Global alignment update

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29. November 2023

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config for CFrame tests

Reminder: starting from V9 positions

full VELO: RxRz, VELO halves: TxTyTz

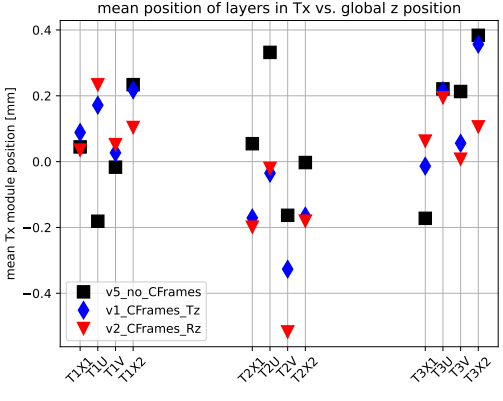
FTCFrames(dofs shown in plots)

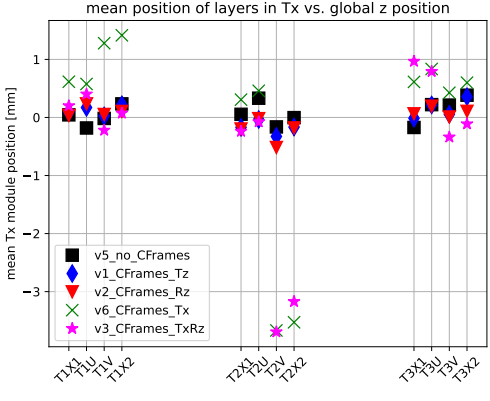
FTModules: TxRz

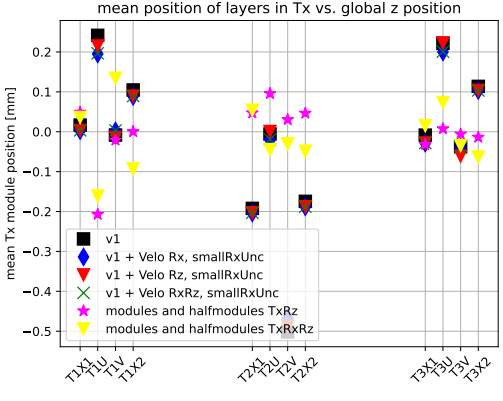
FTHalfModules: Rx

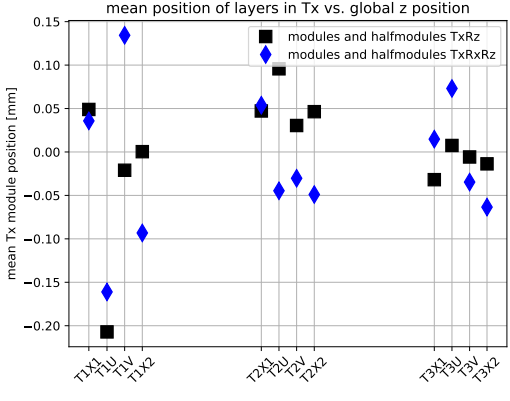
usual VELO survey, used CFrame survey from Miguel + joint constraints

fixing backframes in FT/T3 in Tx Rz


mean position of layers in Tx vs. global z position
mean Tx module position [mm]
0.4
0.2
0.0
−0.2
−0.4
v5_no_CFrames
v1_CFrames_Tz
v2_CFrames_Rz
T1X1
T1U
T1V
T1X2
T2X1
T2U
T2V
T2X2
T3X1
T3U
T3V
T3X2


mean position of layers in Tx vs. global z position
mean Tx module position [mm]
1
0
−1
−2
−3
v5_no_CFrames
v1_CFrames_Tz
v2_CFrames_Rz
v6_CFrames_Tx
v3_CFrames_TxRz
T1X1
T1U
T1V
T1X2
T2X1
T2U
T2V
T2X2
T3X1
T3U
T3V
T3X2


mean position of layers in Tx vs. global z position
mean Tx module position [mm]
0.2
0.1
0.0
−0.1
−0.2
−0.3
−0.4
−0.5
v1
v1 + Velo Rx, smallRxUnc
v1 + Velo Rz, smallRxUnc
v1 + Velo RxRz, smallRxUnc
modules and halfmodules TxRz
modules and halfmodules TxRxRz
T1X1
T1U
T1V
T1X2
T2X1
T2U
T2V
T2X2
T3X1
T3U
T3V
T3X2


mean position of layers in Tx vs. global z position
mean Tx module position [mm]
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
−0.20
modules and halfmodules TxRz
modules and halfmodules TxRxRz
T1X1
T1U
T1V
T1X2
T2X1
T2U
T2V
T2X2
T3X1
T3U
T3V
T3X2

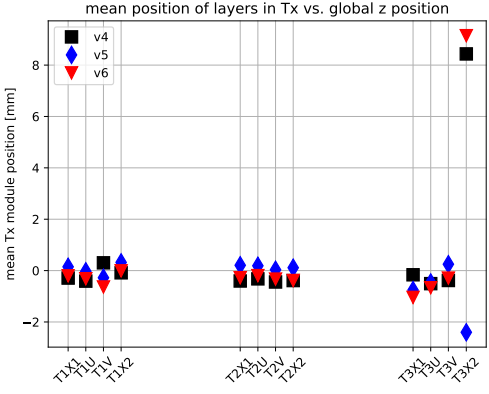
CFrame tests:

- running on 500k events: still got a lot of alignables with insufficient statistics in every config except for v2
- using Tx for CFrames and for Modules quite bad -> modules combined for one side are the CFrame so they try to move the same object
- all configs except v2 get insufficient statistics after several iterations

Modules + HalfModules together, no CFrame:

- mean module movement is quite small but not optimal

long tracks + backwards tracks



v4: Modules + HalfModules: TxTzRxRz

v5: Modules + HalfModules: TxRz

v6: Modules + HalfModules: TxRxRz

no convergence after a lot of iterations (> 15)

T3X2