

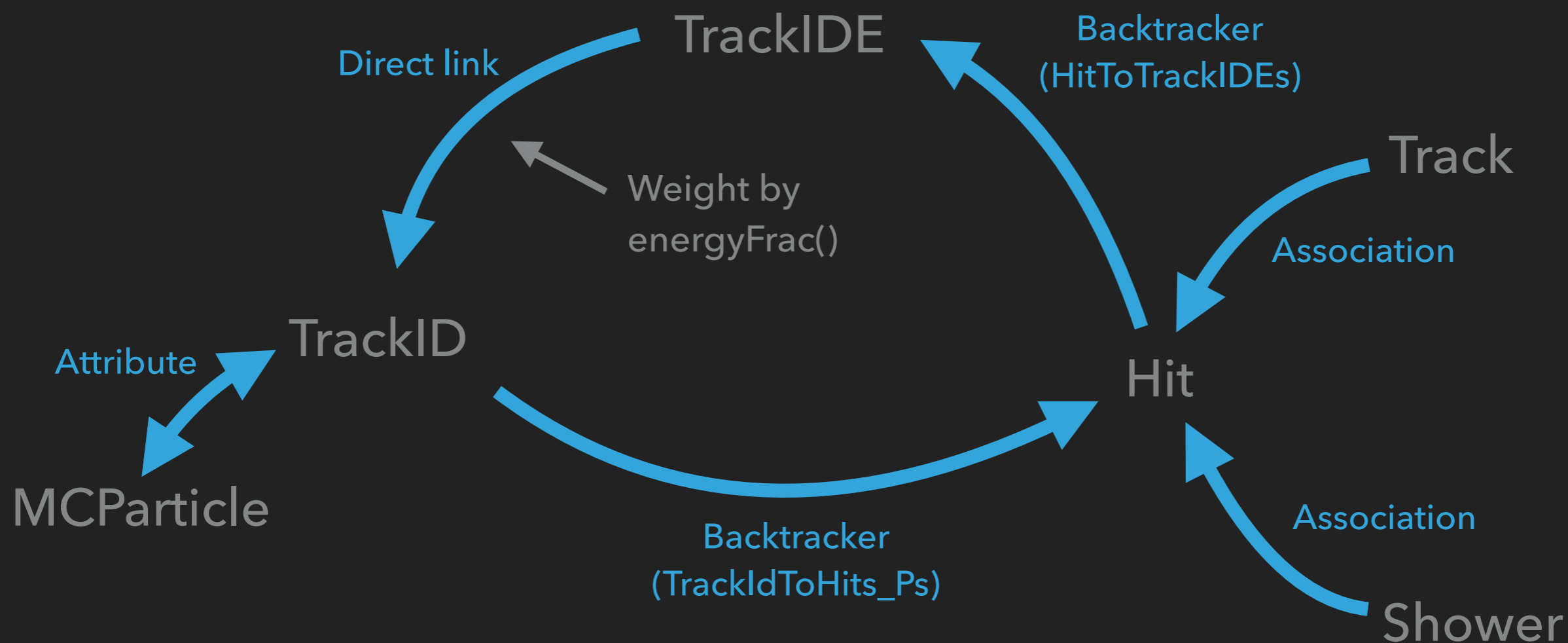
MILO VERMEULEN — 11-4-2019

LINKING RECONSTRUCTION TO TRUTH

PREVIOUSLY

- ▶ Search for π^0 particles
 - ▶ Compare reco to MC
- ▶ Proximity-based linking worked, but was not very trustworthy / consistent
 - ▶ Opened up extra possibility for inaccuracies
 - ▶ Look for more rigorous links

