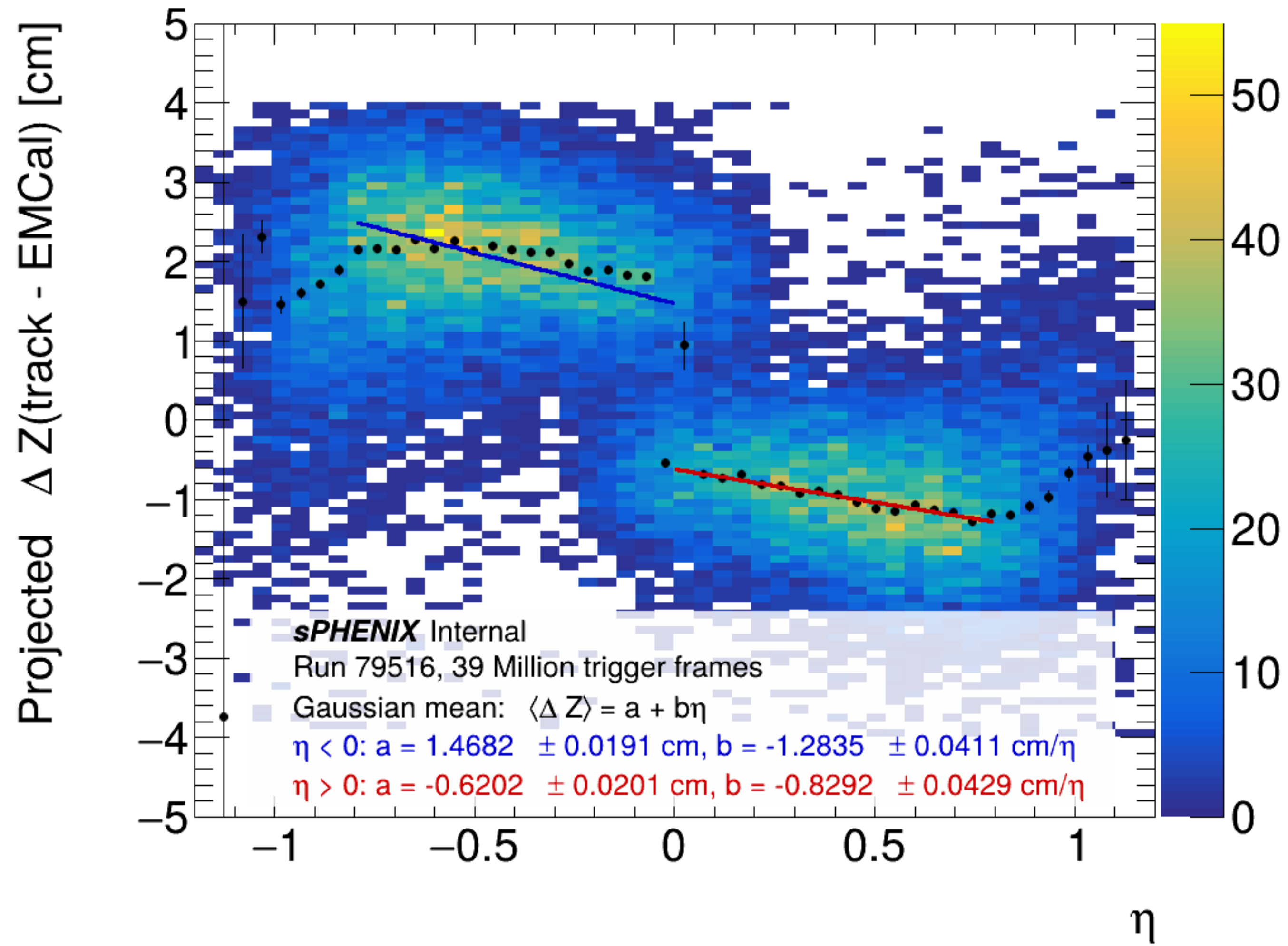


Drift velocity & t_0 in poly seeding

