



# Hybrid Tracker Redesign

M. Posik, Nick Lukow  
for eRD6

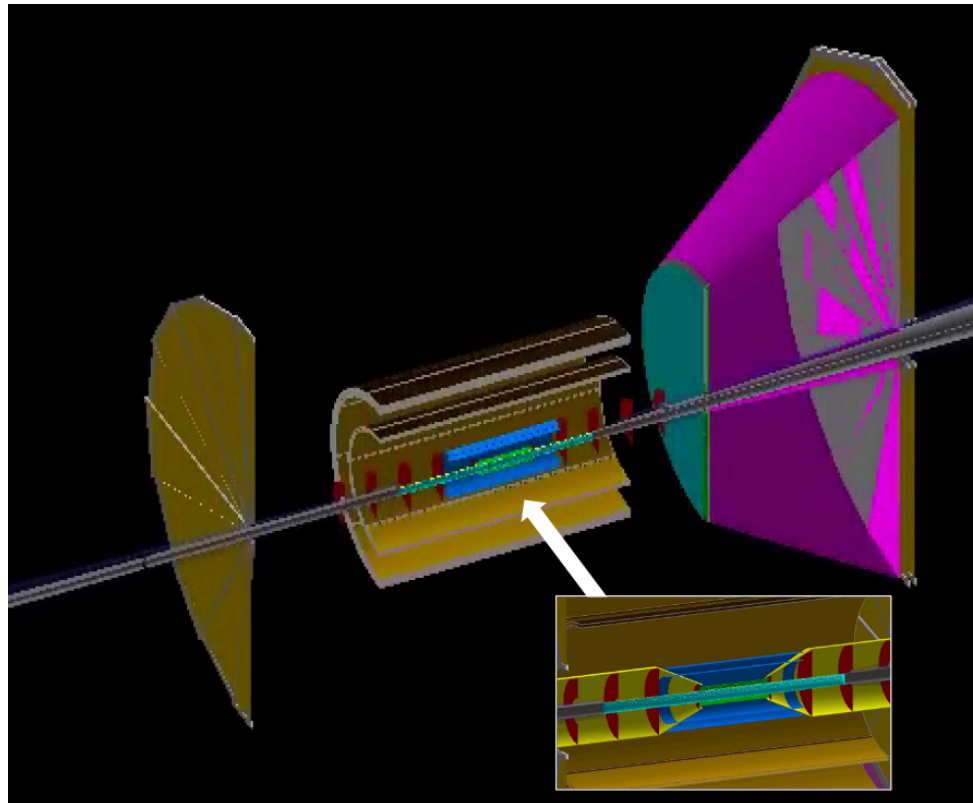
Integration Meeting  
August 18<sup>th</sup> , 2021

## Original Hybrid (Baseline+)

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- No proper support materials
- Added ad-hoc pseudo Si support material in Fun4All simulations
  - More realistic than floating detector
  - Has obvious issues

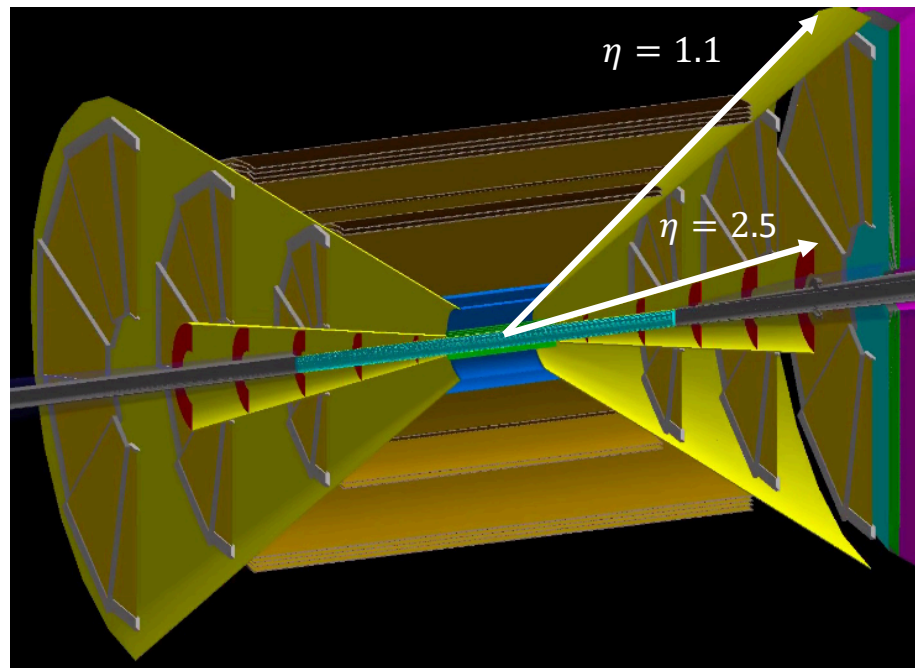


**Slides and plots taken from Nick Lukow (eRD6): [Tracking WG Meeting 8/17](#)**

## New Projective Hybrid



- Designed to be projective
- Include conical support/services
- Minimize material over  $\eta$ 
  - Have conical structures projective along  $\eta = 1.1$  and 2.5

