

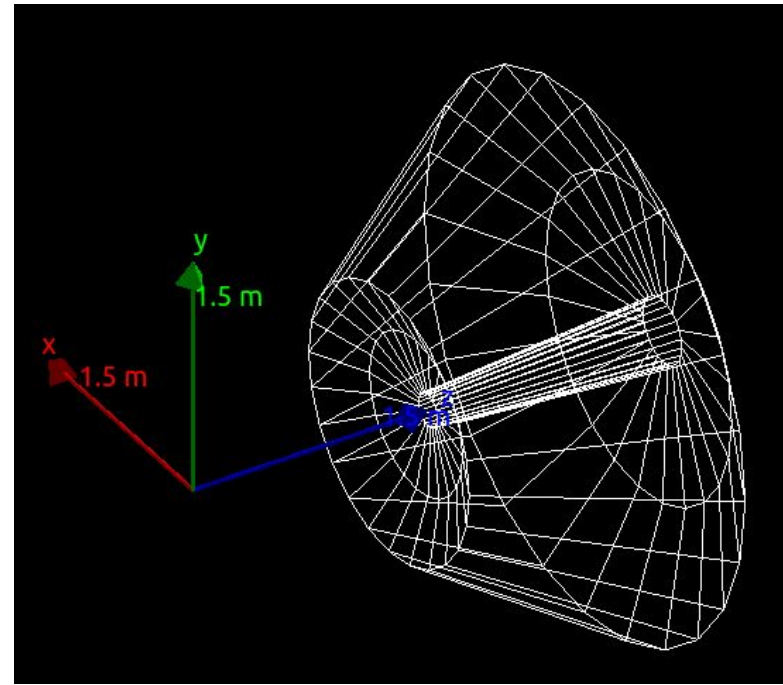
First look at IP6 field maps with a simple Geant4 model

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EIC_NET Monte Carlo
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Updates to the model

- **C2F6 refractive index for the radiator**
 - with chromatic dispersion
 - realistic C_2F_6 material
- **spherical mirror with perfect reflection**
 - $R = 300$ cm
- **spherical sensor surface**
 - $R = 150$ cm
- **basically an ideal RICH detector**
- **inverse ray-tracing reconstruction**
 - from HERMES papers
 - fix emission at mid-point of the radiator
 - assumes perfect tracking information
 - namely the actual track position / direction at the emission point

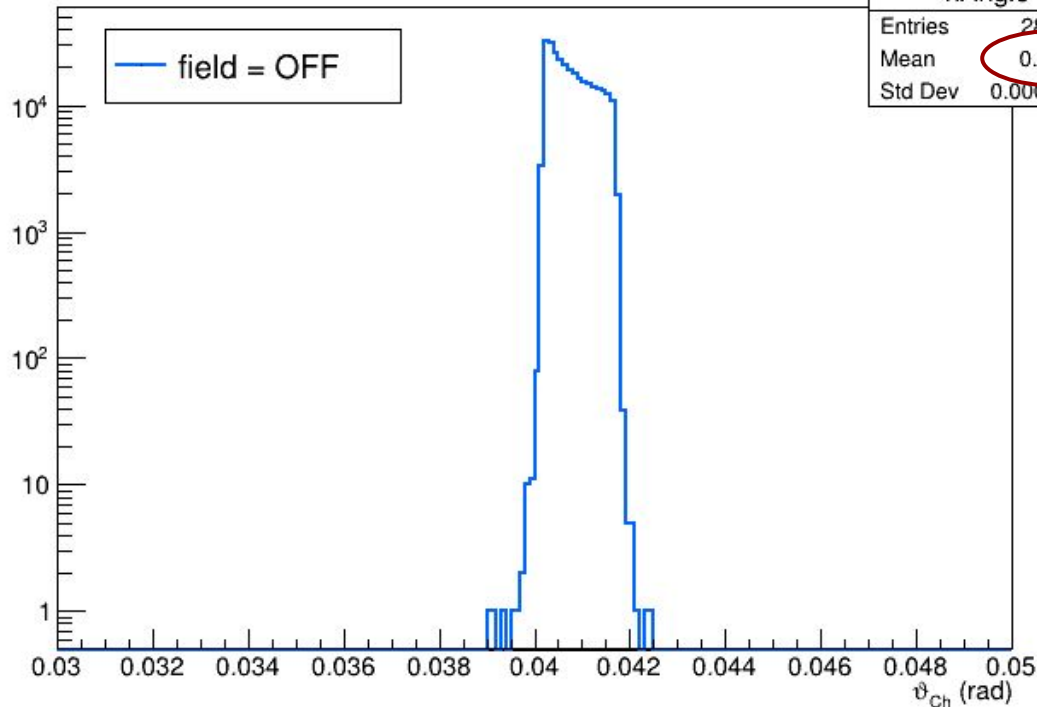


Very preliminary results (beware of bugs)