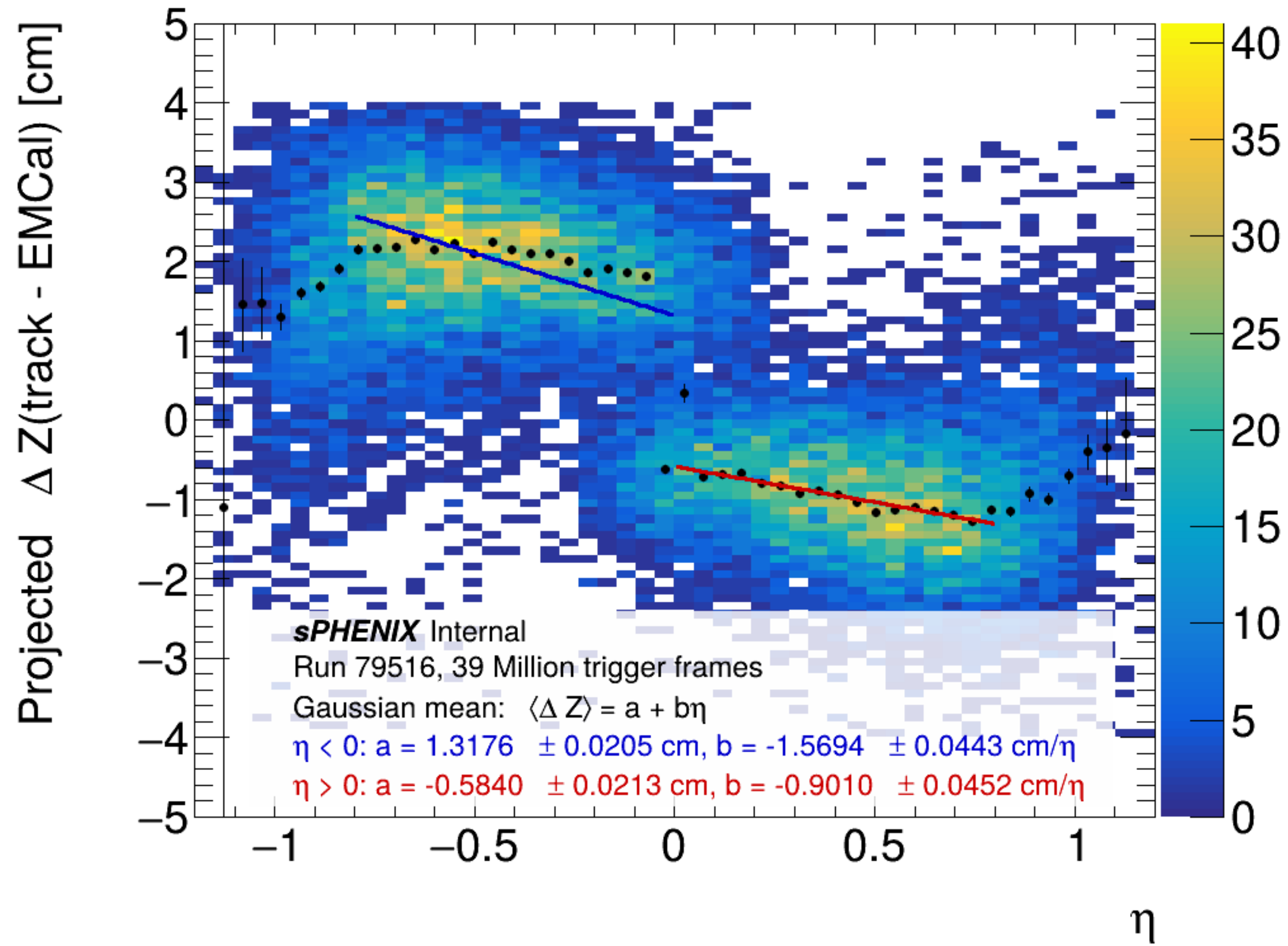
Xudong Yu

08/25/2026

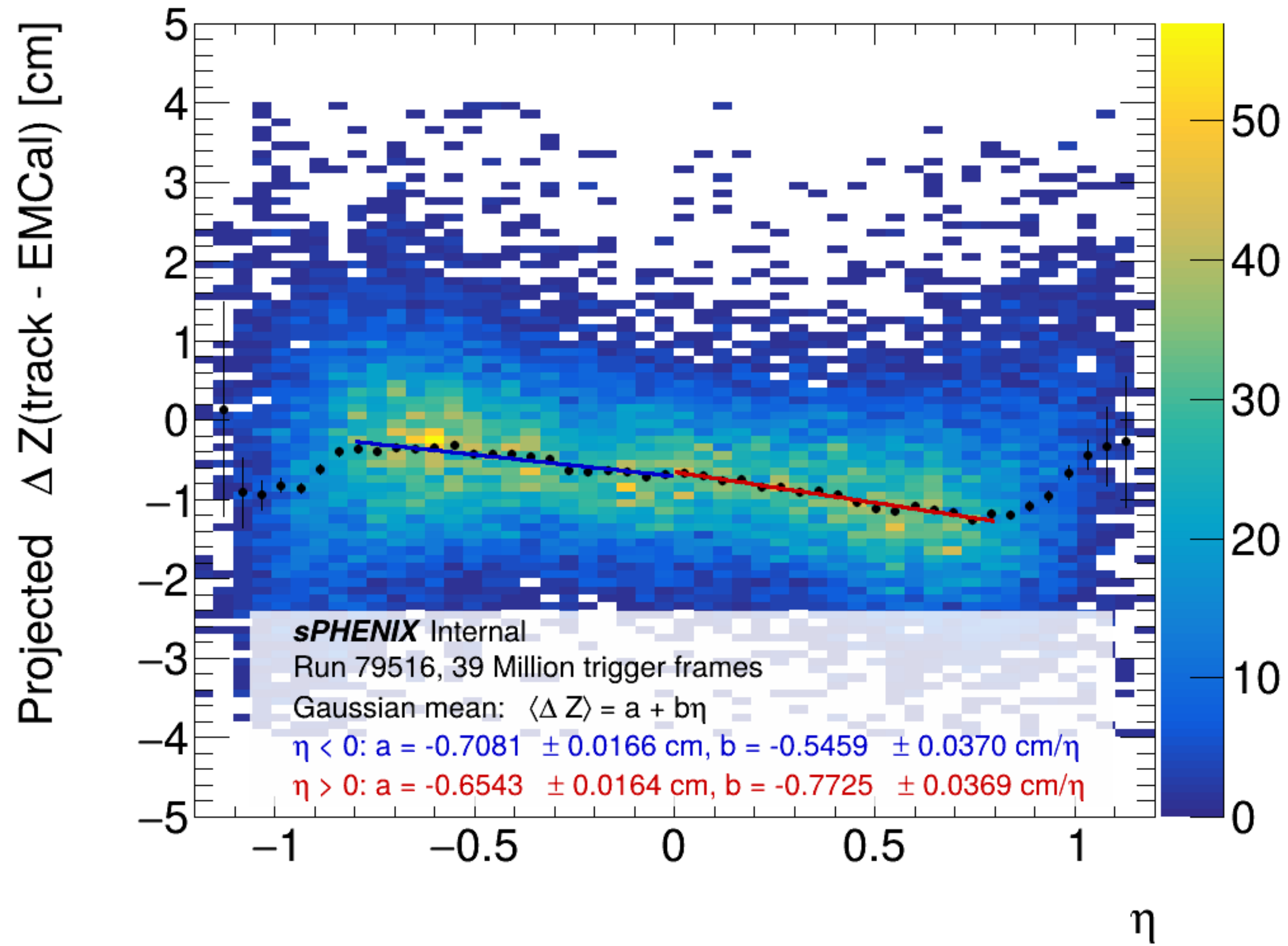
No zshift fix in south side (PR4390), sampa_tzero_bias=0, CMVoltage=380 (default)



