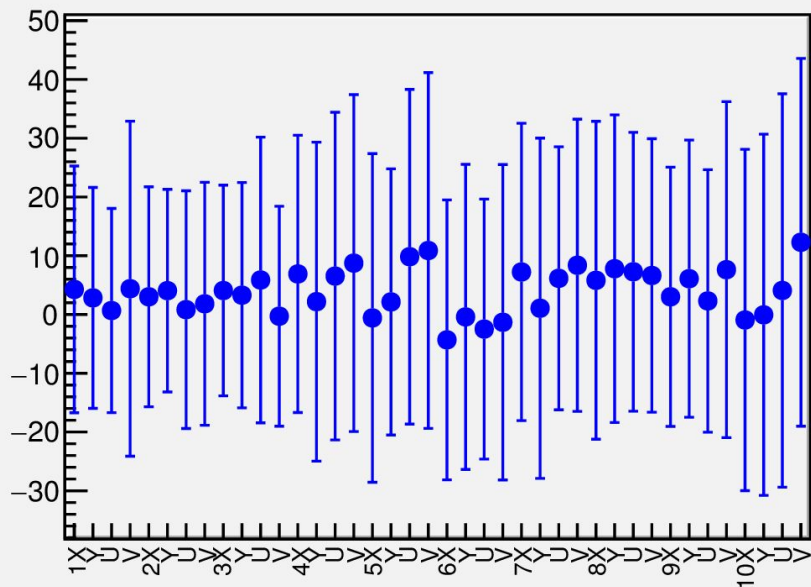
GMs in 2015 vs 2018 (1/2)



GMs in 2015 vs 2018 (2/2)

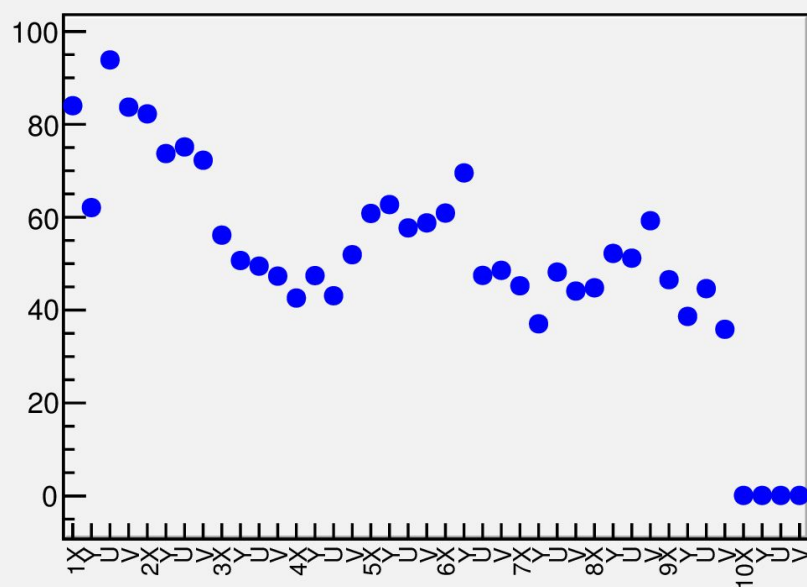
T±dT (ns) - 0x20201

Entries 40



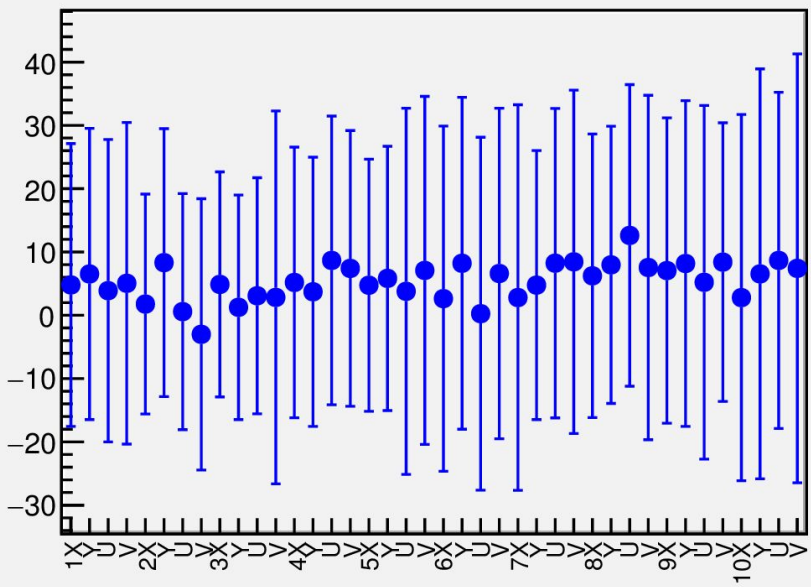
Resolution (μm) - 0x20201

Entries 40



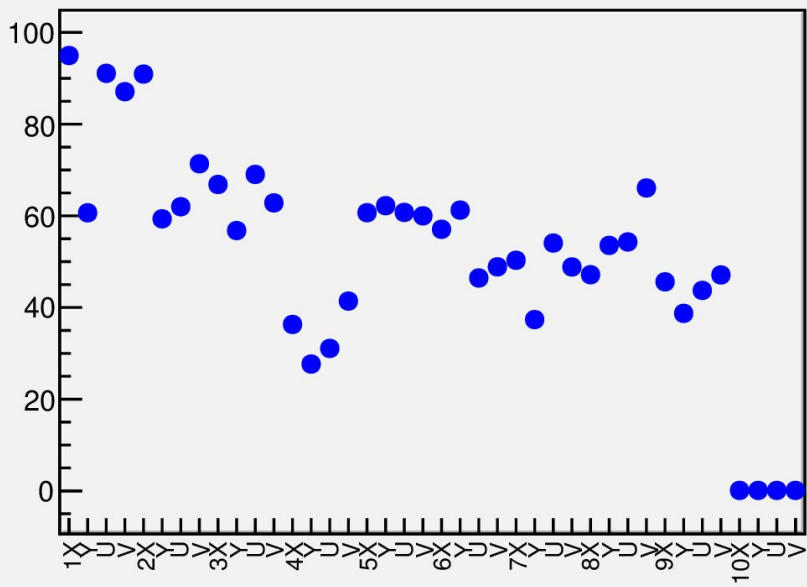
T±dT (ns) - 0x20201

Entries 40

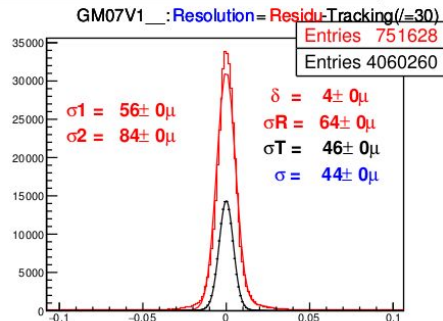
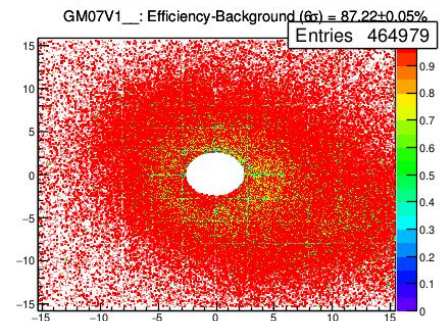


Resolution (μm) - 0x20201

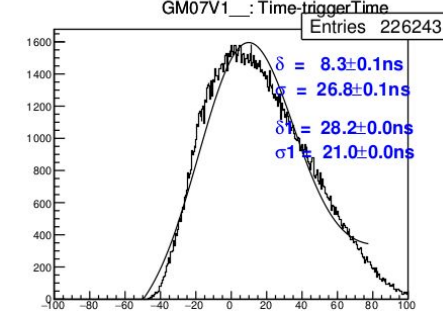
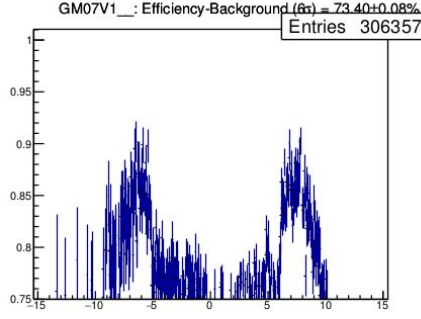
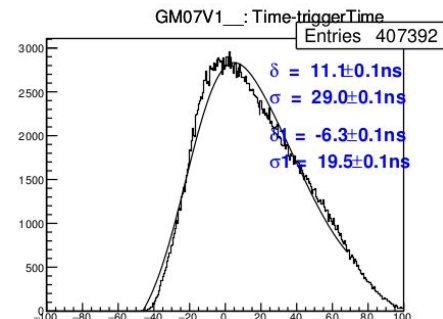
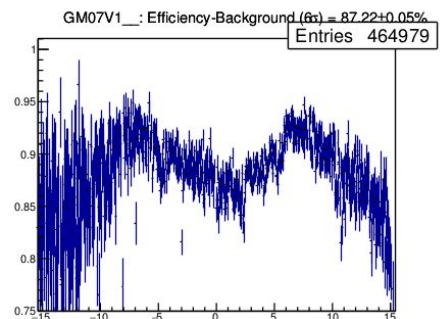
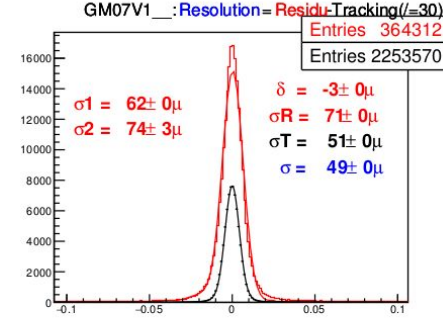
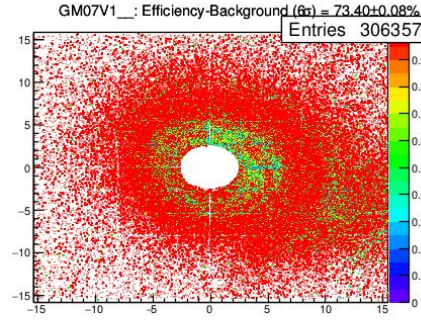
Entries 40



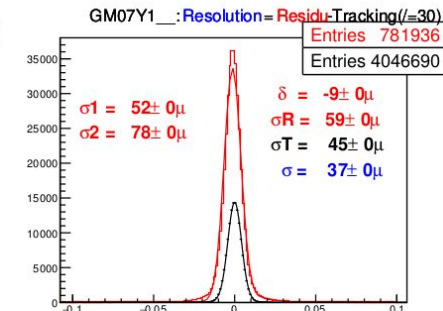
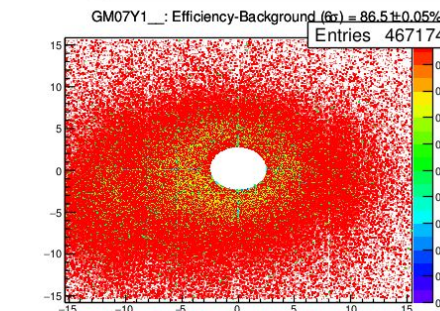
GM07V - 0x20201 - #261554



