## **Tracking performance evaluation**



- From true particle (signal):
  - Generated hits
  - Particle trajectory represented by track parameters
- Track reconstruction:
  - Reconstructed (measured) hits
  - Reconstructed track from reconstructed (measured) hits
- Questions:
  - How many generated hits reconstructed (measured)?
  - How good does reconstructed track reproducing true particle?
  - How to distinguish the best track out of a set of duplicate tracks?



## Matching between particle and track



- Matching can be complicated for the with high multiplicity events (having many signal particles)
- Matching using geometrical properties, i.e. eta and/or phi might be not enough
- Hit level matching: Association of reconstructed (measured) hits to generated hits: Matching with the particle giving largest contribution of hits for given track

## Status and outlook



- Missing information in standard "ElCrecon" output:
  - Link between generated hits and true particle trajectory
  - Available in npsim output; hard wiring to **ElCrecon output**
  - Link between measured hit and reconstructed track
    - Private modification of ElCrecon (parallel to Shujie's update) without modification of data models
- Solving duplicate track issue (ambiguity resolution) + tracking performance study including efficiency