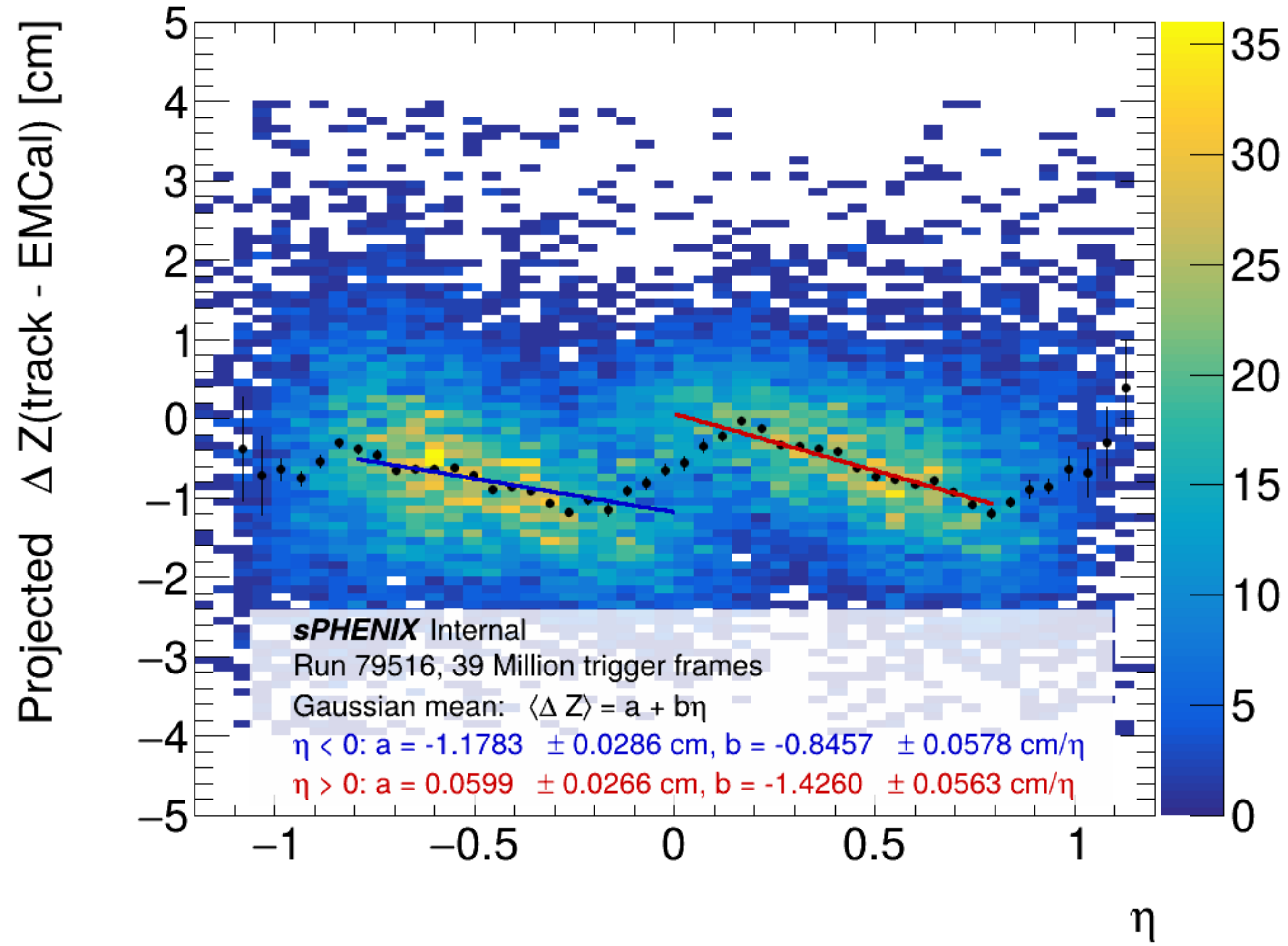
With zshift fix in south side (PR4390), sampa_tzero_bias=0, CMVoltage=380 (default)