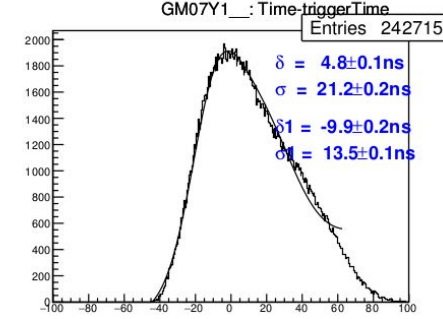
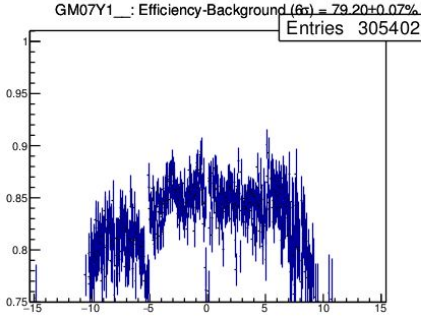
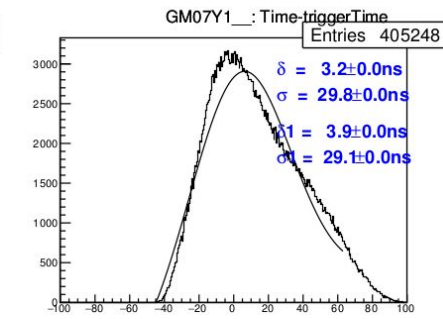
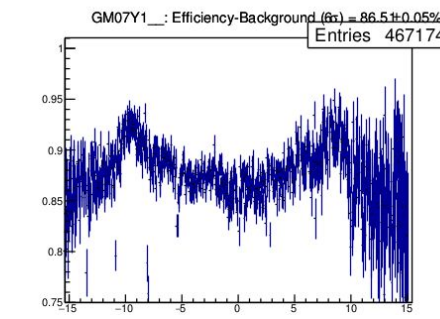
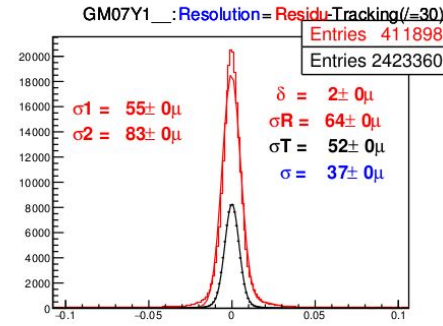
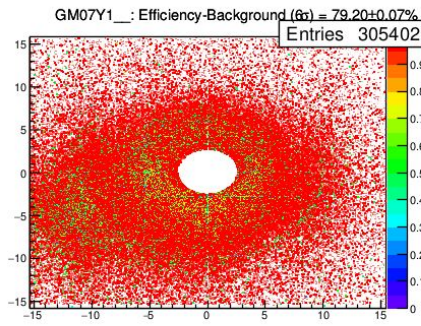
GM07V - 0x20201 - #285330



GM07Y - 0x20201 - #261554



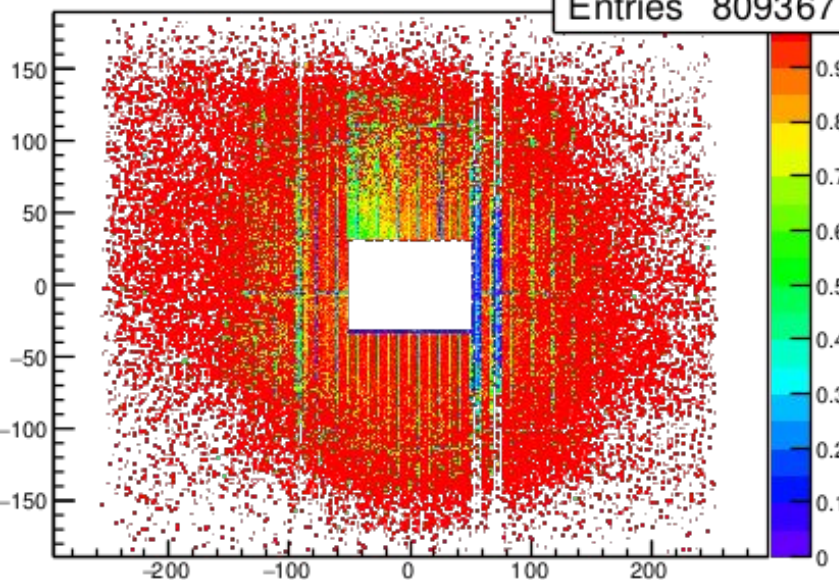
GM07Y - 0x20201 - #285330



DR01X1 - 0x20a01 - #261554

DR01X1__ : Efficiency-Background (6σ) = $79.03 \pm 0.05\%$

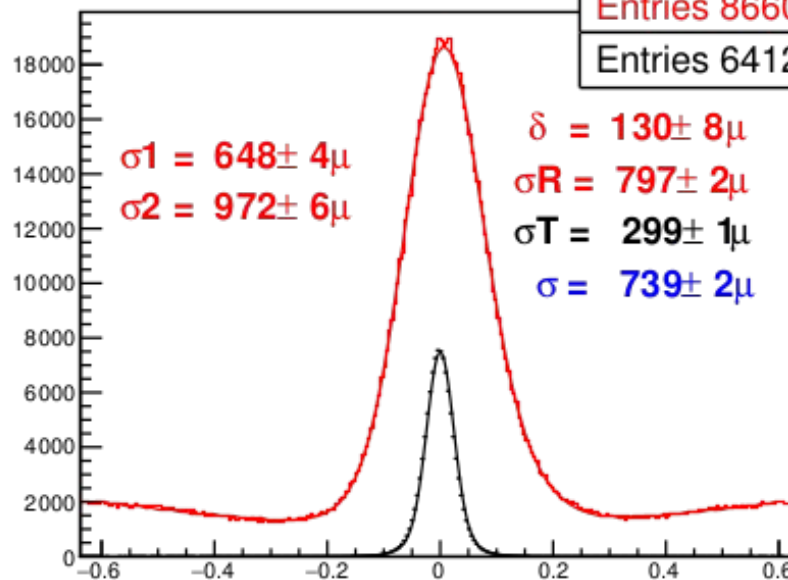
Entries 809367



DR01X1__ : Resolution = Residual Tracking ($\neq 60$)

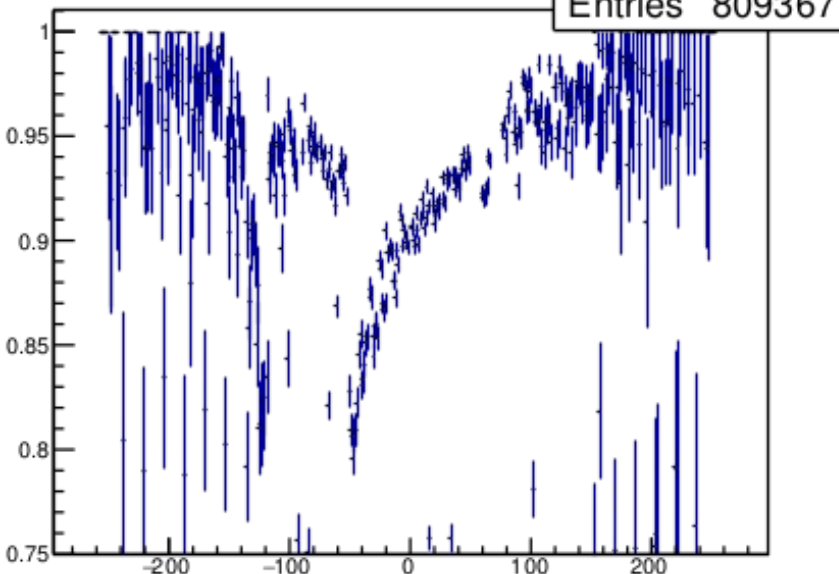
Entries 8660064

Entries 6412750



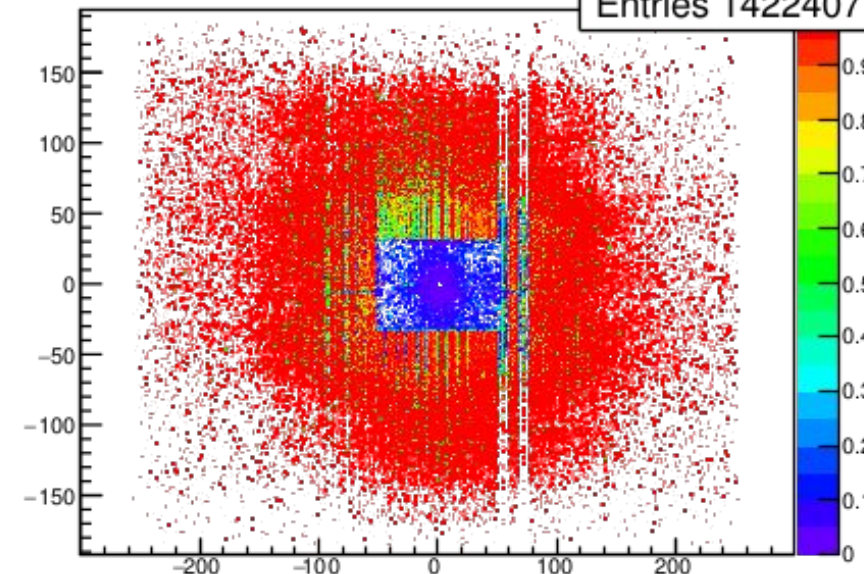
DR01X1__ : Efficiency-Background (6σ) = $79.03 \pm 0.05\%$