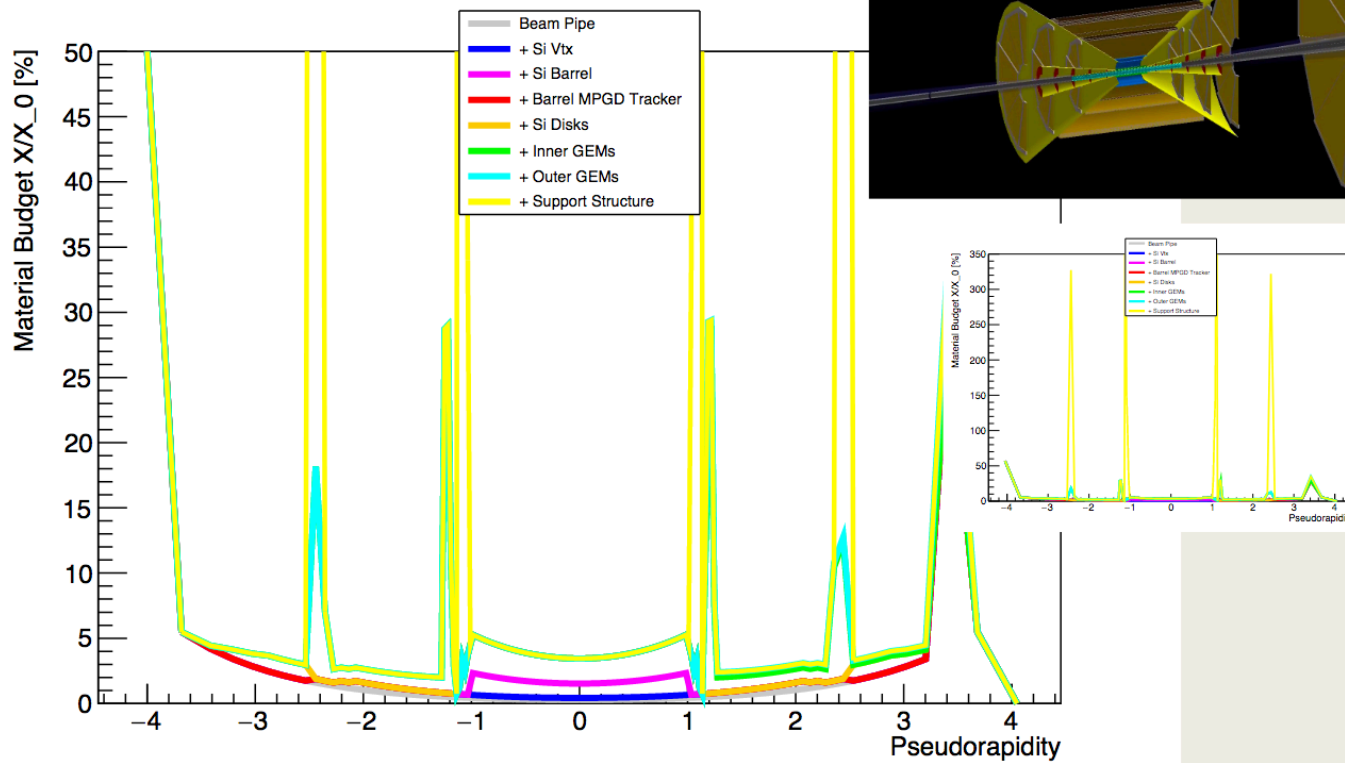


One GEM layer behind the dRICH  
(not shown)