EXISTING LINKS

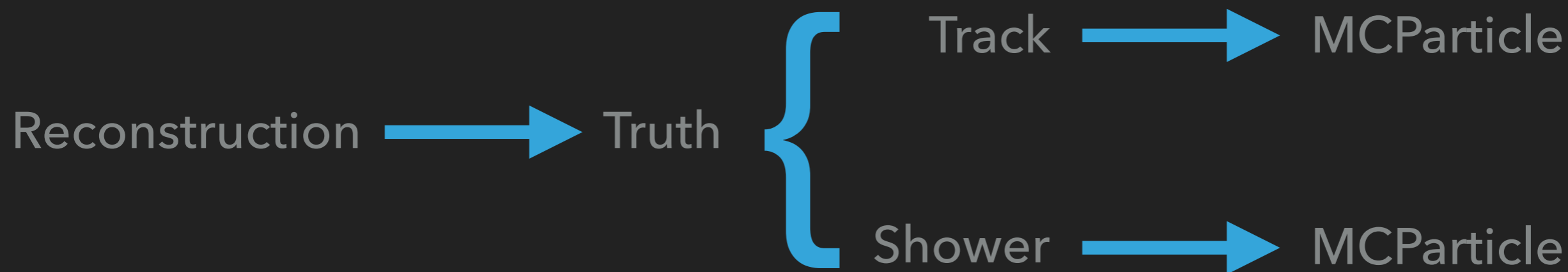


DESIRED LINKS

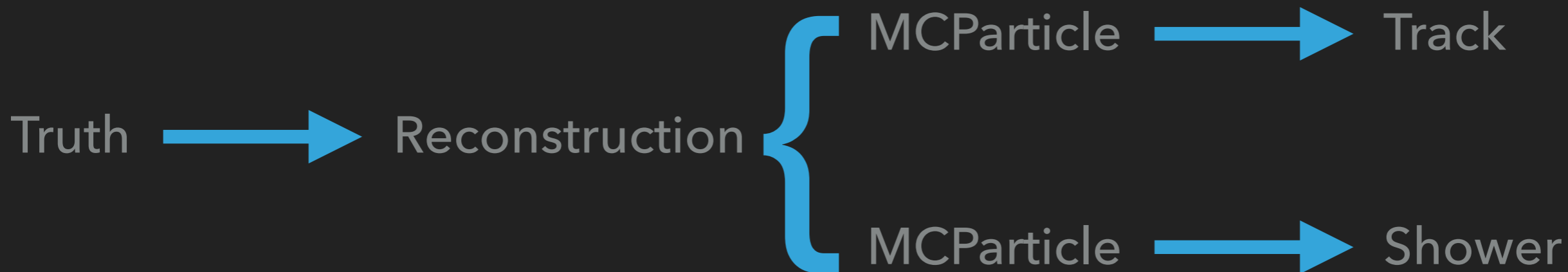
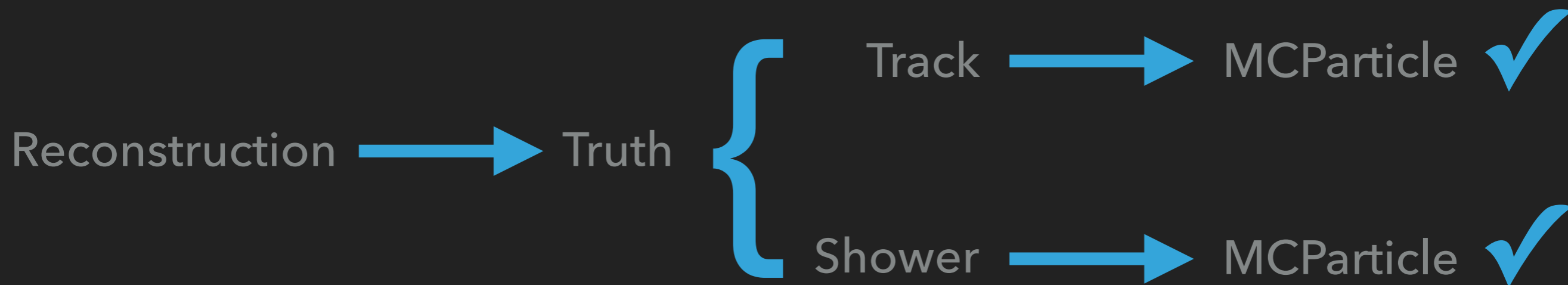
Reconstruction  Truth