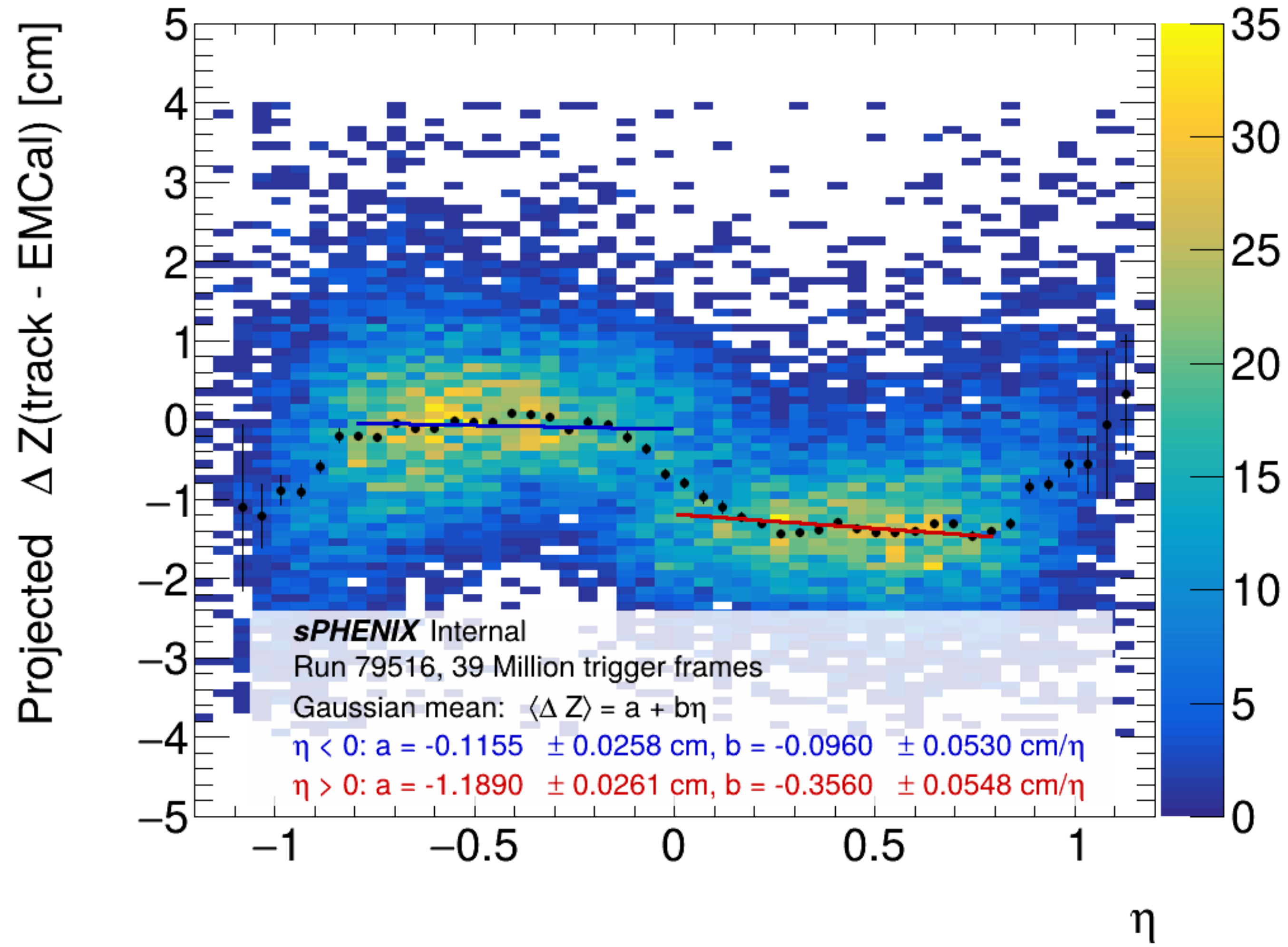
With zshift fix in south side (PR4390), sampa_tzero_bias=-65, CMVoltage=380 (default)