Entries 809367



DR01X1__ : Efficiency \times Acceptance (6σ) = $46.59 \pm 0.04\%$

Entries 1422407

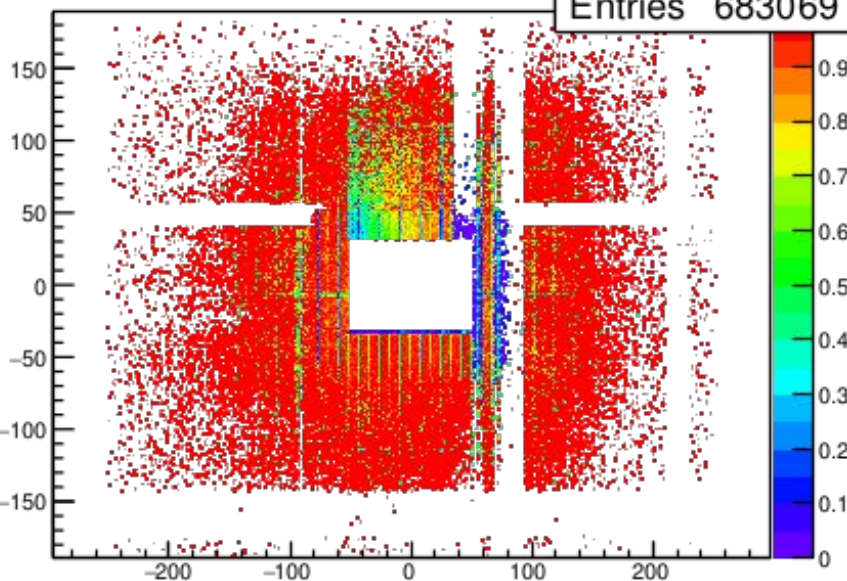


example of one plane of DR in 2015

DR01X1 - 0x20a01 - #285330

DR01X1__ : Efficiency-Background (6σ) = $72.62 \pm 0.05\%$

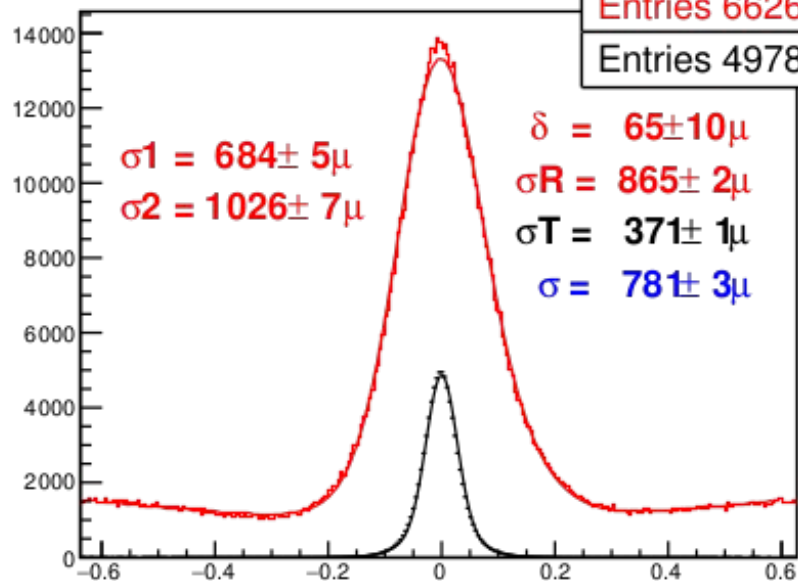
Entries 683069



DR01X1__ : Resolution = Residu Tracking (/=60)

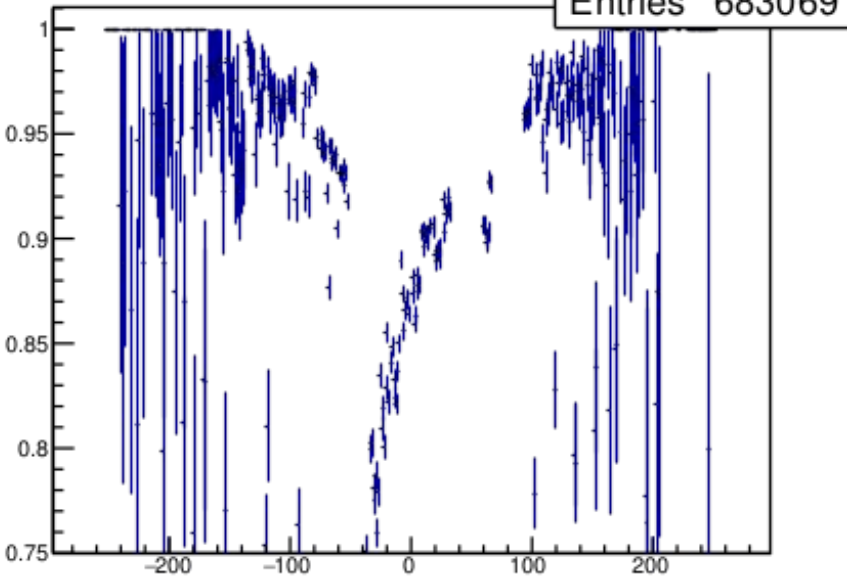
Entries 6626730

Entries 4978090



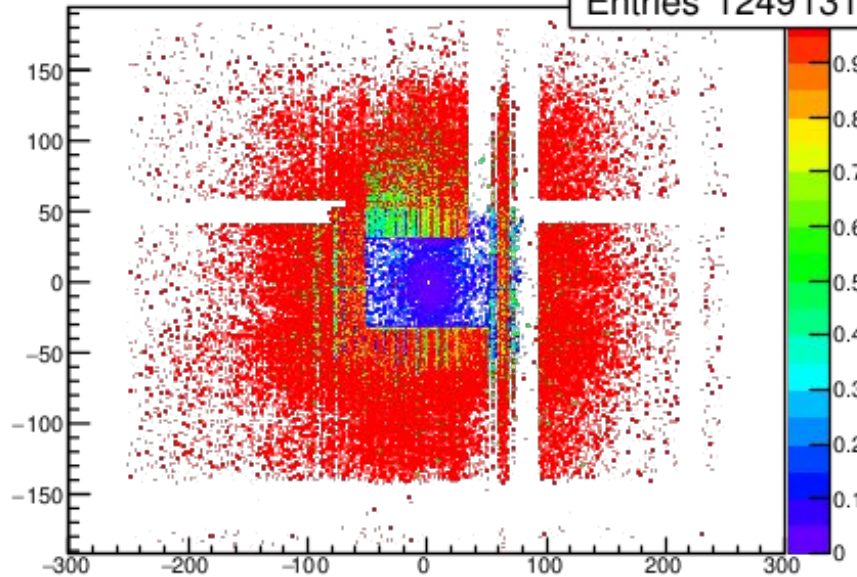
DR01X1__ : Efficiency-Background (6σ) = $72.62 \pm 0.05\%$