fixed particle direction / energy
 $\eta = 1.5$ ($\vartheta = 25$ deg)
 $E = 30$ GeV
muons

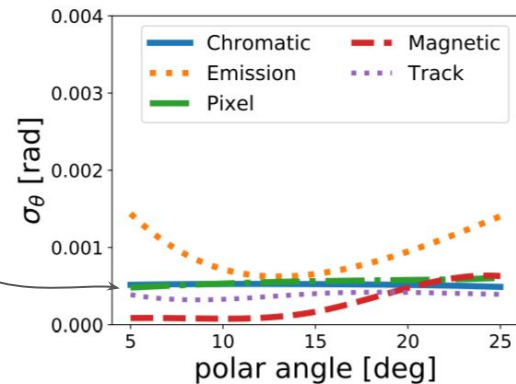
reconstructed Cherenkov angle looks correct

$n(\text{C}_2\text{F}_6) \sim 1.00082-84$



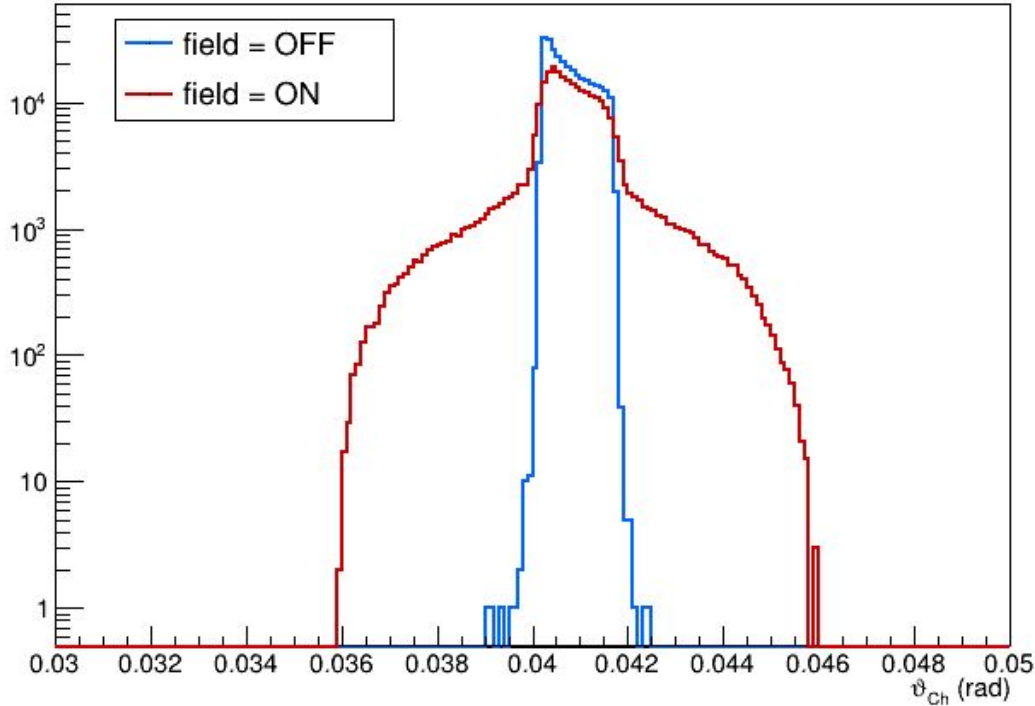
single-photon Cherenkov angle distribution measured via inverse ray-tracing algorithm

spread is due to chromaticity in line with dRICH simulations ~ 0.5 mrad



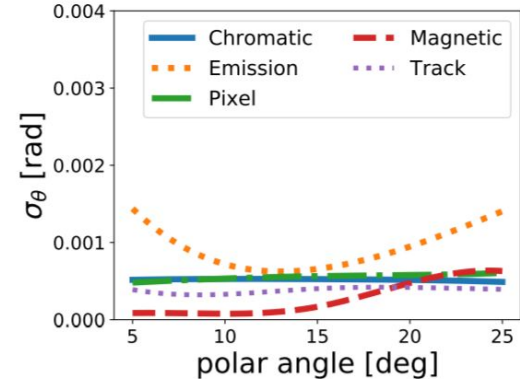
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B field increases StdDev
to 1.1 mrad
 ~ 1 mrad contribution