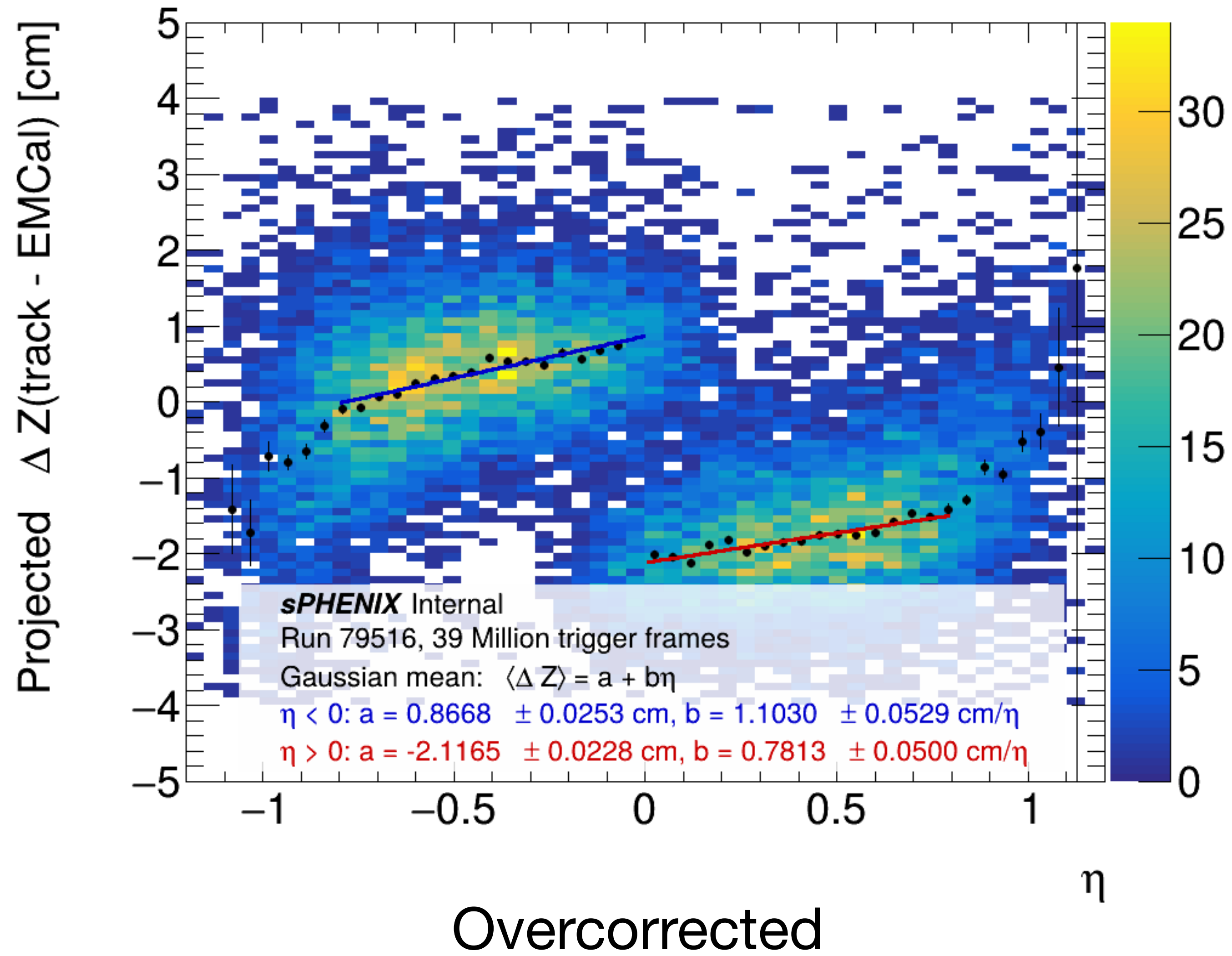
With zshift fix in south side (PR4390), sampa_tzero_bias=-65, CMVoltage=375