Entries 683069



DR01X1__ : Efficiency x Acceptance (6σ) = $41.35 \pm 0.04\%$

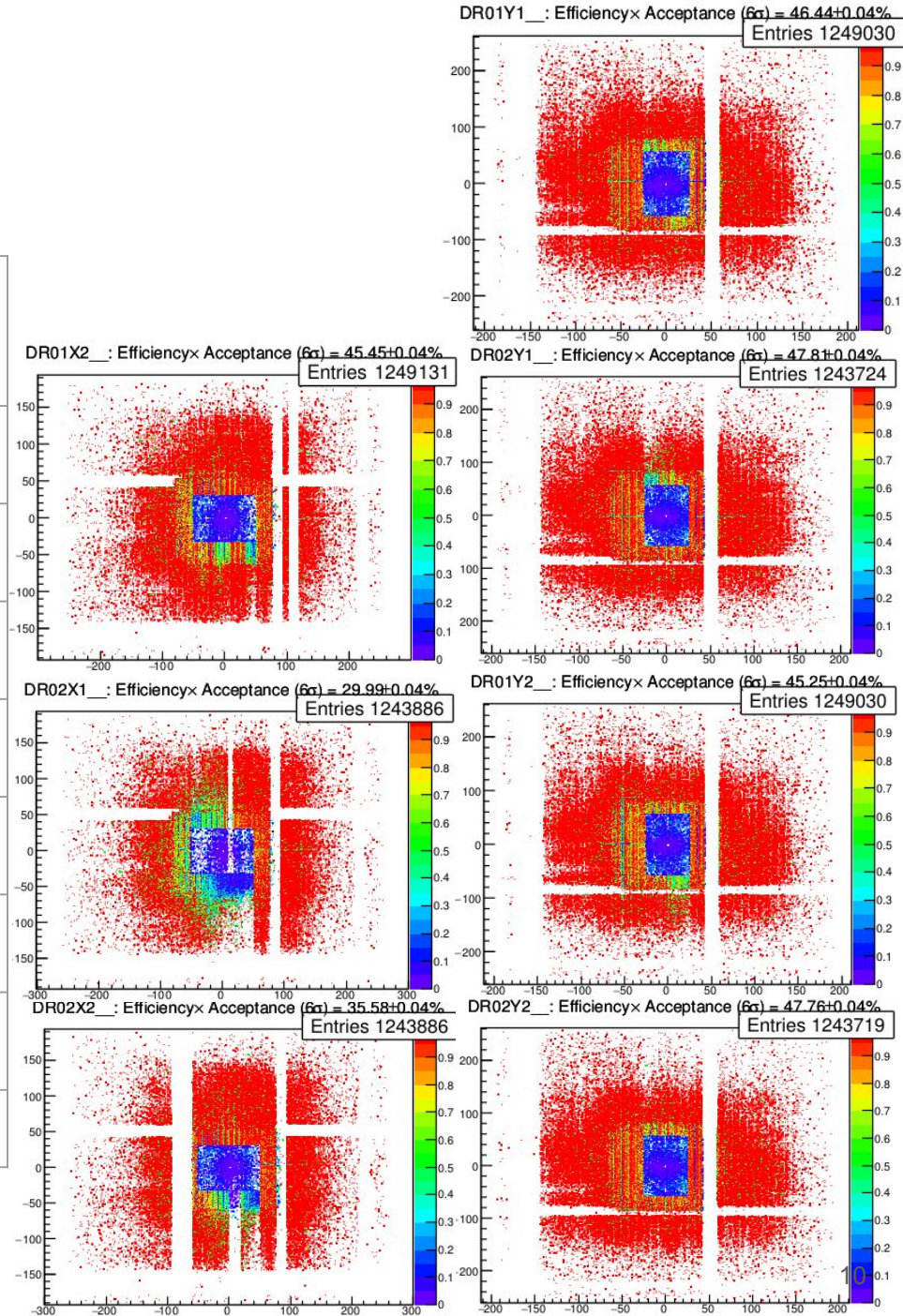
Entries 1249131



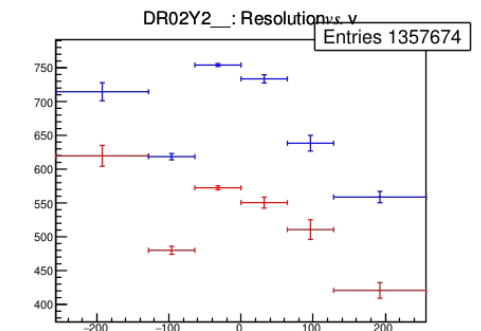
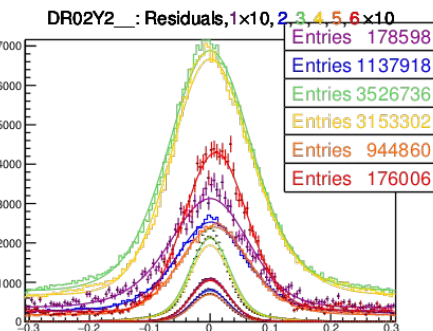
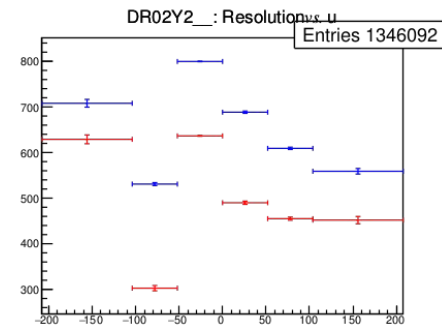
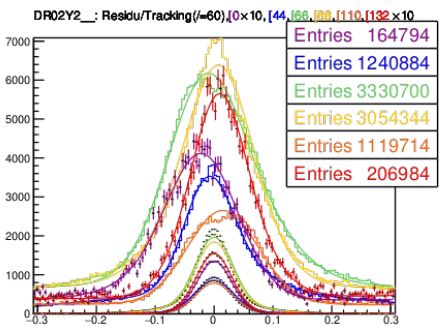
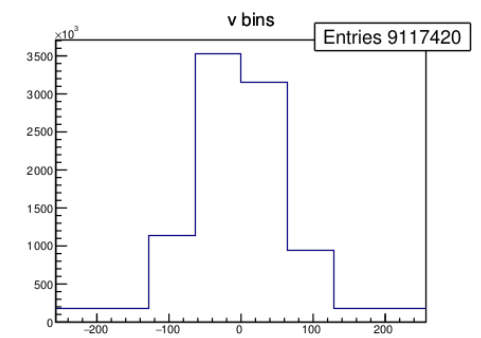
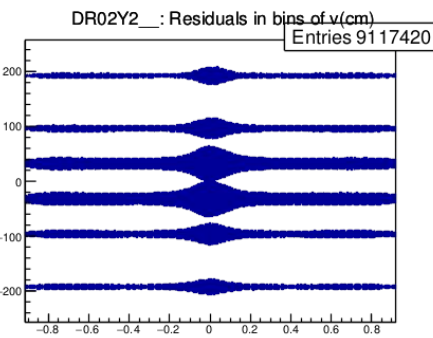
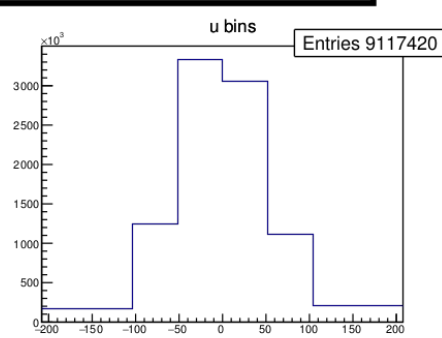
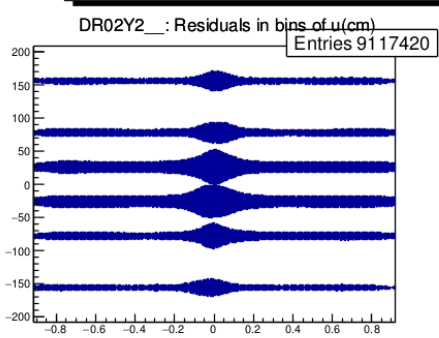
example of one plane of DR in 2018

DR in 2018 -- gaps lead to low efficiency?

| | eff. in 2015 | eff in 2018 | res. in 2015 | res. in 2018 |
|-------------|--------------|-------------|--------------|--------------|
| 01X1 | 46.59 | 41.35 | 739 | 781 |
| 01X2 | 49.81 | 45.45 | 766 | 870 |
| 01Y1 | 55.04 | 46.44 | 654 | 700 |
| 01Y2 | 54.46 | 45.25 | 616 | 659 |
| 02X1 | 51.06 | 29.99 | 628 | 1032 |
| 02X2 | 52.9 | 35.58 | 636 | 674 |
| 02Y1 | 55.53 | 47.81 | 626 | 610 |
| 02Y2 | 55.31 | 47.76 | 589 | 563 |

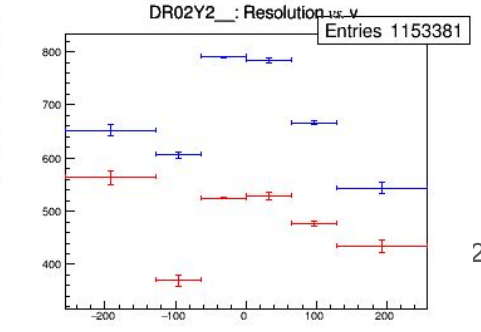
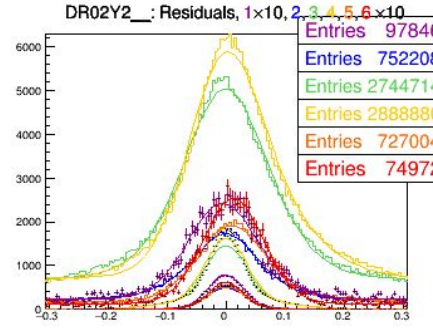
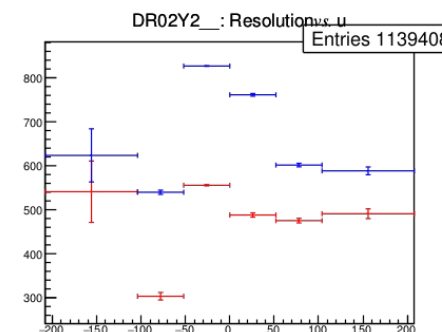
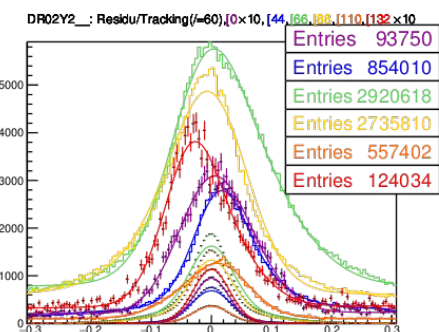
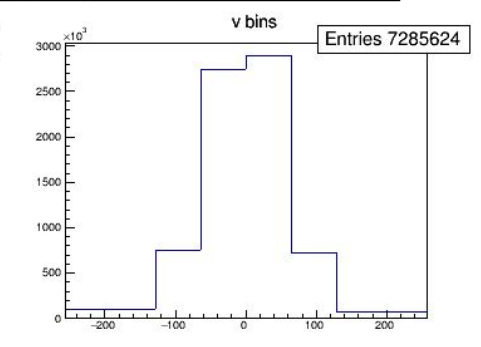
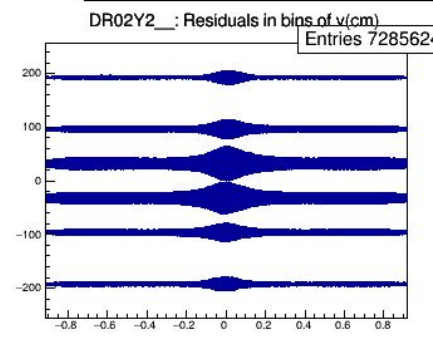
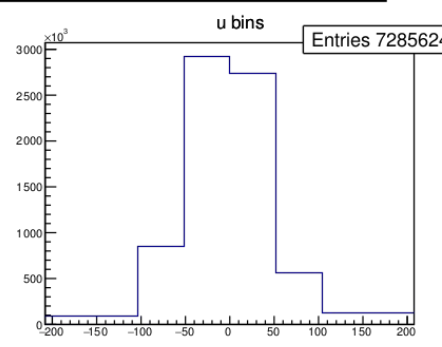
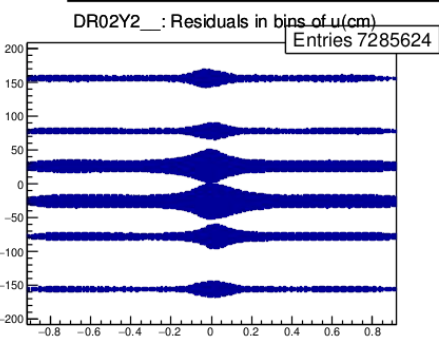


Backup

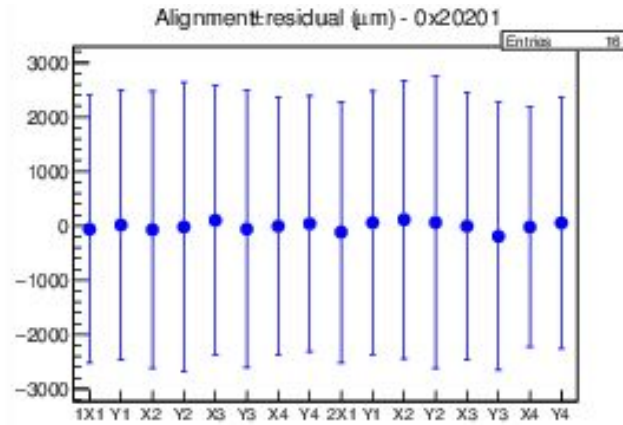
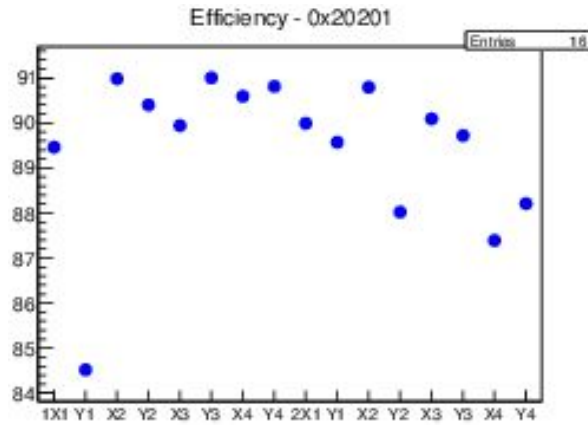


DR02Y2 - 0x20a01 - #285330

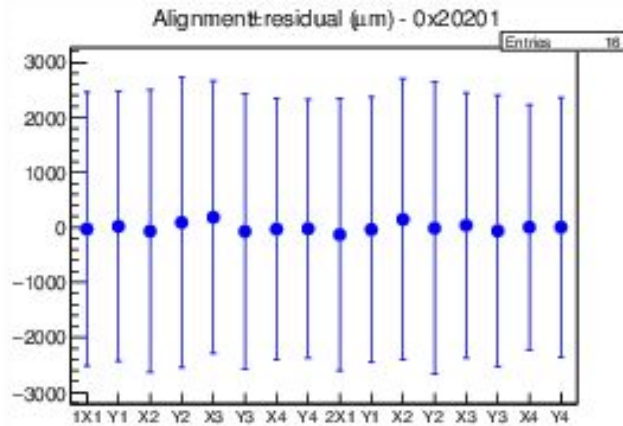
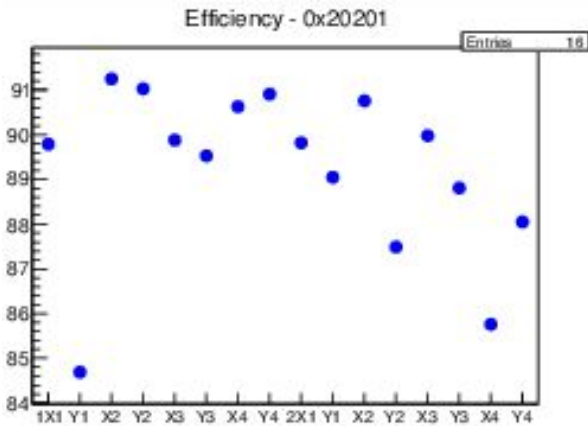
DR02Y2 - 0x20a01 - #285330