# New Projective Hybrid: Material Scan

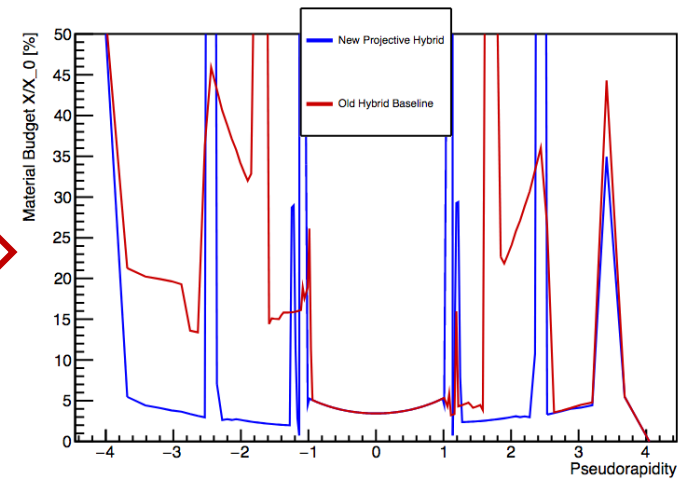
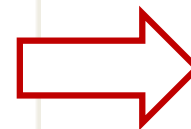
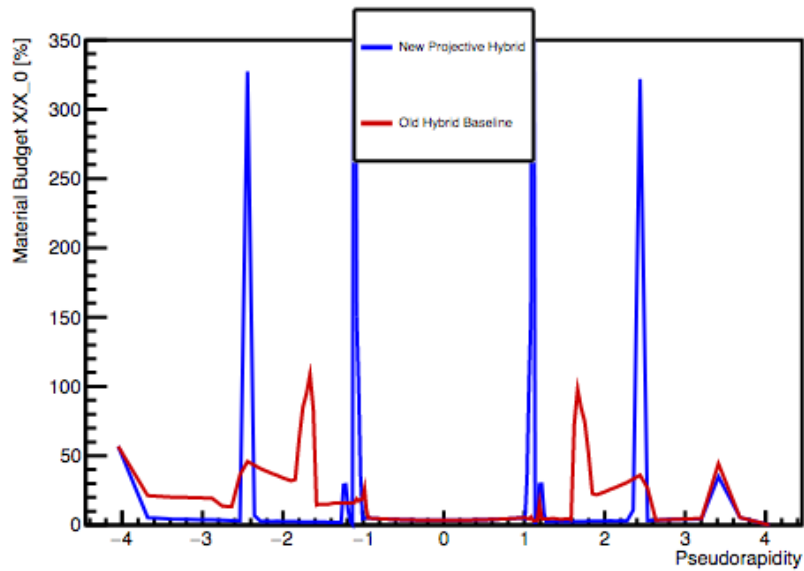
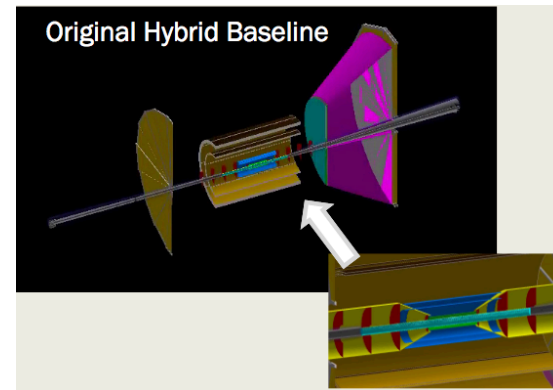
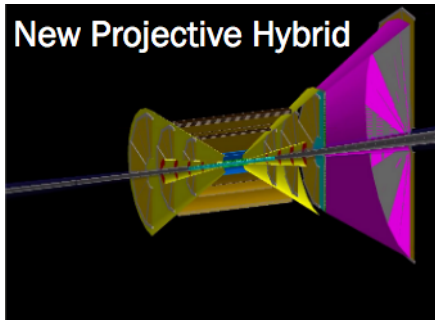