With zshift fix in south side (PR4390), sampa_tzero_bias=-65, CMVoltage=385



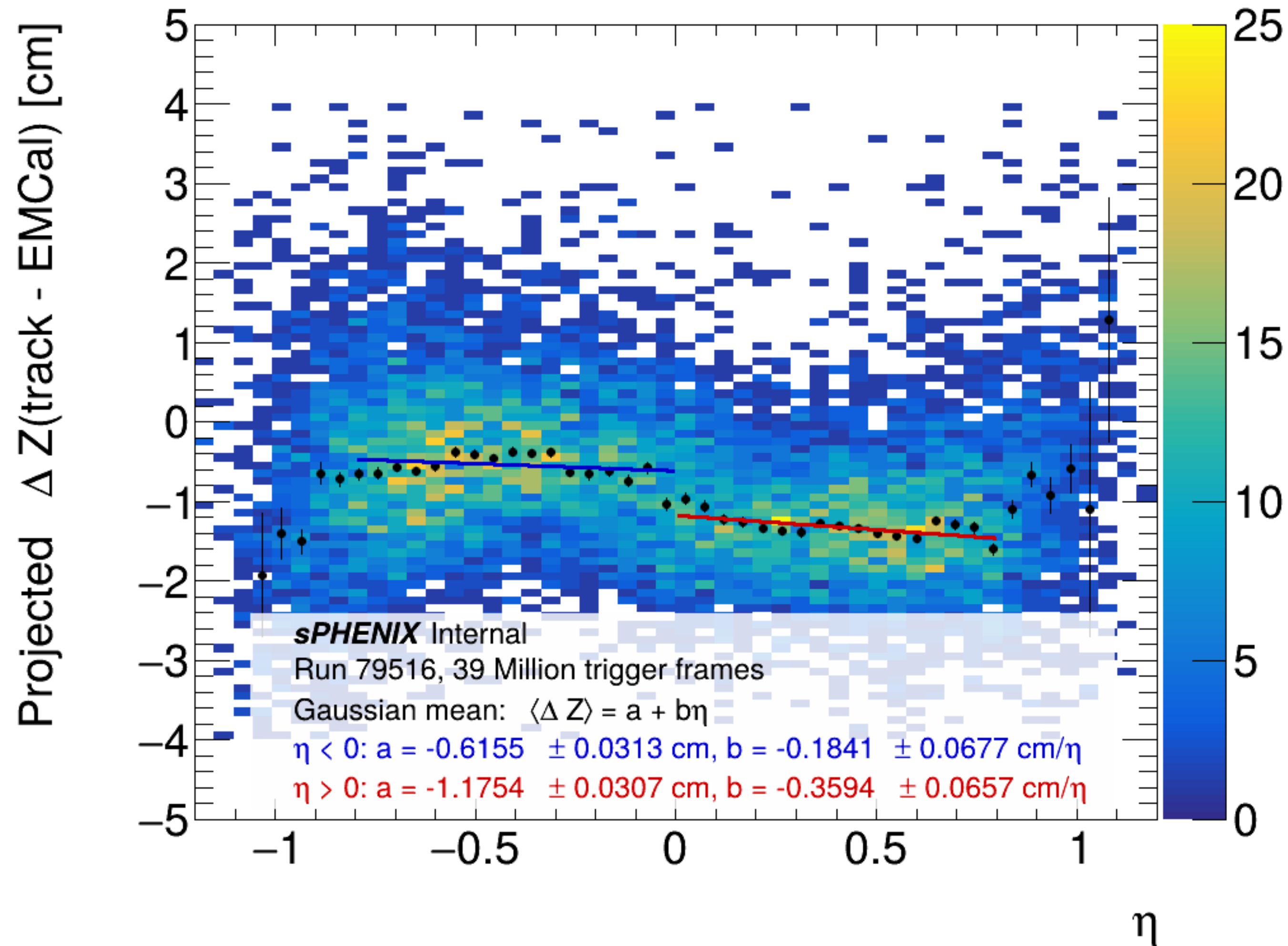
With zshift fix in south side (PR4390), sampa_tzero_bias=-65, CMVoltage=390