Truth  Reconstruction

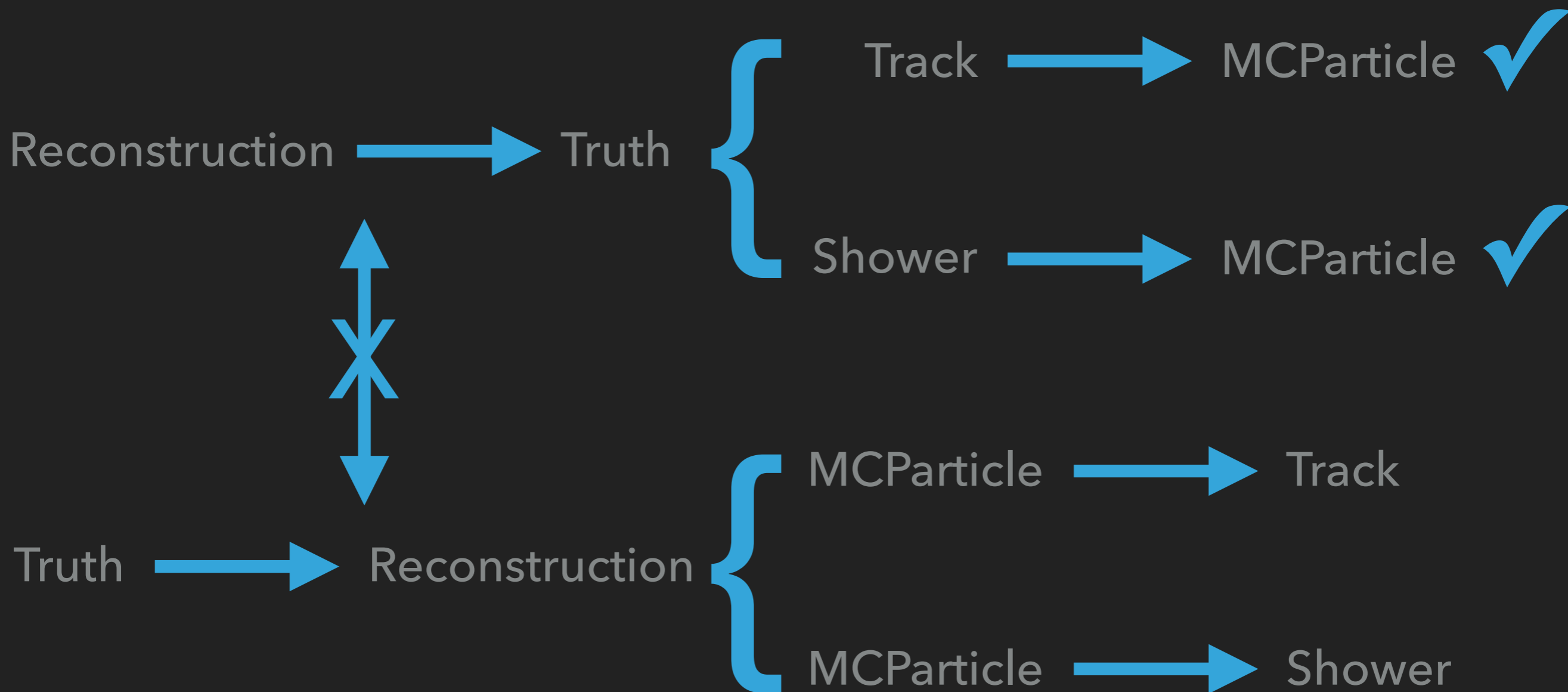
DESIRED LINKS



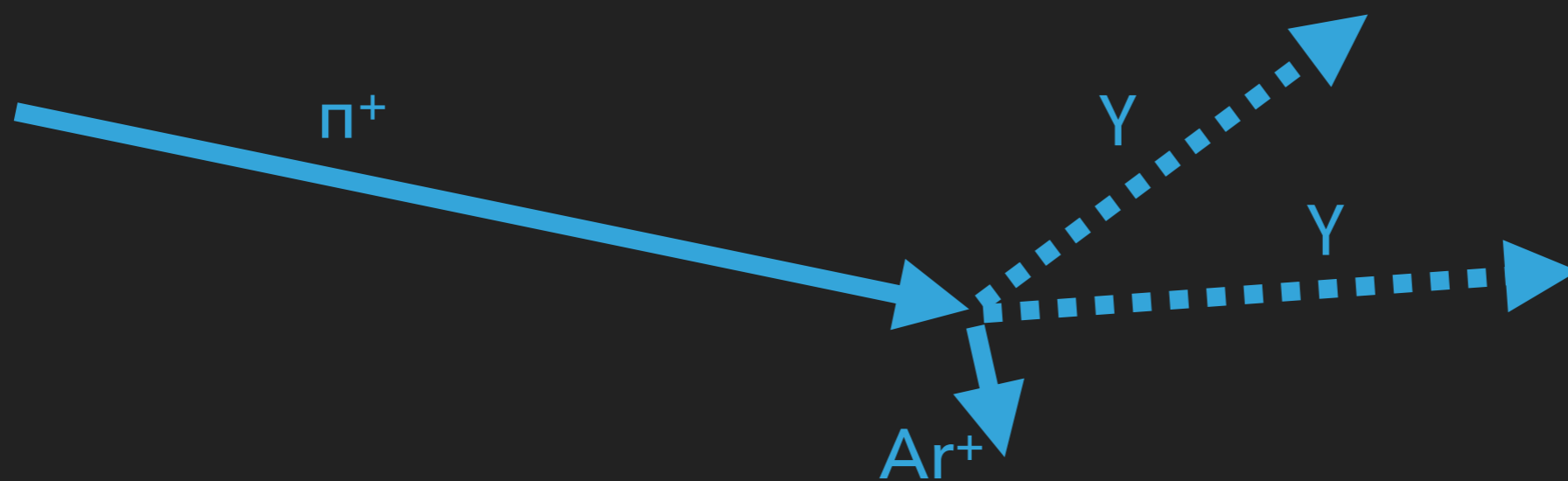
DESIRED LINKS



DESIRED LINKS

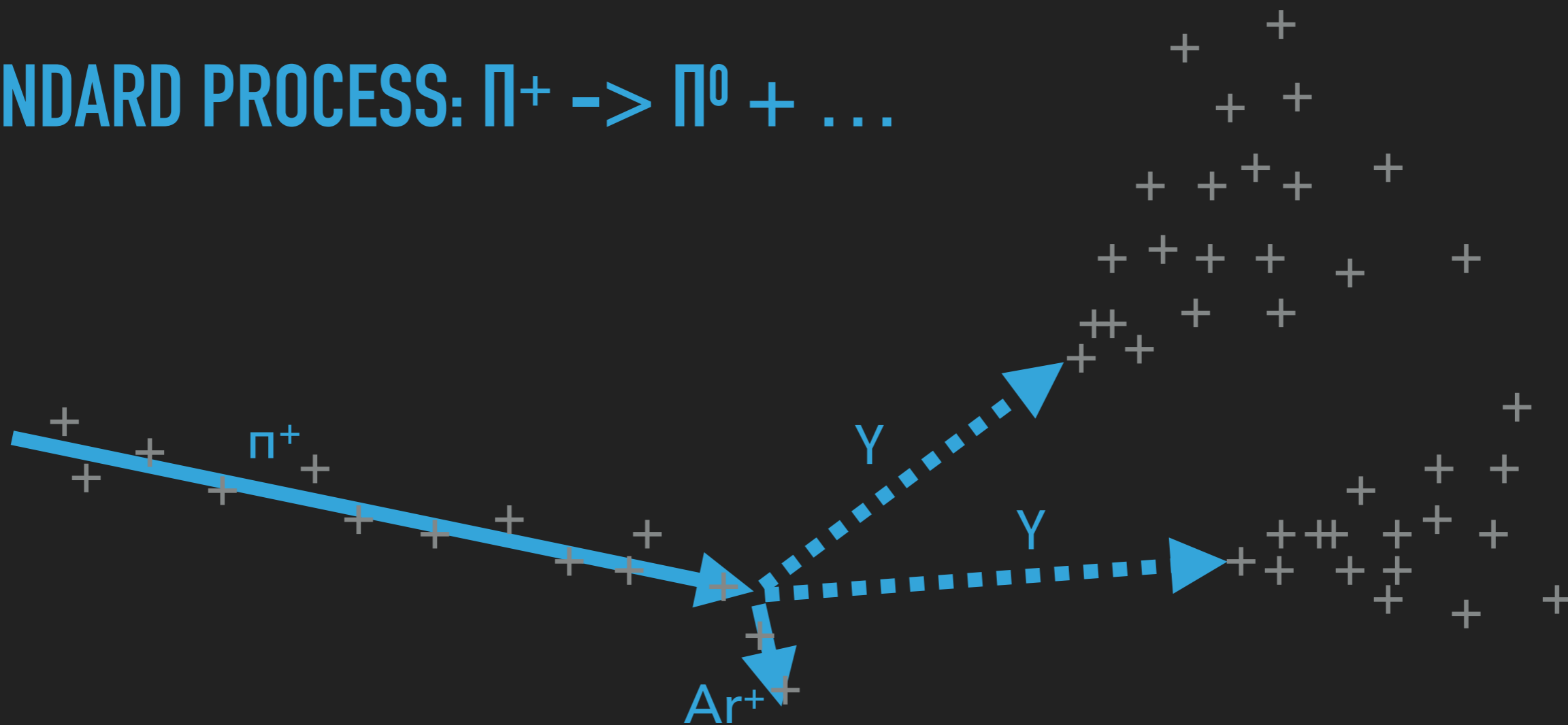