## Stacked Material Scan

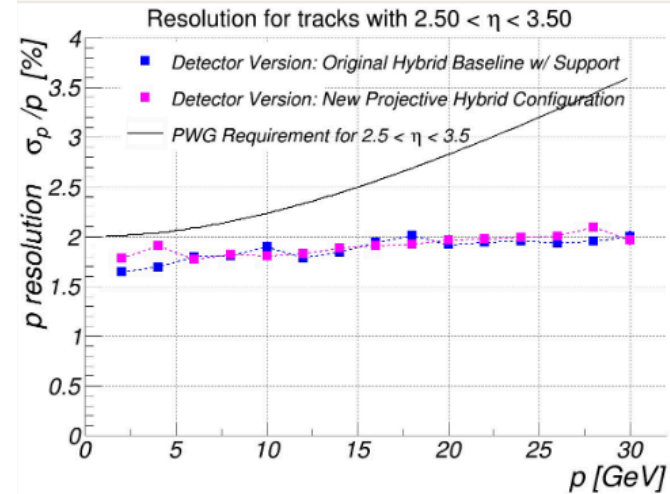
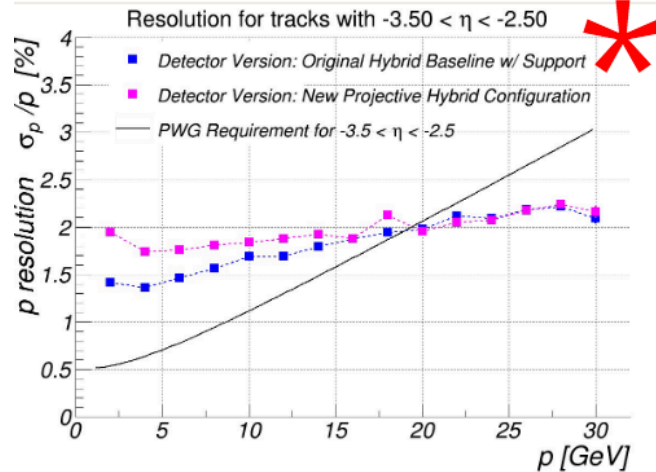
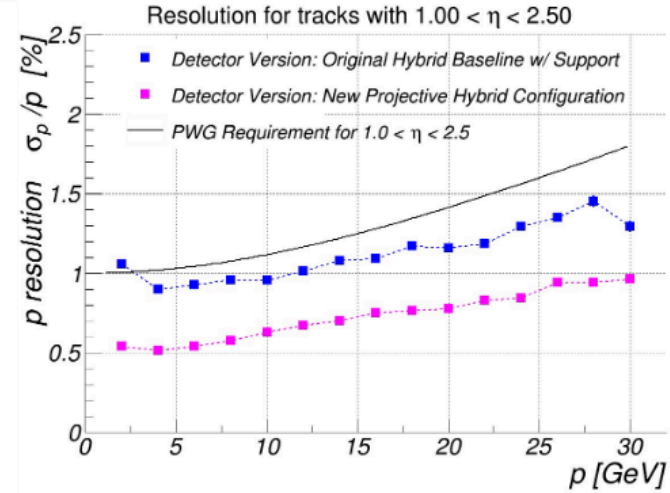
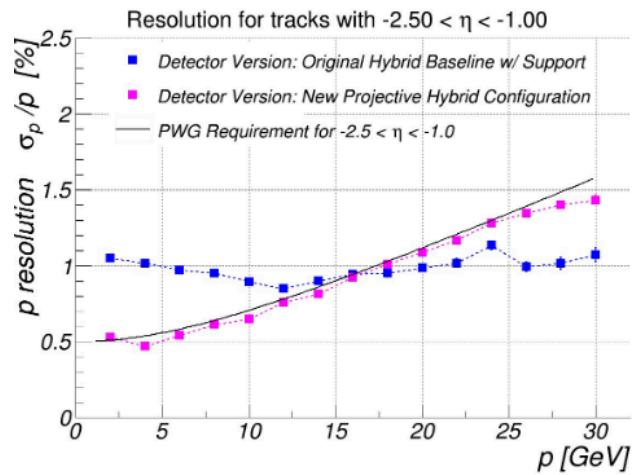


