The Data Challenge

The Read Out

The Data Challenge

- **Three-Plane Readout:**
  - Light collected from fibers along **X, Y, Z axes.**
  - Produces three independent 2D projections of the event.
- **Creating a 3D Image:**
  - Combine 2D views → *Sparse* 3D event.
  - Allows us to pinpoint **energy deposits** with fine resolution.
- **However:**
  - Energy reconstruction from 2D views is not unique.
  - E.G: Z plase has 1 active projection → 3 voxels.

Simple Simulation

Event Display

FASERCal

- **Event Hits:**
  - Each point is a reconstructed voxel.
  - Detector volume is massive, but ~99% of voxels are empty.
  - *Energy patterns*: boosted forward, with complex and overlapping particle showers.
- **Goal:**
  - *Achieve full event reconstruction → classification and kinematics from this sparse data.*