STANDARD PROCESS: $\pi^+ \rightarrow \pi^0 + \dots$



 True track

STANDARD PROCESS: $\pi^+ \rightarrow \pi^0 + \dots$



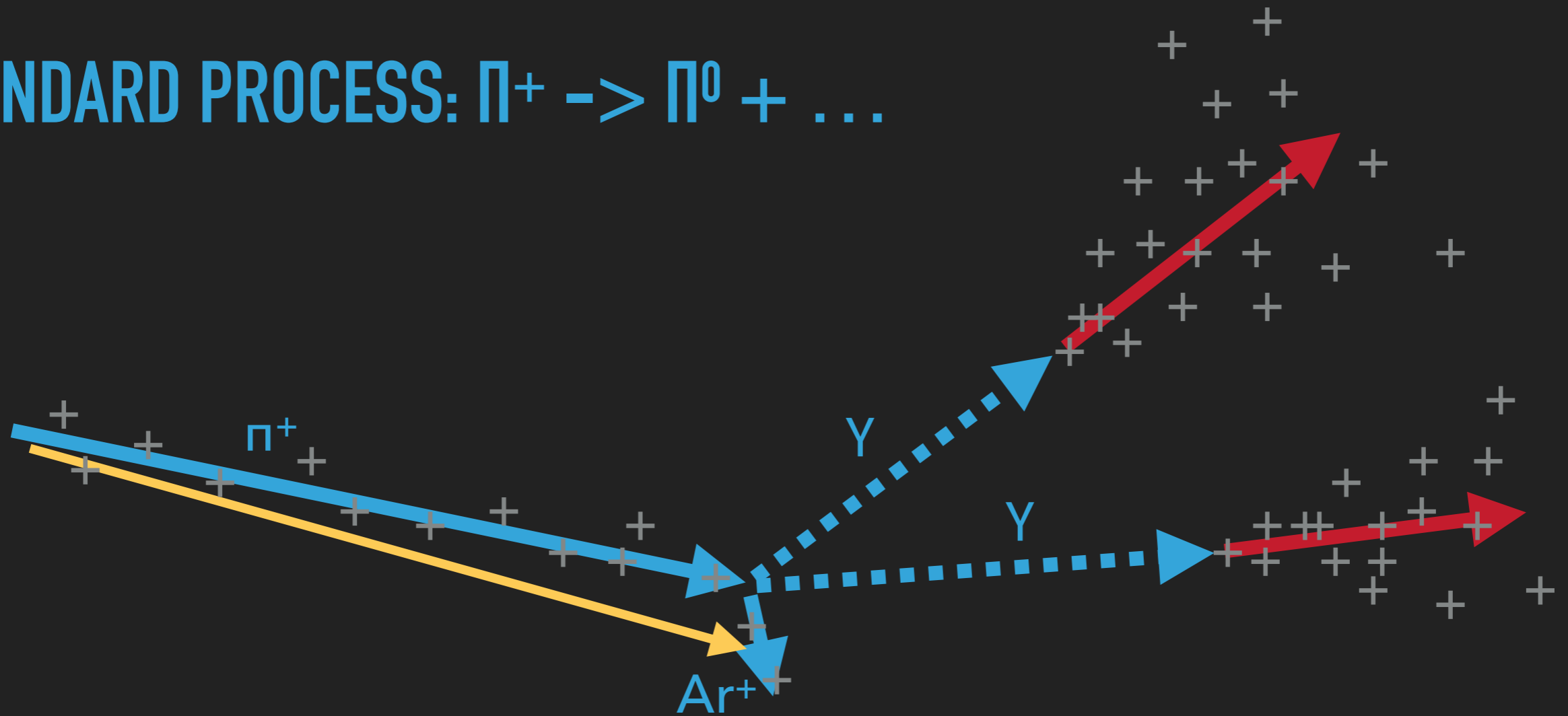
+