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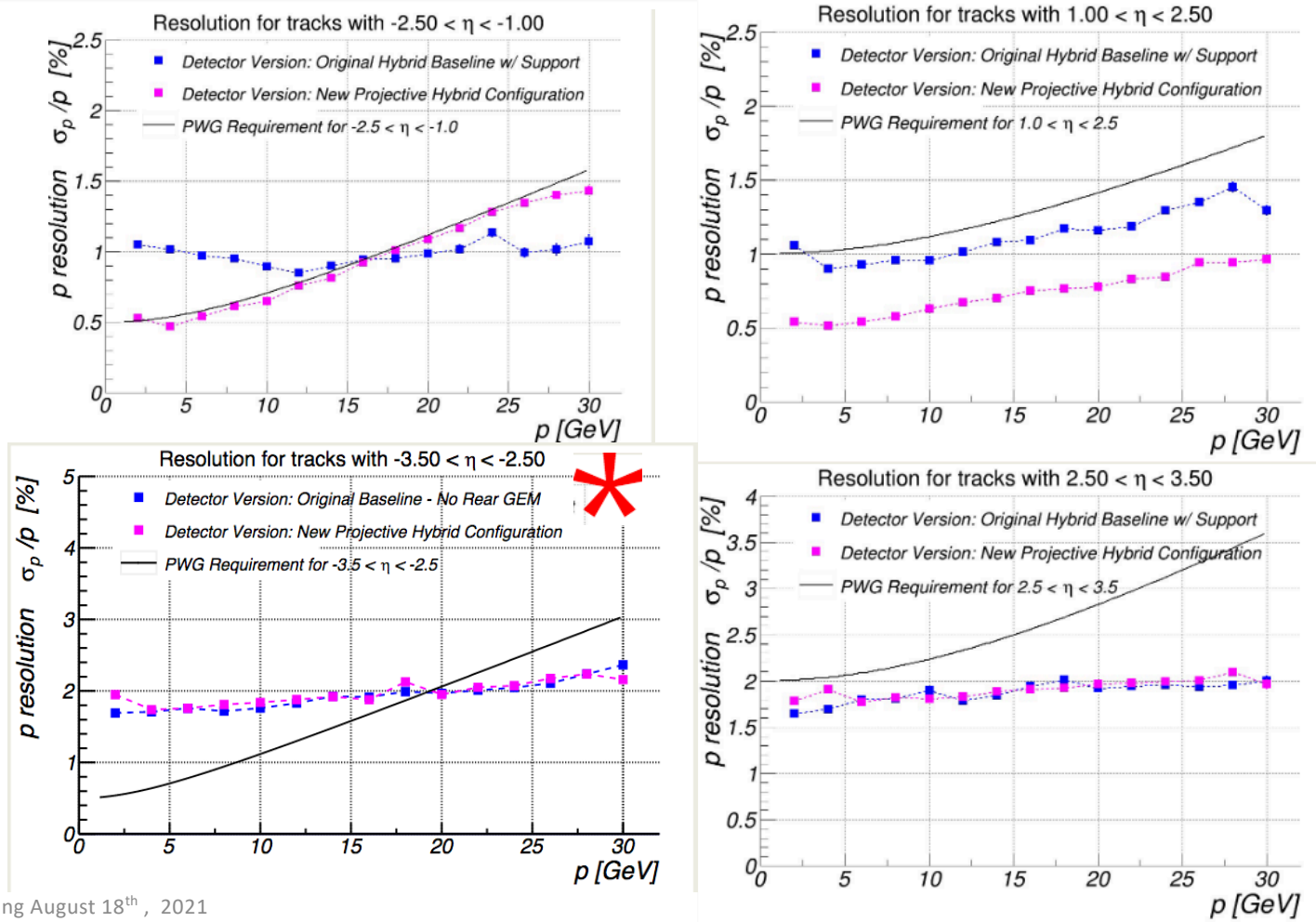
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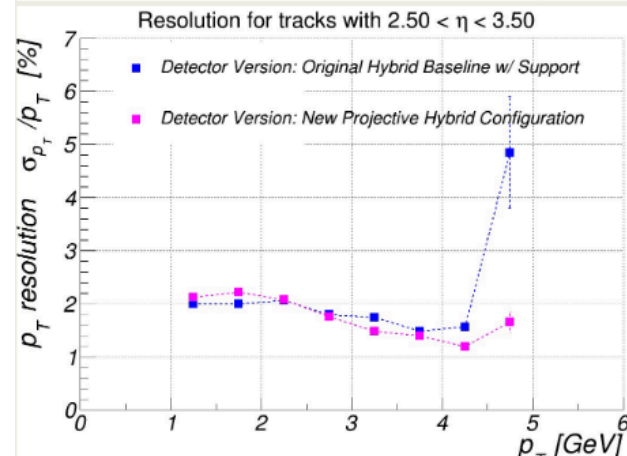
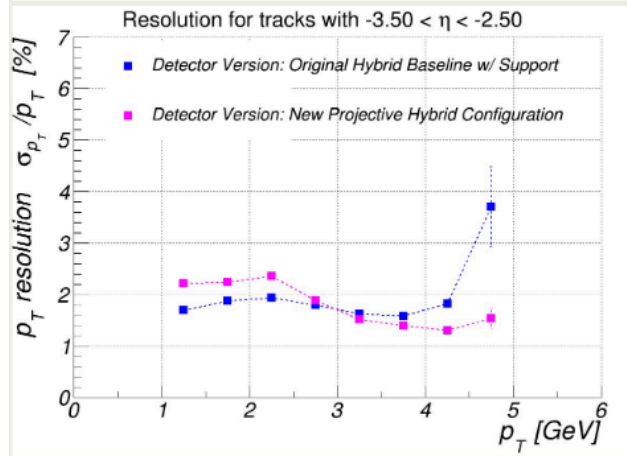
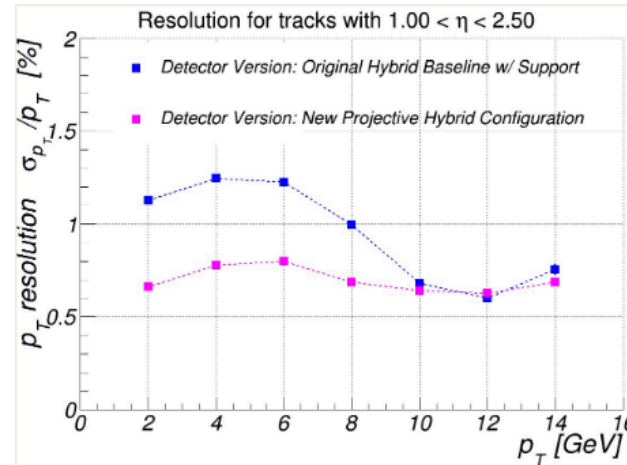
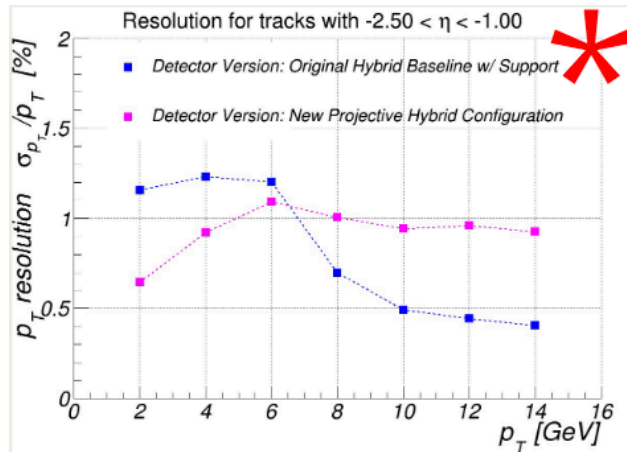
# New Projective Hybrid Performance: Momentum Resolution