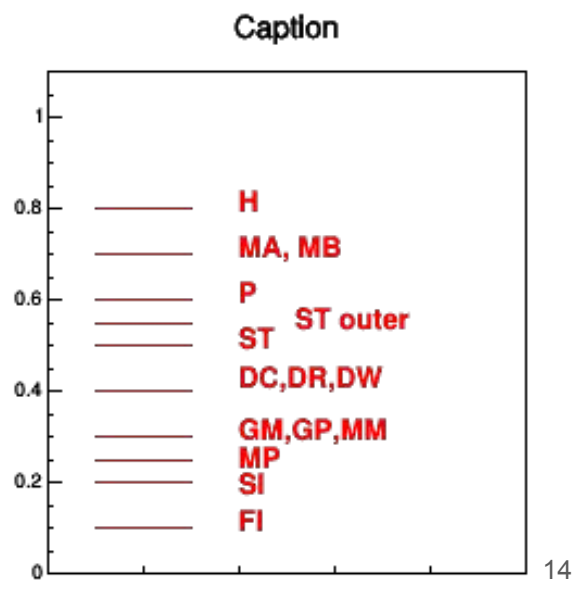
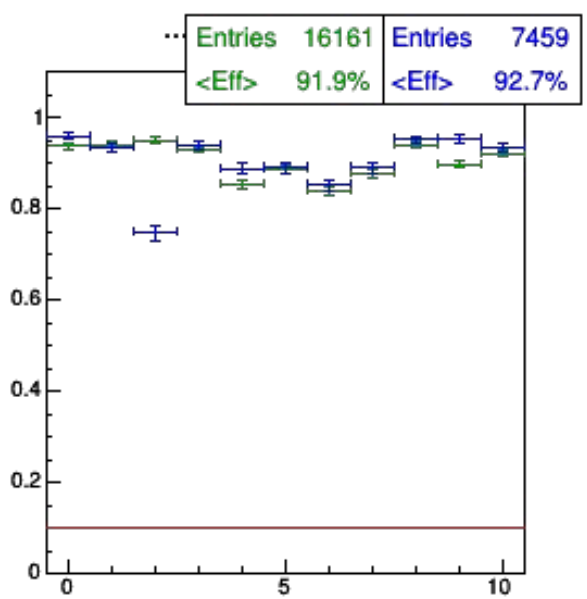
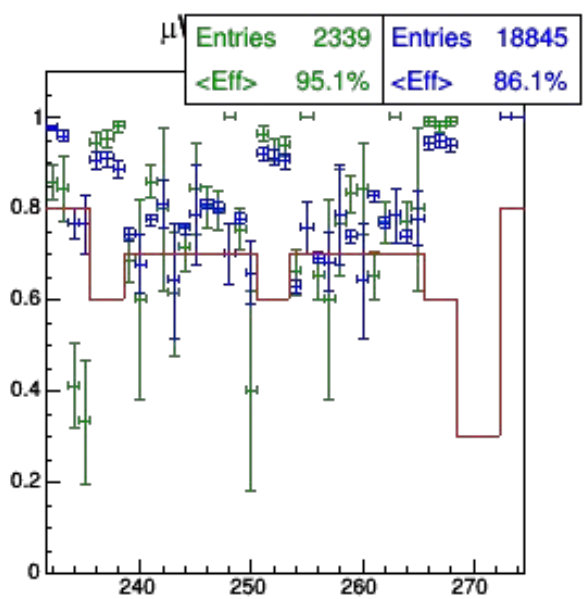
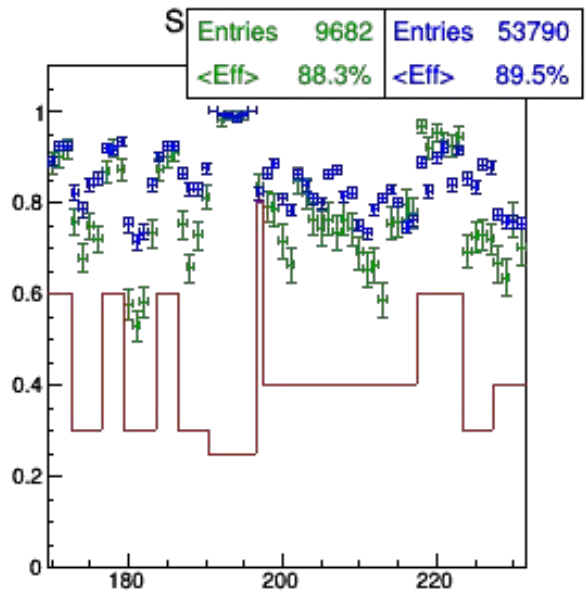
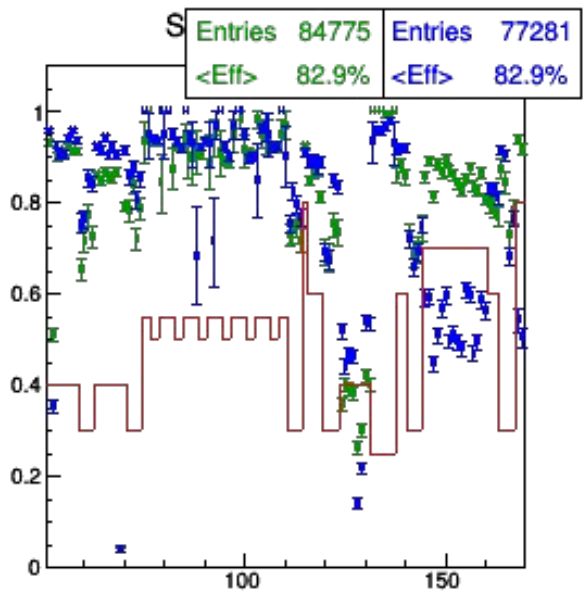
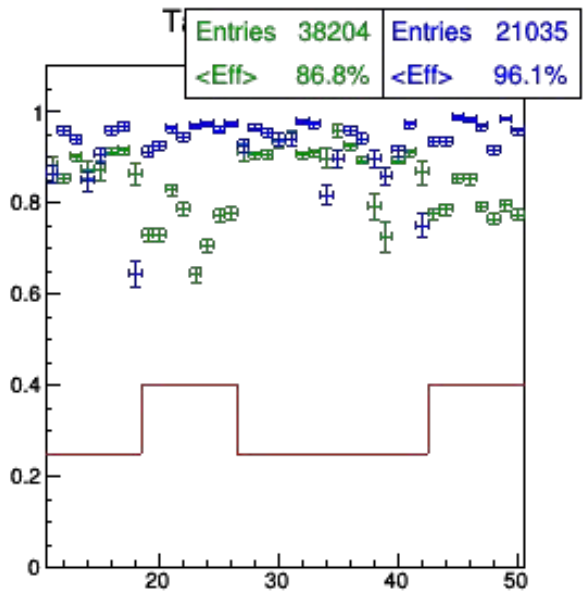
2018



2018

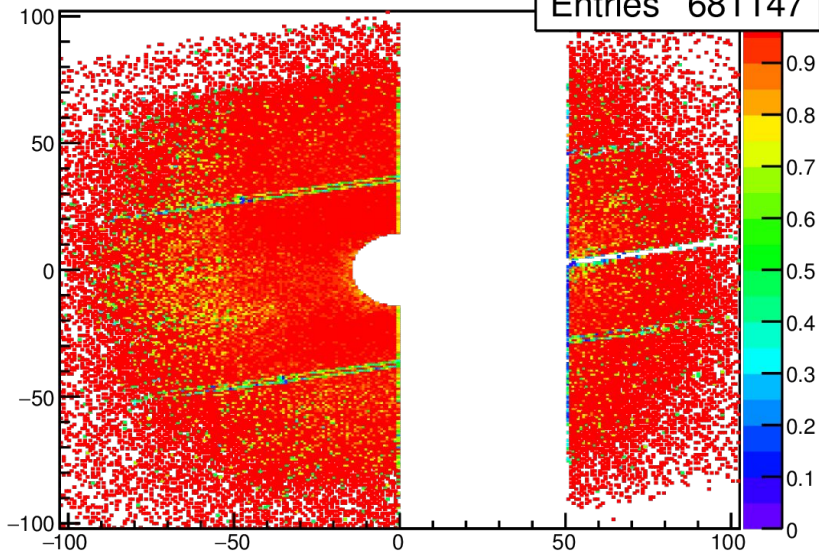


HME on alignment data vs. physics data

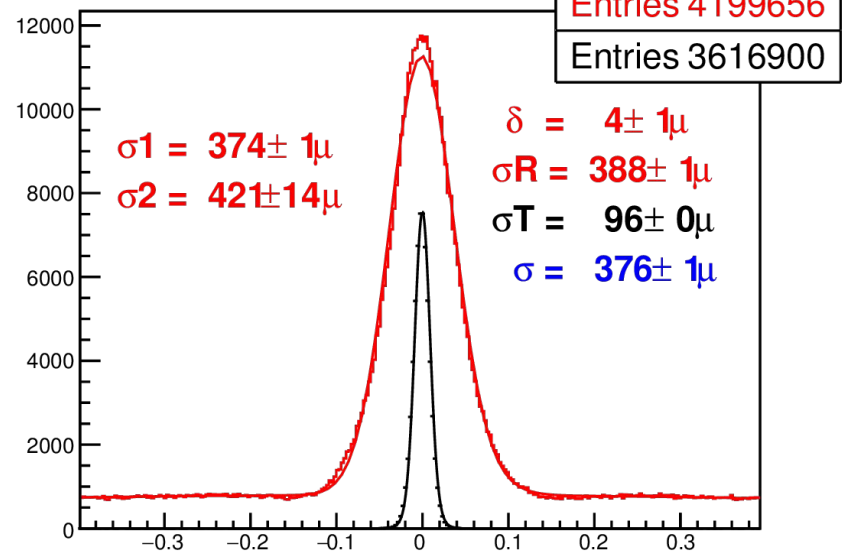


DC04U1 - 0x20a01 - #285330

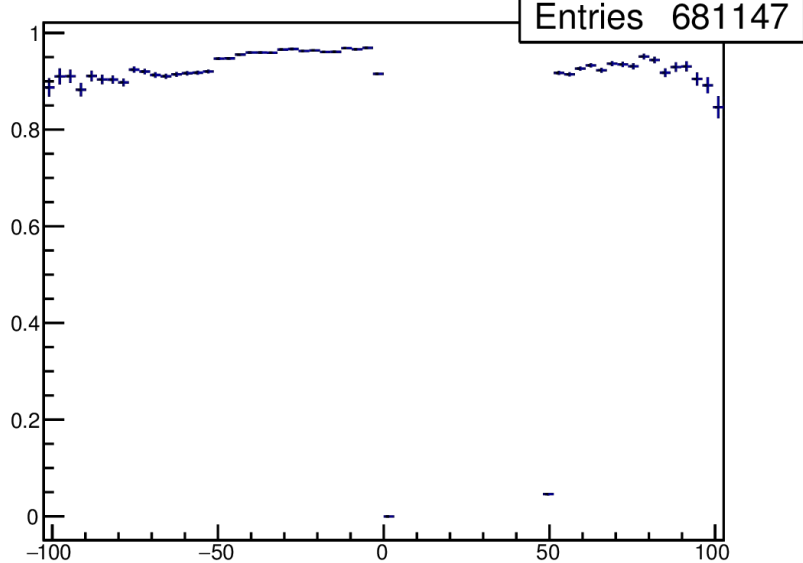
DC04U1__: Efficiency-Background (6σ) = 52.66±0.06%



