



The Data Challenge



The Read Out

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- **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 plane 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.*