# New Projective Hybrid Performance: Momentum Resolution

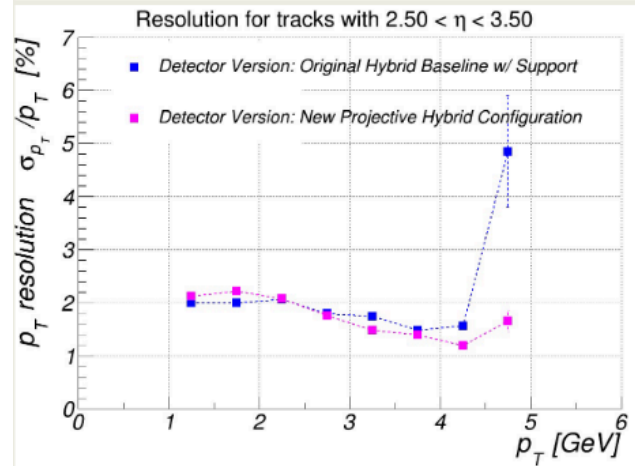
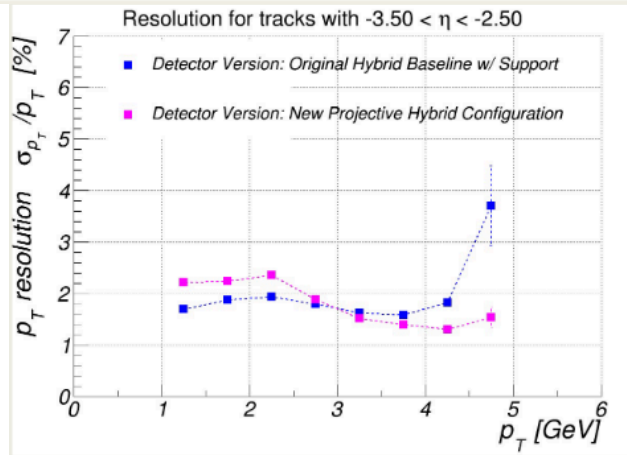
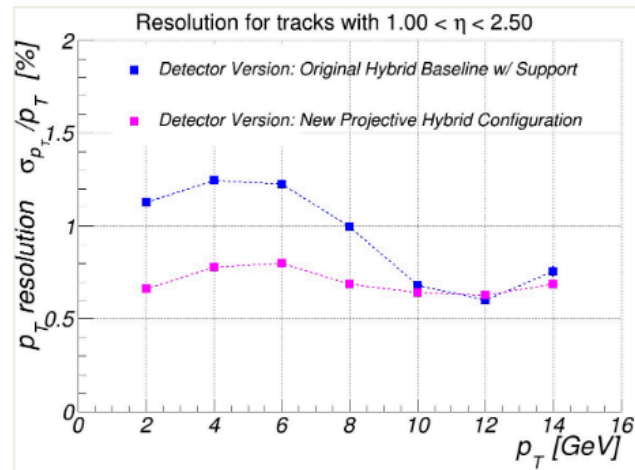
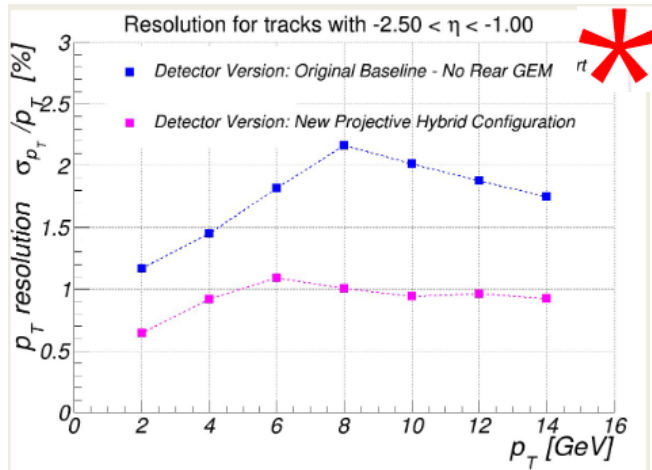