Hit



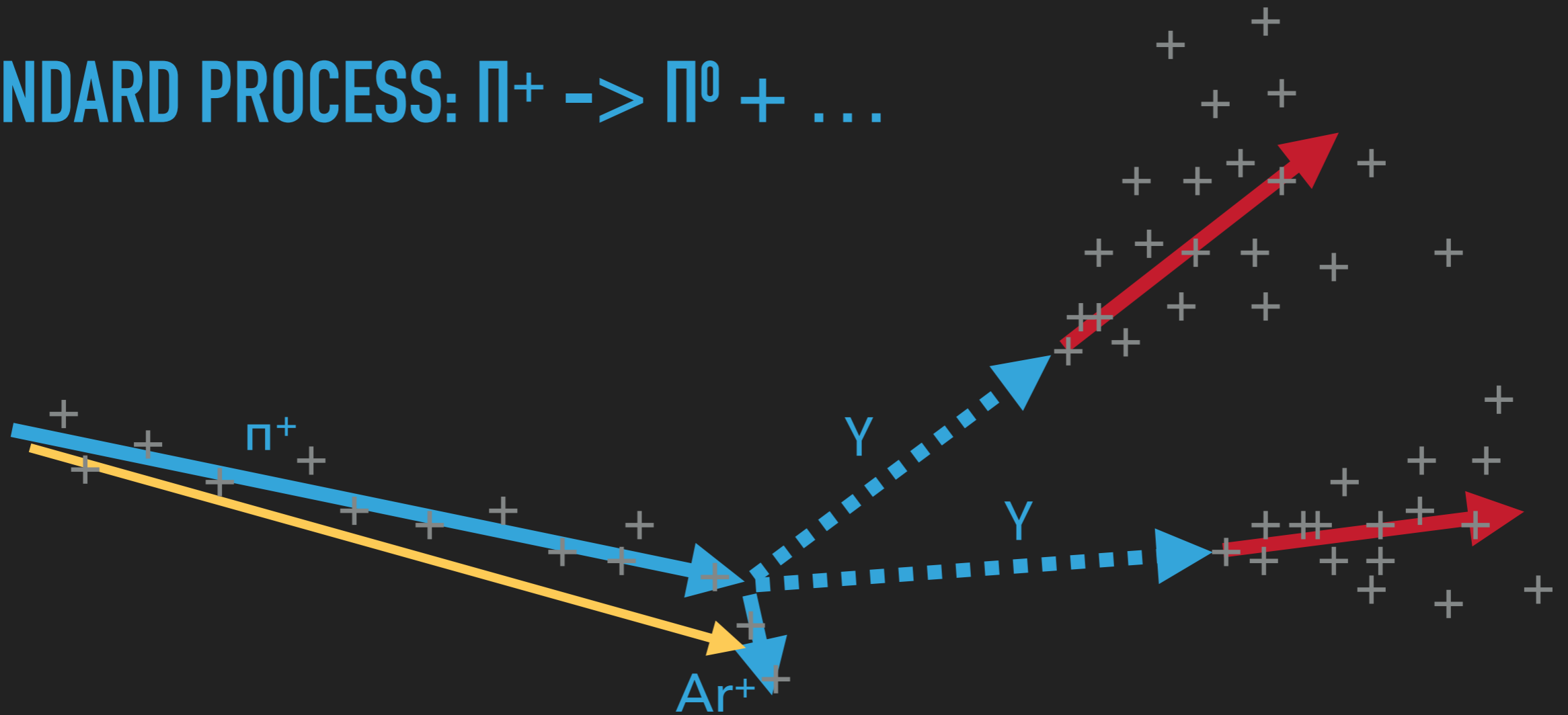
True track

STANDARD PROCESS: $\pi^+ \rightarrow \pi^0 + \dots$



- + Hit
- True track
- Reco shower
- Reco track