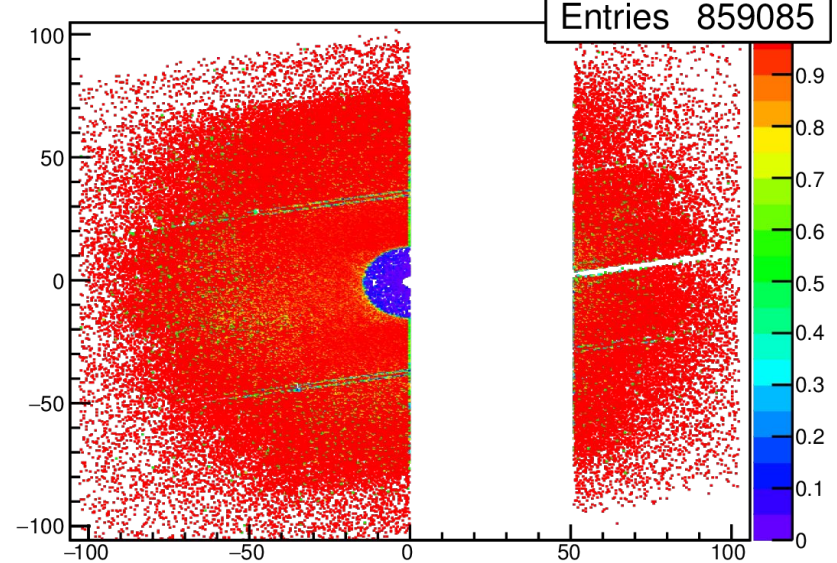
DC04U1__: Resolution = Residual-Tracking($l=60$)



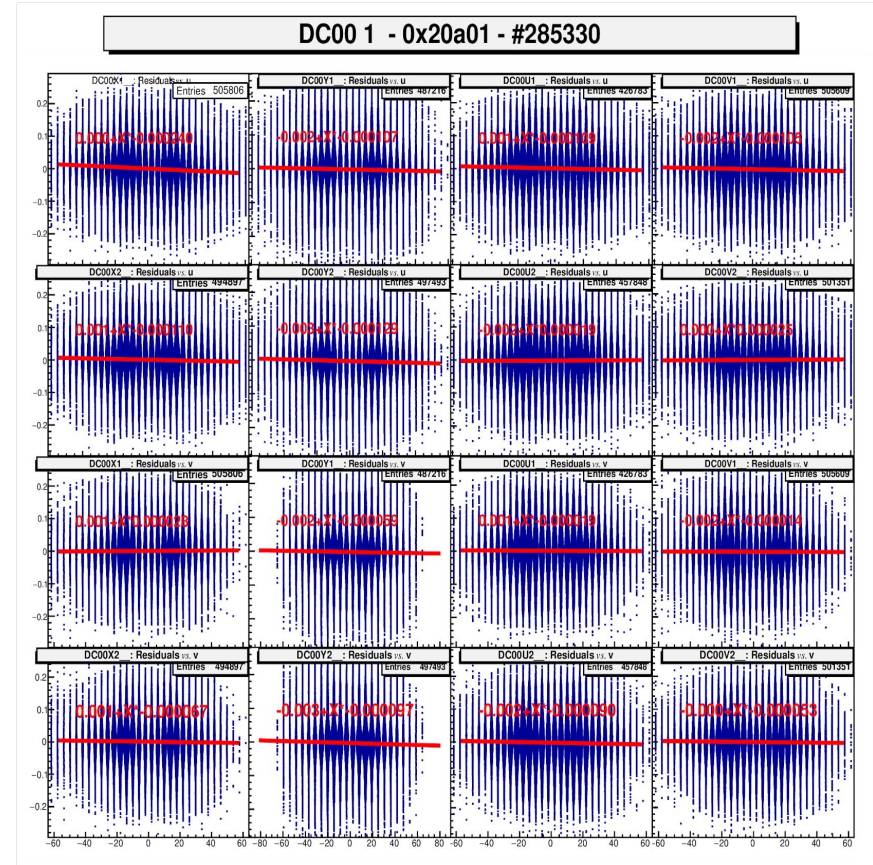
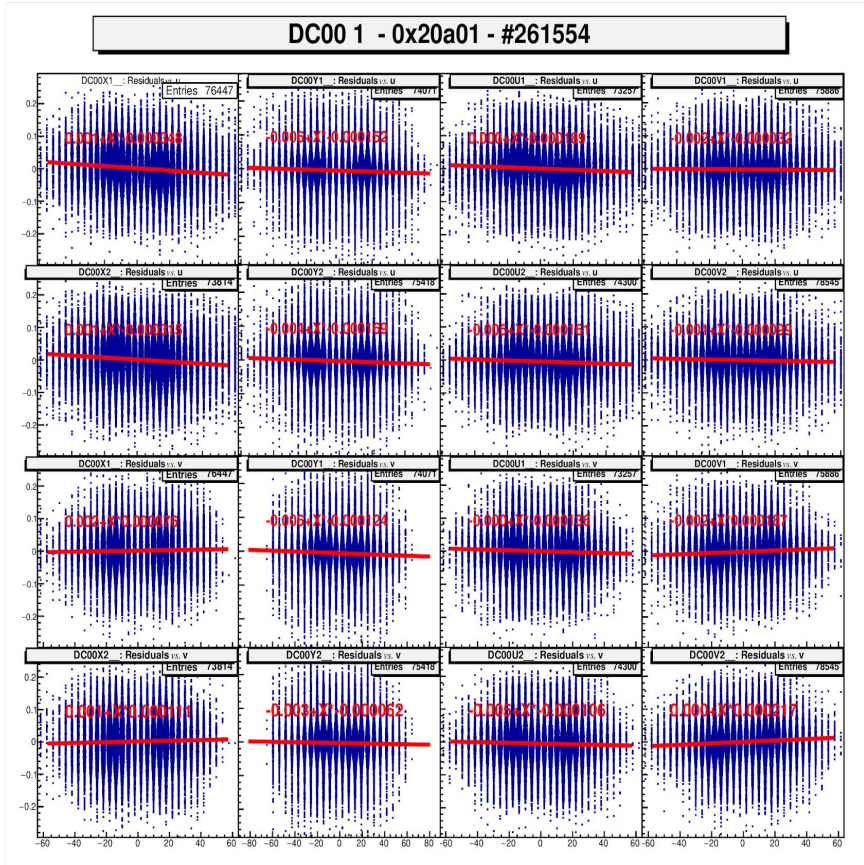
DC04U1__: Efficiency-Background (6σ) = 52.66±0.06%



DC04U1__: Efficiency× Acceptance (6σ) = 42.58±0.05%



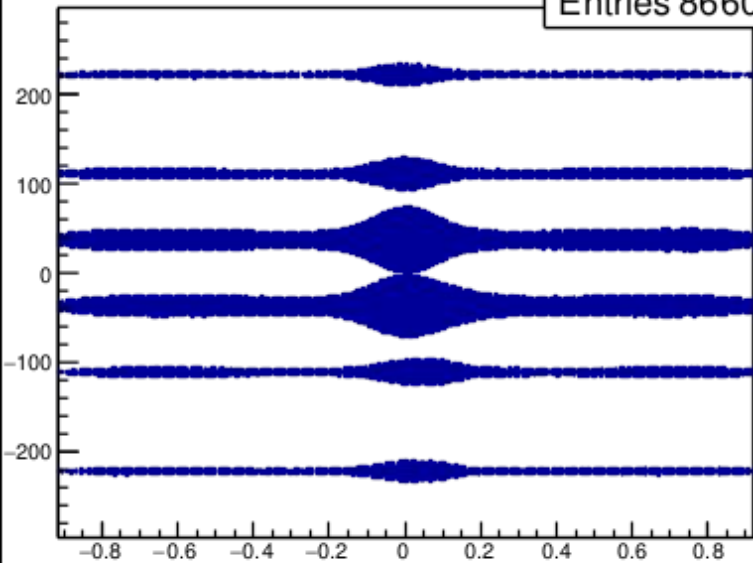
DCs u/v alignment comparison



DR01X1 - 0x20a01 - #261554

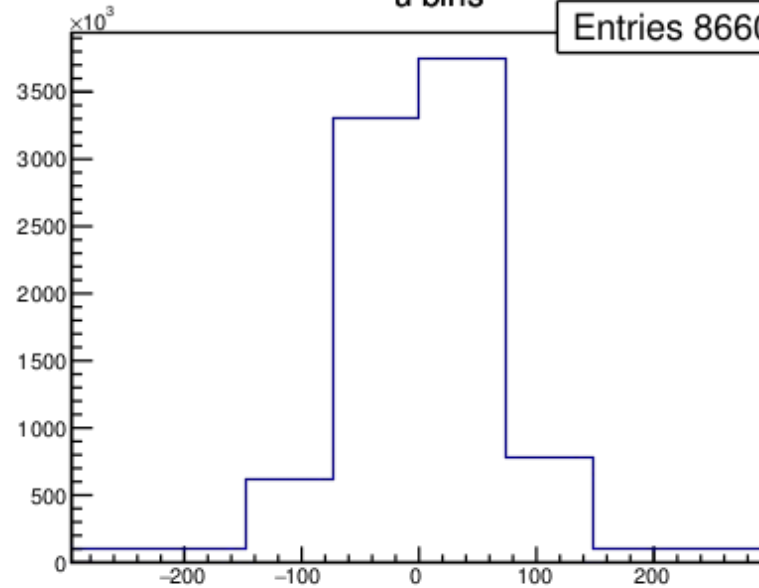
DR01X1__: Residuals in bins of u(cm)