# New Projective Hybrid Performance: Transverse Momentum Resolution

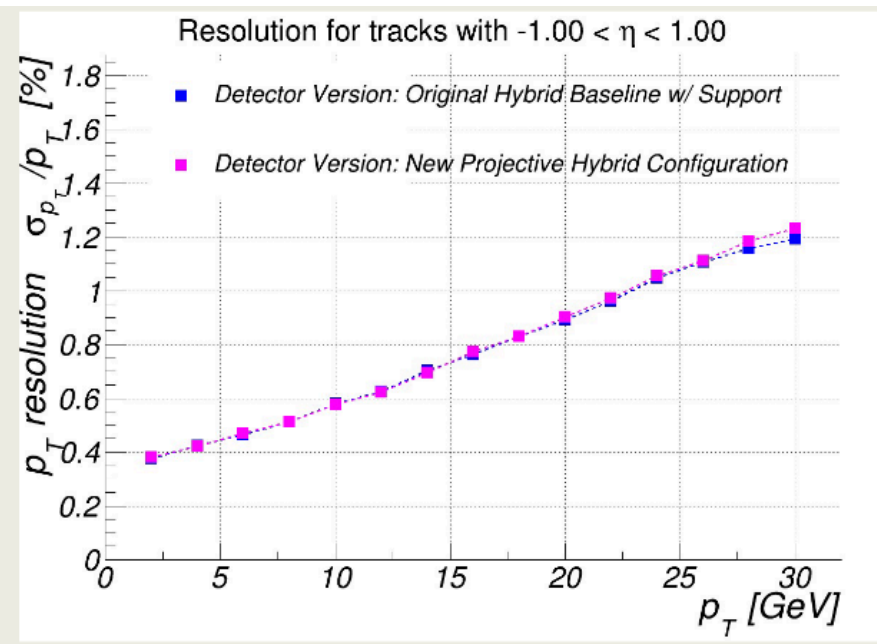
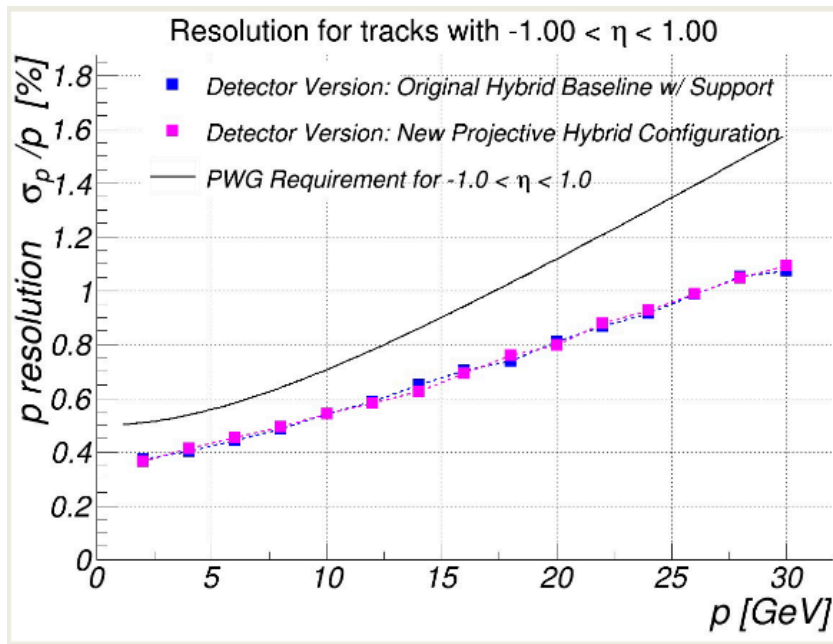