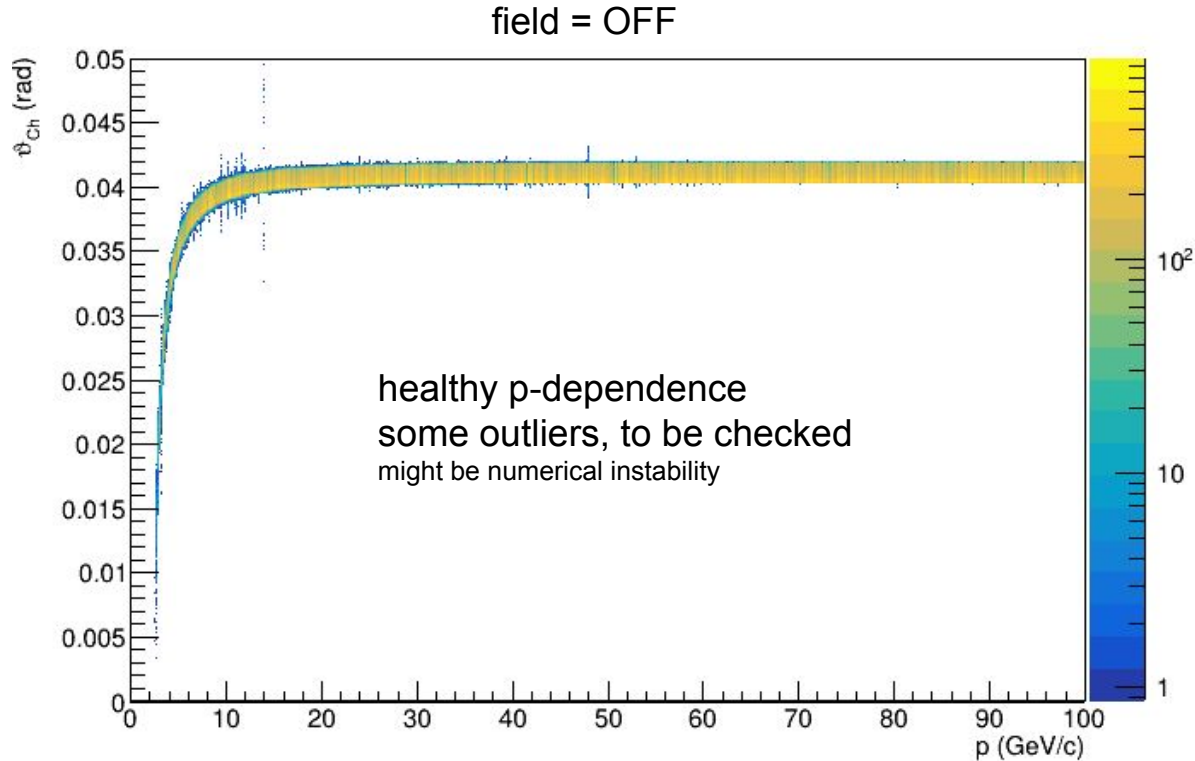


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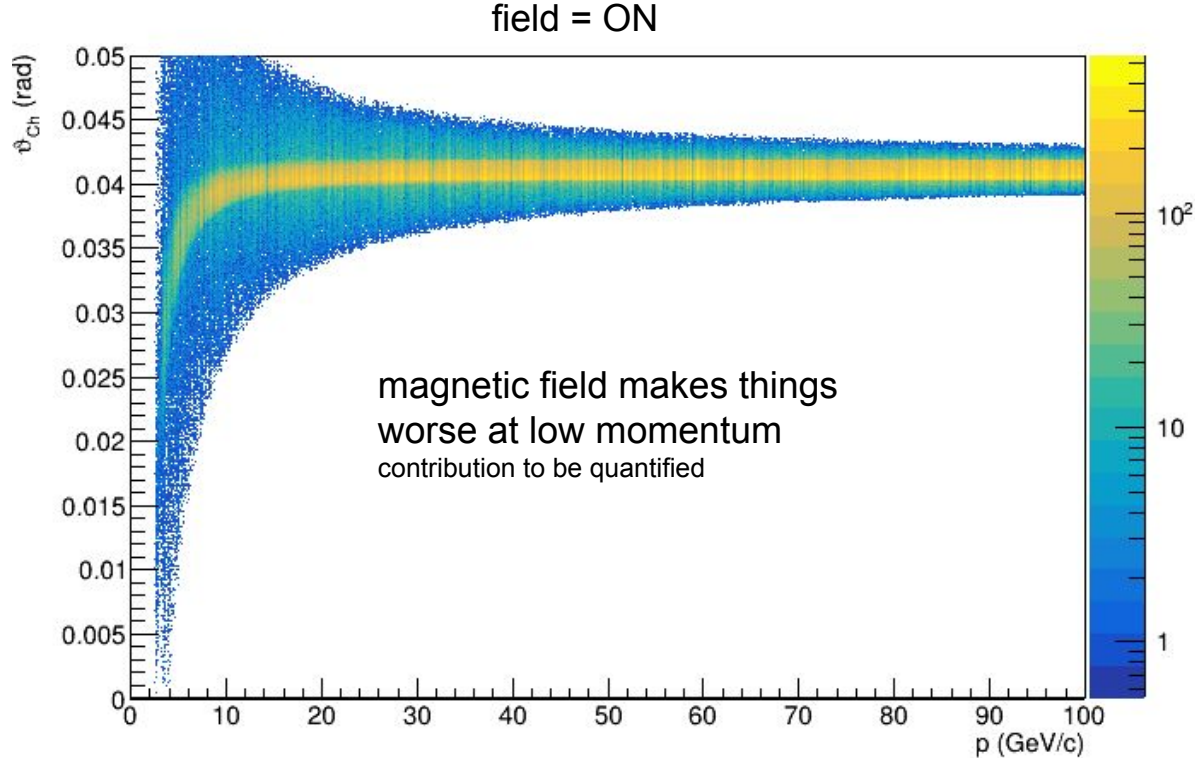