STANDARD PROCESS: $\pi^+ \rightarrow \pi^0 + \dots$



+ Hit

True track

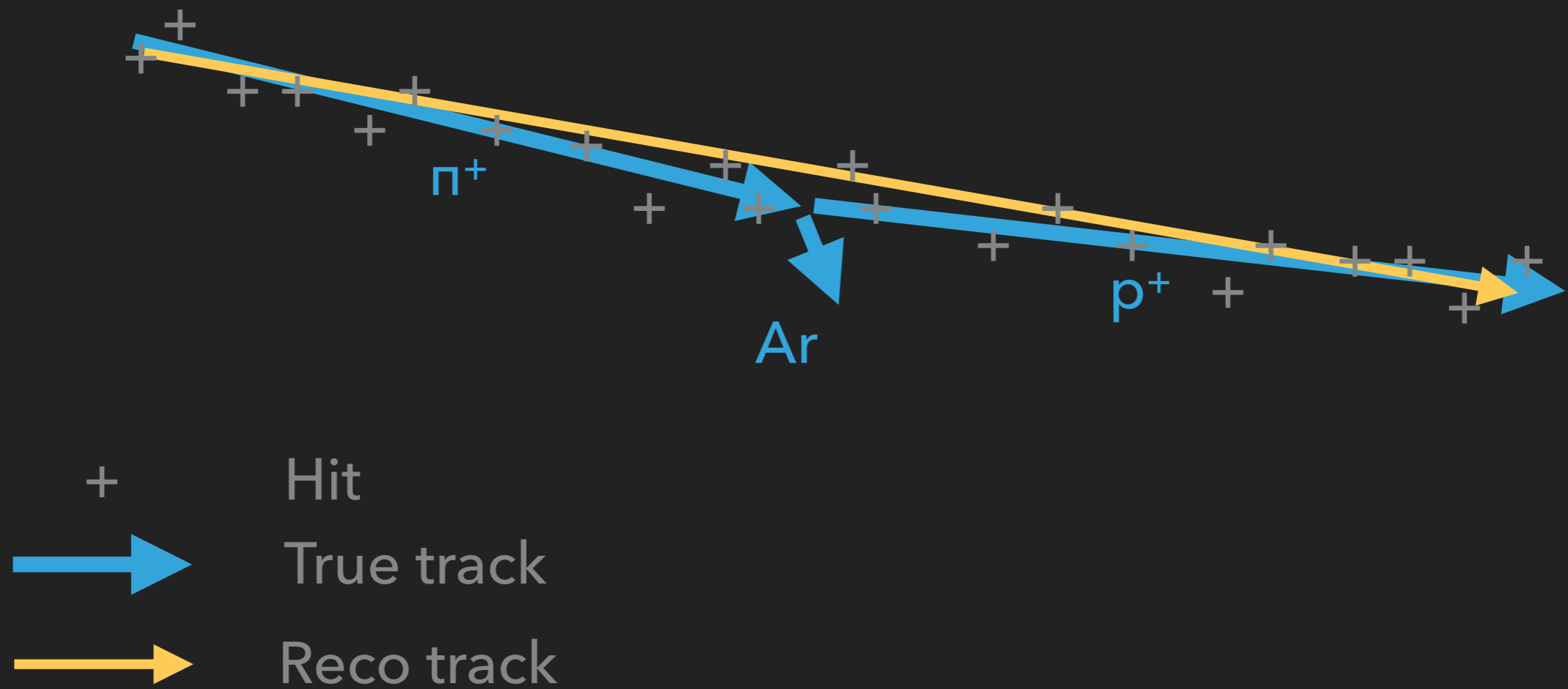
Reco shower

Reco track

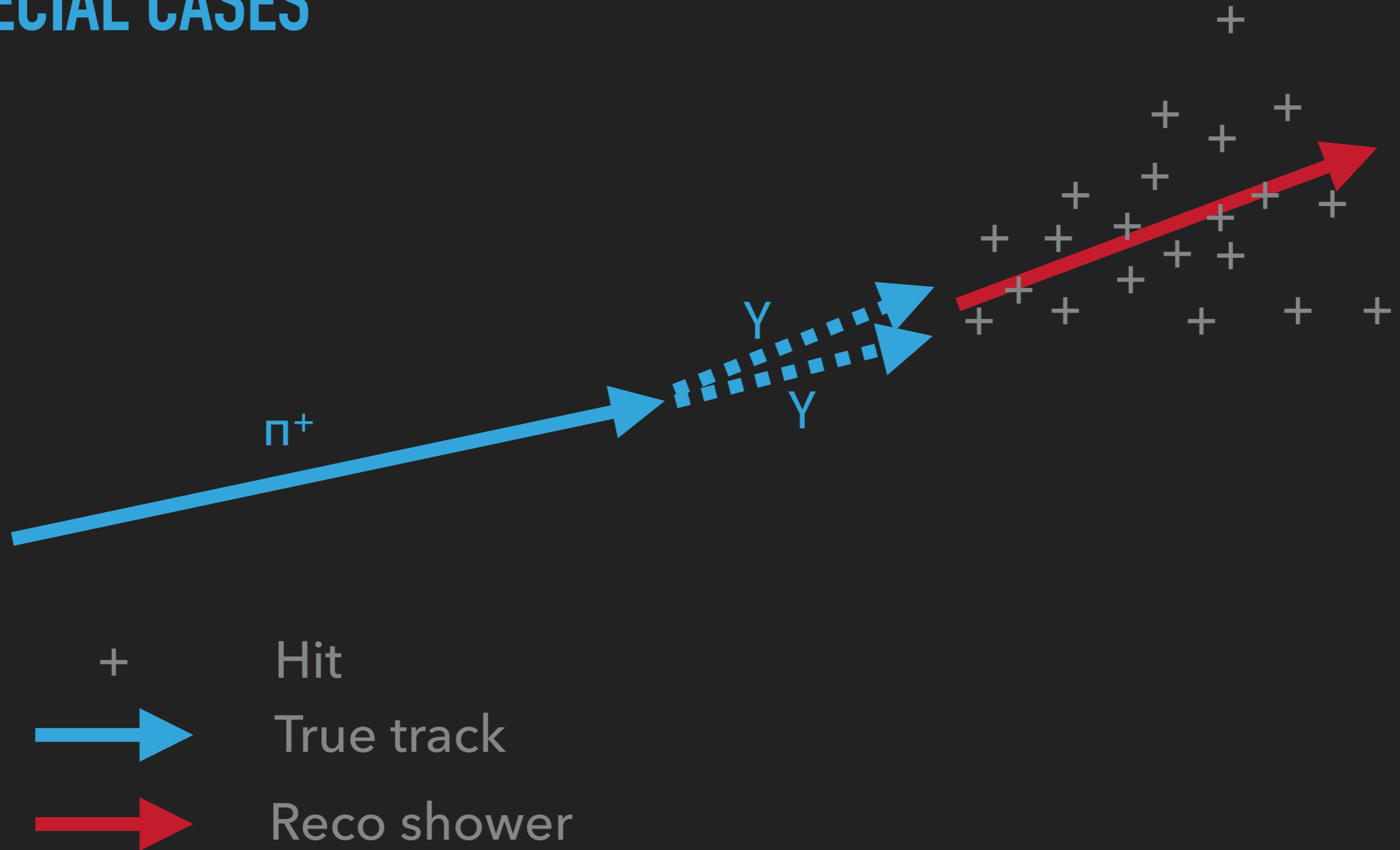
Track \rightarrow MCParticle ✓

MCParticle \rightarrow Track ✗

SPECIAL CASES



SPECIAL CASES



OPTIONS

- ▶ Leave it like it is – reconstruction is not perfect
 - ▶ MCParticles assigned to tracks they have little to do with
- ▶ Require MCParticles to contribute certain % of hits to track/shower
 - ▶ What percentage?
 - ▶ Does it solve the problem?
- ▶ Other creative solutions?