Entries 8660064



u bins

Entries 8660064



DR01X1__: Residu/Tracking($\neq 60$), 10×10 , [44, 66, 88, 110, 132] $\times 10$

Entries 108008

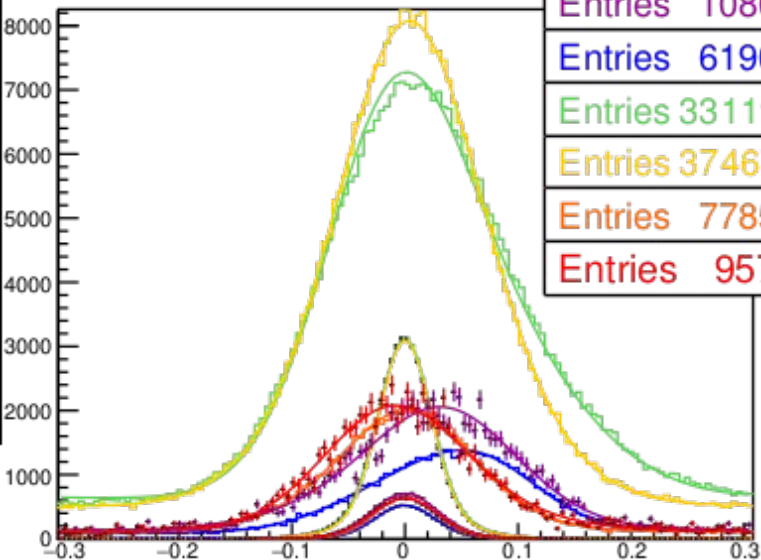
Entries 619080

Entries 3311932

Entries 3746750

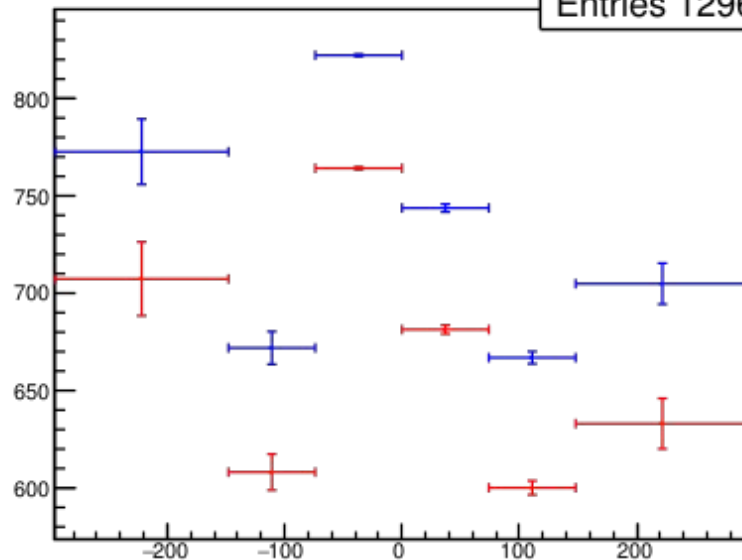
Entries 778560

Entries 95734



DR01X1__: Resolution vs u

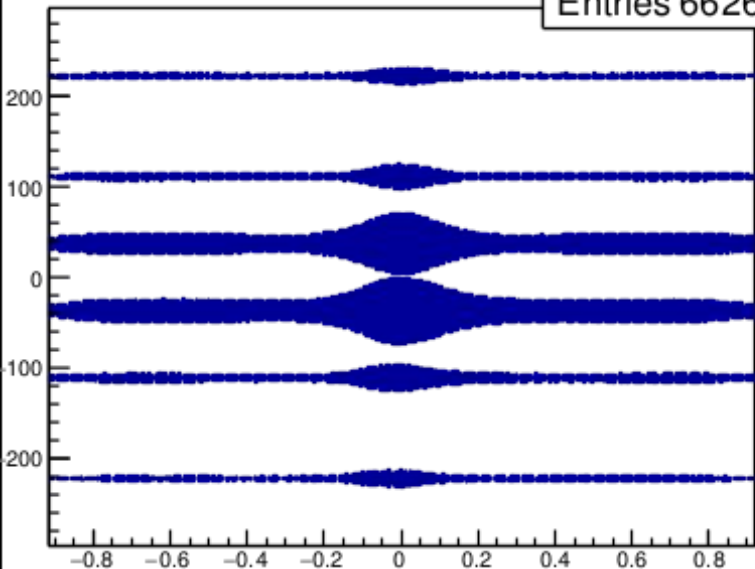
Entries 1296989



DR01X1 - 0x20a01 - #285330

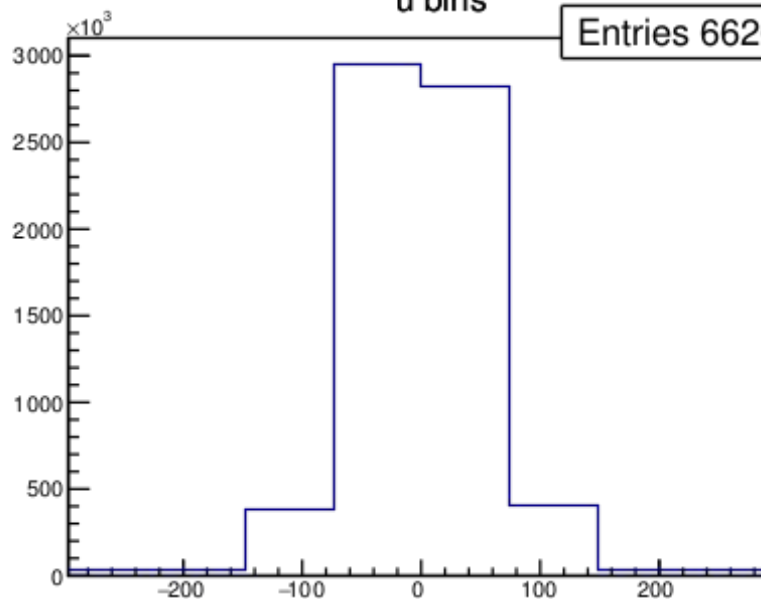
DR01X1__: Residuals in bins of u(cm)

Entries 6626730



u bins

Entries 6626730



DR01X1__: Residu/Tracking(=60), [0 x 10, [44, [66, [88, [110, [132 x 10

Entries 36854

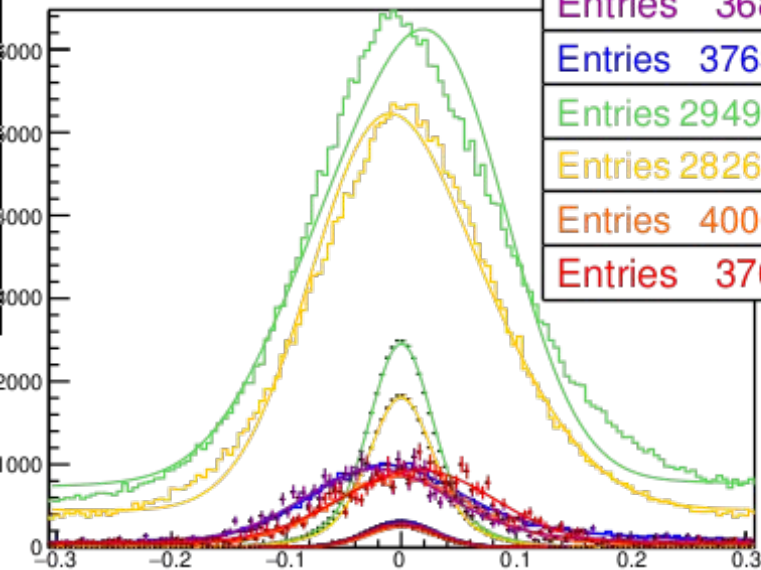
Entries 376350

Entries 2949792

Entries 2826064

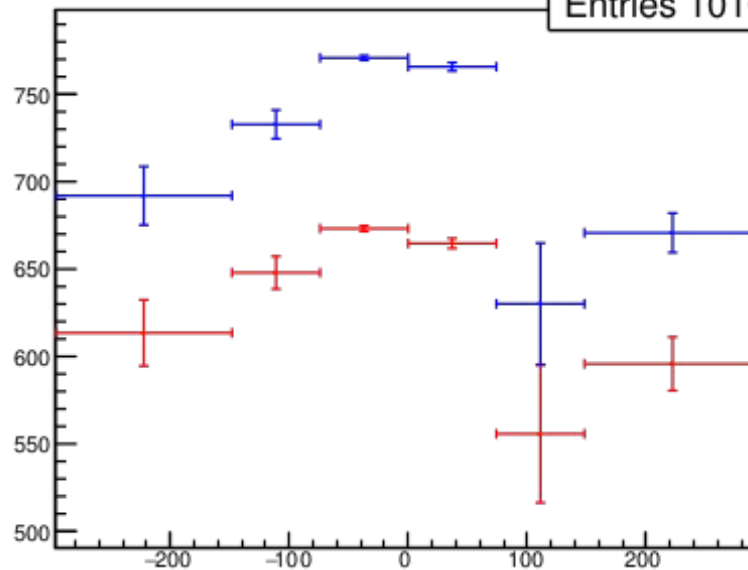
Entries 400662

Entries 37008



DR01X1__: Resolution vs u

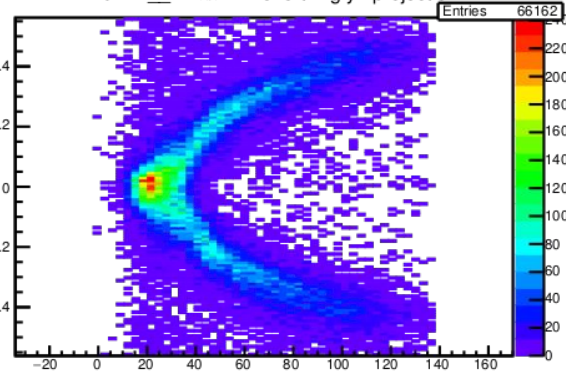
Entries 1010383



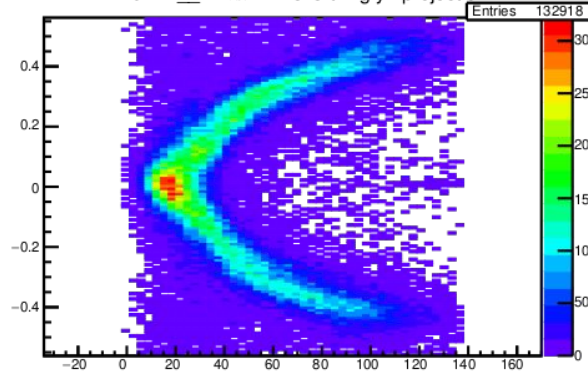
example of one plane of DR in 2018

DR's RT in 2015

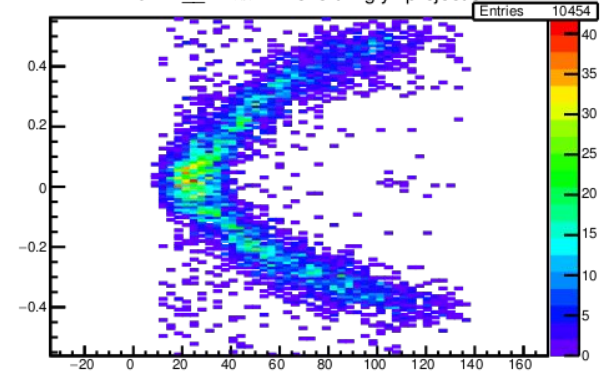
DR01Y2__: R vs. T in 3x3 tiling yx projection