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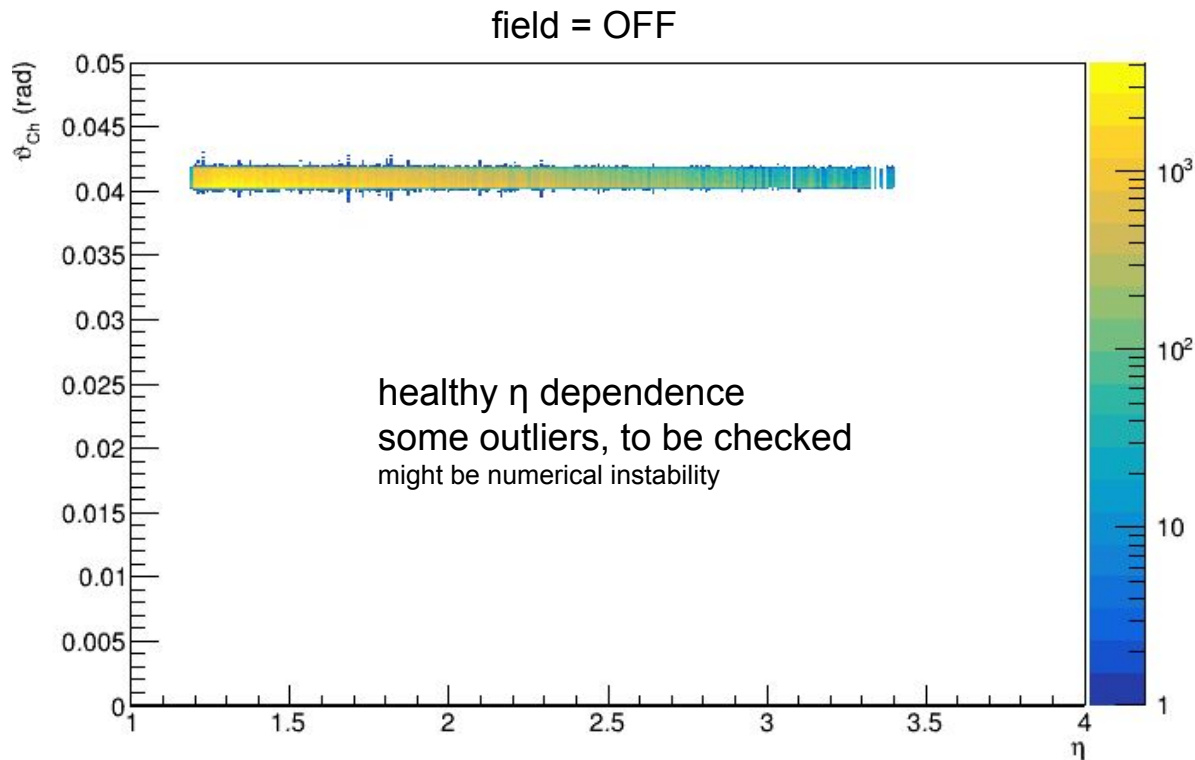
muons