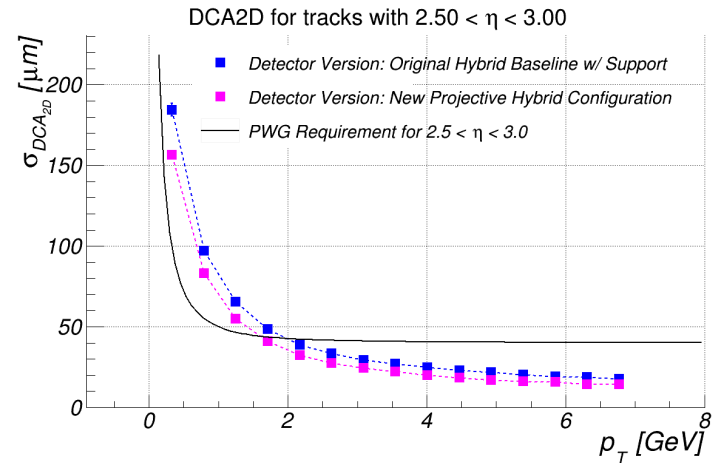
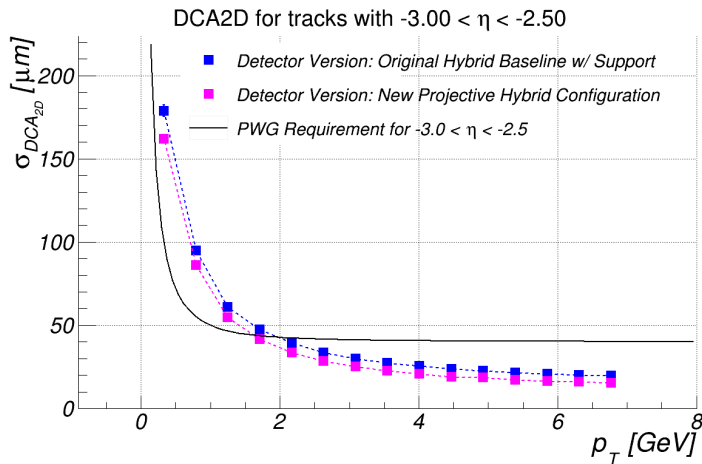
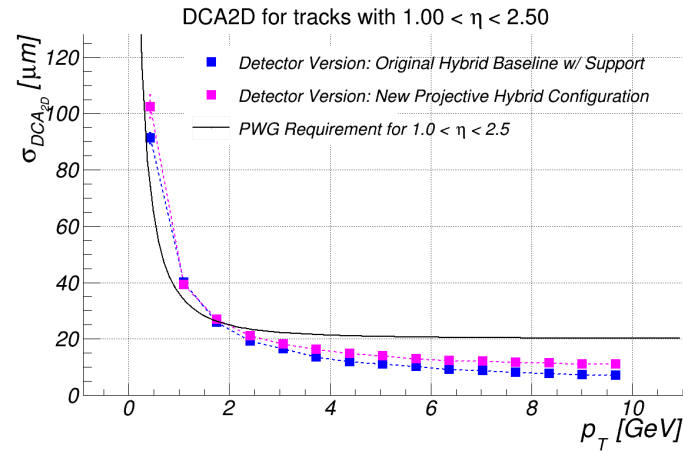
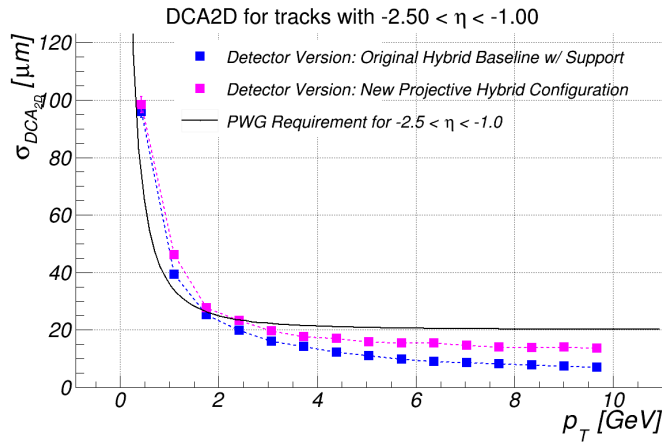
# New Projective Hybrid Performance: Transverse Momentum Resolution



# New Projective Hybrid Performance: Central Region $p$ and $p_T$



# New Projective Hybrid Performance: Tansverse DCA



## Summary

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- Material has been minimized over eta range
- Redesigned hybrid performs better or comparable to old hybrid configuration
- Purpose to replace old hybrid configuration with new one and make this new configuration the Baseline+
  - Will update wiki page today