Drift time in poly seeding

- TpcPolyClusterTrkrClusterConverter::localFromMovedGlobal
 - South, side 0: $t_{\text{stored}} = t_{\text{uncorrected}} - t_{\text{pc_tzero}} + 2 * s_{\text{ampa_bias}}$;
 - North, side 1: $t_{\text{stored}} = t_{\text{uncorrected}} - t_{\text{pc_tzero}} - s_{\text{ampa_bias}}$;
- ActsGeometry::getLocalCoords
 - $t_{\text{corrected}} = t_{\text{stored}} + t_{\text{pc_tzero}} + s_{\text{ampa_bias}} - \text{crossing_correction}$;
- Final corrected drift time
 - South, side 0: $t_{\text{corrected}} = t_{\text{uncorrected}} + 3 * s_{\text{ampa_bias}} - \text{crossing_correction}$
 - North, side 1: $t_{\text{corrected}} = t_{\text{uncorrected}} - \text{crossing_correction}$
- Corrections for sampa_bias
 - $\Delta\text{-sampa_bias} = (l_{\text{south}} - l_{\text{north}}) / (3 * v_d) = 0.26 \text{ cm} / (3 * 0.007397 \text{ cm/ns}) = -11.7 \text{ ns}$
 - $s_{\text{ampa_bias_new}} = -65 - 11.7 = -76.7 \rightarrow \text{try } -77$

With zshift fix in south side (PR4390), sampa_tzero_bias=-77, CMVoltage=385



Next step: try sampa_tzero_bias=-100

Backup

Conversion photon offline reconstruction cuts

- `const TCut track_pt_cut = "track_1_pT>0.5 && track_2_pT>0.5";`
- `const TCut emcal_e_cut = "track_1_EMCAL_energy_cluster>0.5 && track_2_EMCAL_energy_cluster>0.5";`
- `const TString wrapped_delta_phi = "atan2(sin(track_1_phi-track_2_phi),cos(track_1_phi-track_2_phi))";`
- `const TCut angular_conversion_cut = Form("fabs(track_1_pseudorapidity-track_2_pseudorapidity)<0.05 && fabs(%s)<0.02", wrapped_delta_phi.Data());`
- `const TCut mass_cut = "gamma_mass<0.05";`
- `const TCut radius_cut = "sqrt(gamma_x*gamma_x+gamma_y*gamma_y)>0.5 && sqrt(gamma_x*gamma_x+gamma_y*gamma_y)<30";`
- `const TCut eop_cut = "track_1_EMCAL_energy_cluster/track_1_pT>0.4 && track_1_EMCAL_energy_cluster/track_1_pT<1.6 && track_2_EMCAL_energy_cluster/track_2_pT>0.4 && track_2_EMCAL_energy_cluster/track_2_pT<1.6";`

▼ ...ctrackreco/TpcPolyClusterTrkrClusterConverter.cc

+4 -1



Viewed



@@ -251,7 +251,10 @@ bool TpcPolyClusterTrkrClusterConverter::localFromMovedGlobal(const Tpc_PolyClus

```
251 251         local.y() + static_cast<double>(crossing) * z_bunch_separation :
252 252         local.y() - static_cast<double>(crossing) * z_bunch_separation;
253 253         const double tuncorrected = (side == 0) ? (zloc_uncorrected + half_drift) / drift_velocity : (half_drift
- zloc_uncorrected) / drift_velocity;
254 - const double stored_t_uncorrected = tuncorrected - m_geometry->get_tpc_tzero() - m_geometry-
>get_sampa_tzero_bias();
254 + //const double stored_t_uncorrected = tuncorrected - m_geometry->get_tpc_tzero() - m_geometry-
>get_sampa_tzero_bias();
255 + const double stored_t_uncorrected = (side == 0) ?
256 +     tuncorrected - m_geometry->get_tpc_tzero() + 2 * m_geometry->get_sampa_tzero_bias() :
257 +     tuncorrected - m_geometry->get_tpc_tzero() - m_geometry->get_sampa_tzero_bias();
255 258         if (!std::isfinite(stored_t_uncorrected)) { return false;
256 259     }
257 260
```