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fixed particle energy
 $E = 30 \text{ GeV}$

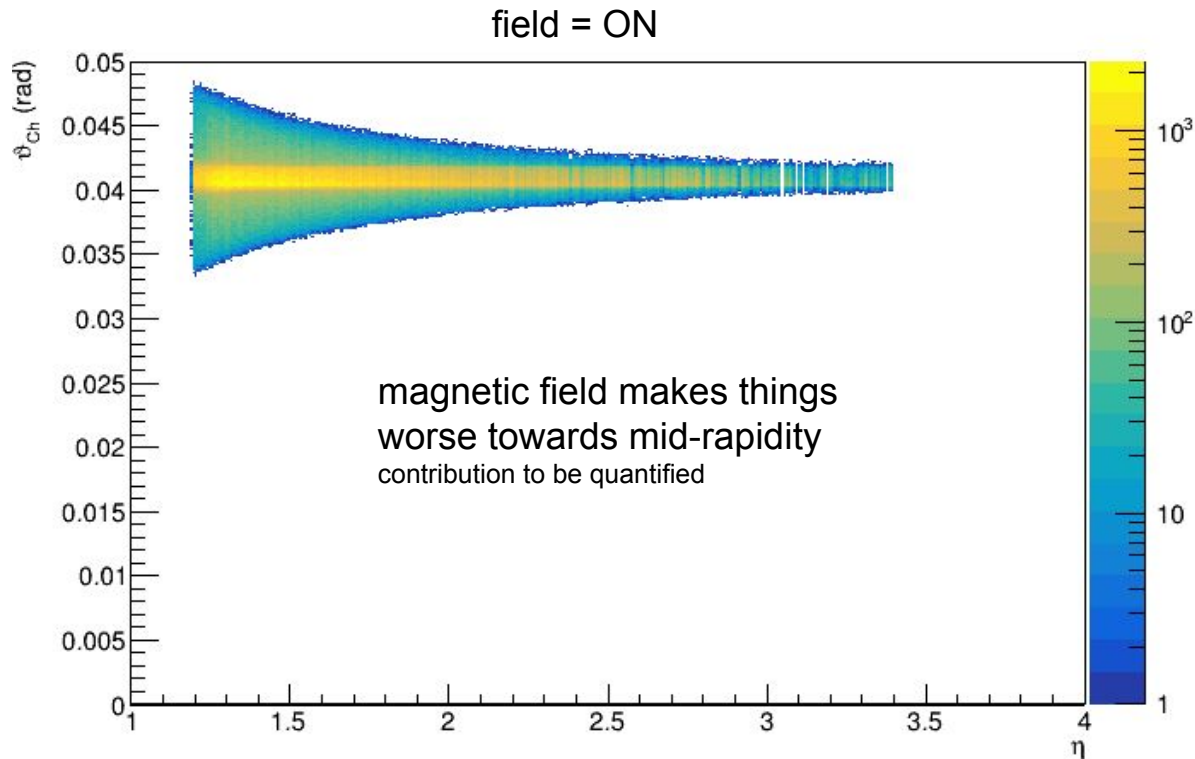
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