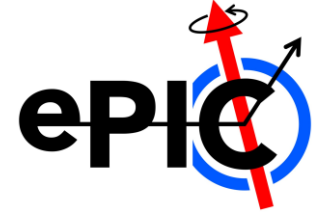# Reco Q&A | Truth Info in Kinematics

› I noticed that all of our kinematic calculations (e.g. "InclusiveKinematicsElectron") take the truth-based DIS electron selection ("ScatteredElectronsTruth"). Is there a reason not to use the E-pz selected electrons for now?
  – **Submitted by:** Derek Anderson, 10/08/2025
  – **Further context:** use of truth info in kinematics also noted by Jared Richards on 10/09/2025

o **Truth info used in *2 places* in kinematic calculations!**
  1) MCParticles used to extract electron/beam energies
  2) And in scattered electron input (see algorithm <u>here</u>), where MC associations are used to identify reco DIS electron

o Addressing both ongoing priorities
  – **NB:** we should make work plan for event kinematics soon
  ☞ **But:** could easily swap in E-pz DIS electron selection now. So why not?

```
95      app->Add(new JOmniFactoryGeneratorT<
96              InclusiveKinematicsReconstructed_factory<InclusiveKinematicsElectron>>(
97          "InclusiveKinematicsElectron",
98          {"MCParticles", "ScatteredElectronsTruth", "HadronicFinalState"},
99          {"InclusiveKinematicsElectron"}, app));
```

Reco Q&A | Truth Info in Kinematics

› Is there a way to access the eta/phi of an MC particle at (e.g.) the face of a calorimeter? In other words, after magnetic/material deflections?
  – **Submitted by:** Derek Anderson, 10/24/2025
    ☞ But 1st posed by Frederike Bock offline

o **AFAICT:** *not directly*
  – We only have MC particles with their kinematic info at vertex, but *not* the full trajectories
  – **However:** I *think* we can extract this info using contributions (see right)

o **Follow-up question:** how do the FCC/LC folks calculate quantities like these?

o **Possible strategy for extracting MC particle eta/phi at face of calo**
  1) Using relevant CaloHitContributions collection, sort contributions by MC particle
  2) For each MC particle:
    a) Check for contribution w/ position at face of calo, and then calculate its eta/phi
    b) If none, find contribution (or SimTrackerHit) *closest* to calo face, and then calculate its eta/phi

o **Note:** if no contribution at face, could also use 1st contributions (or SimTrackerHit) before and after face
  – And then linearly extrapolate b/n them