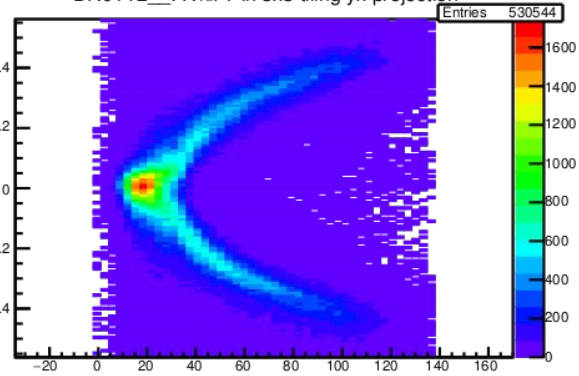
DR01Y2__: R vs. T in 3x3 tiling yx projection



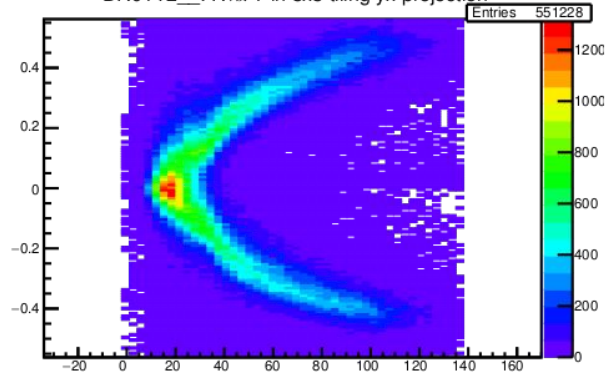
DR01Y2__: R vs. T in 3x3 tiling yx projection



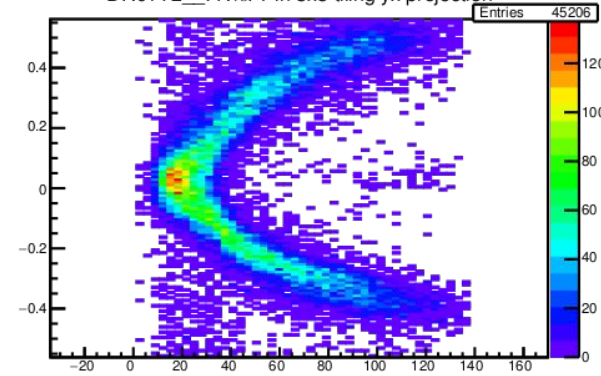
DR01Y2__: R vs. T in 3x3 tiling yx projection



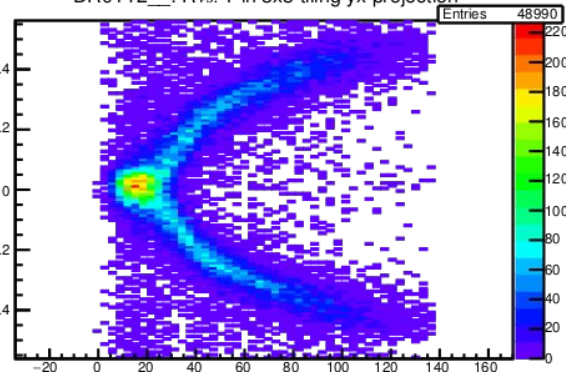
DR01Y2__: R vs. T in 3x3 tiling yx projection



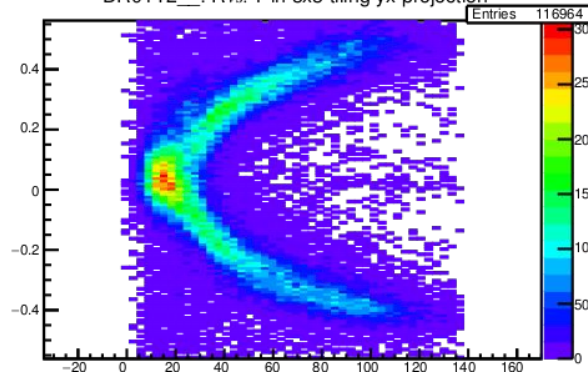
DR01Y2__: R vs. T in 3x3 tiling yx projection



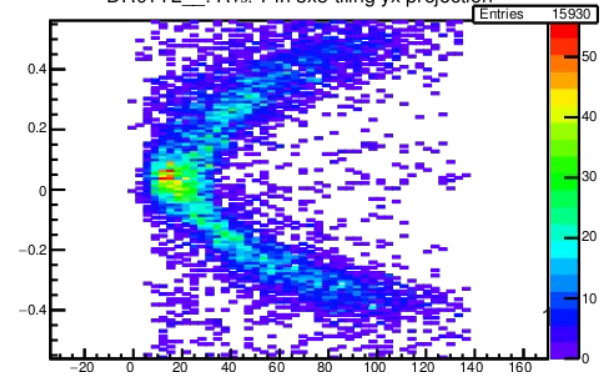
DR01Y2__: R vs. T in 3x3 tiling yx projection



DR01Y2__: R vs. T in 3x3 tiling yx projection



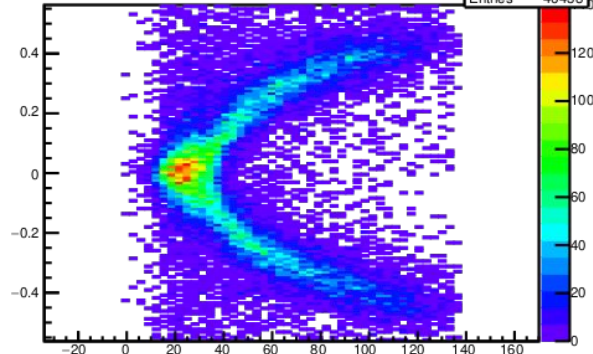
DR01Y2__: R vs. T in 3x3 tiling yx projection



DR's RT in 2018

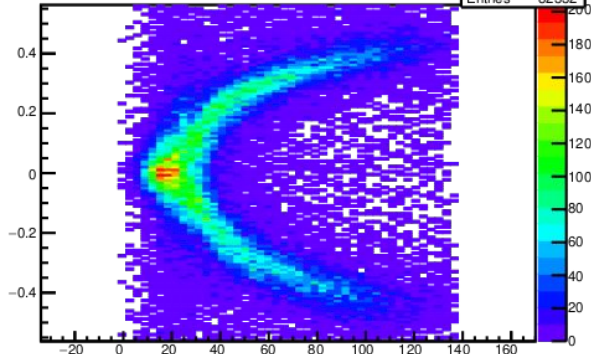
DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 46438



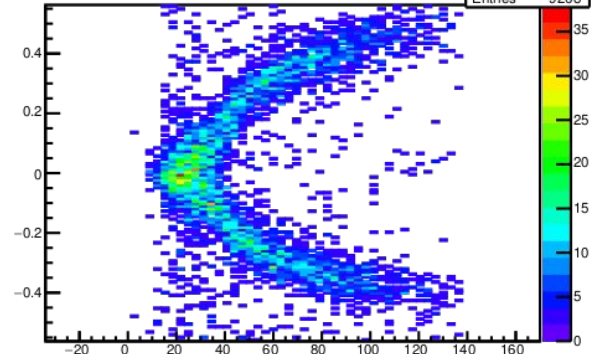
DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 82332



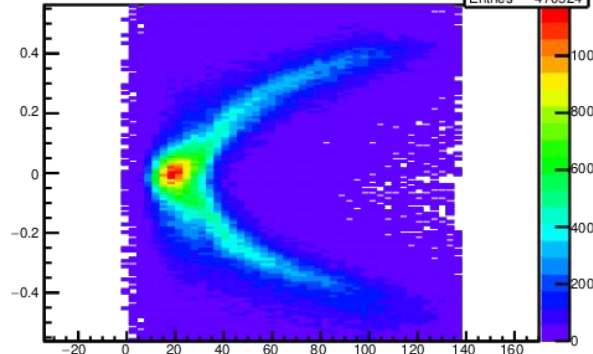
DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 9268



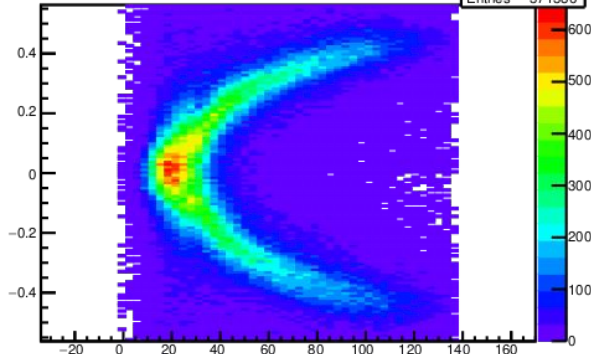
DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 470524



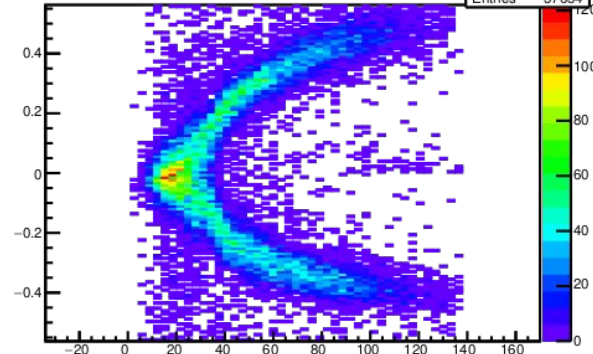
DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 371386



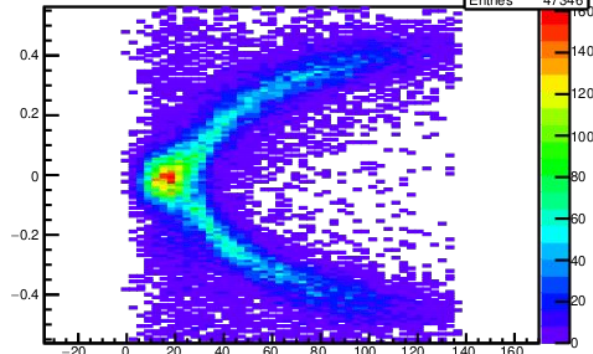
DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 37634



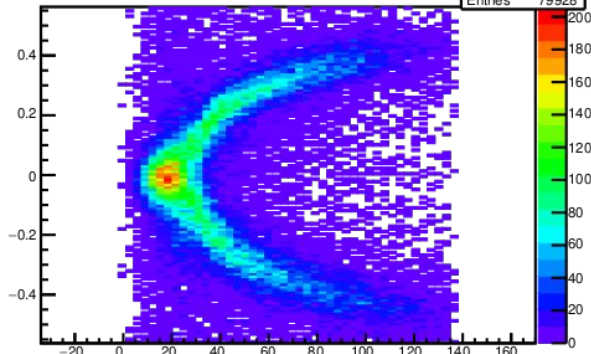
DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 47346



DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 79928



DR02Y2__: R vs. T in 3x3 tiling yx projection

Entries 6180

