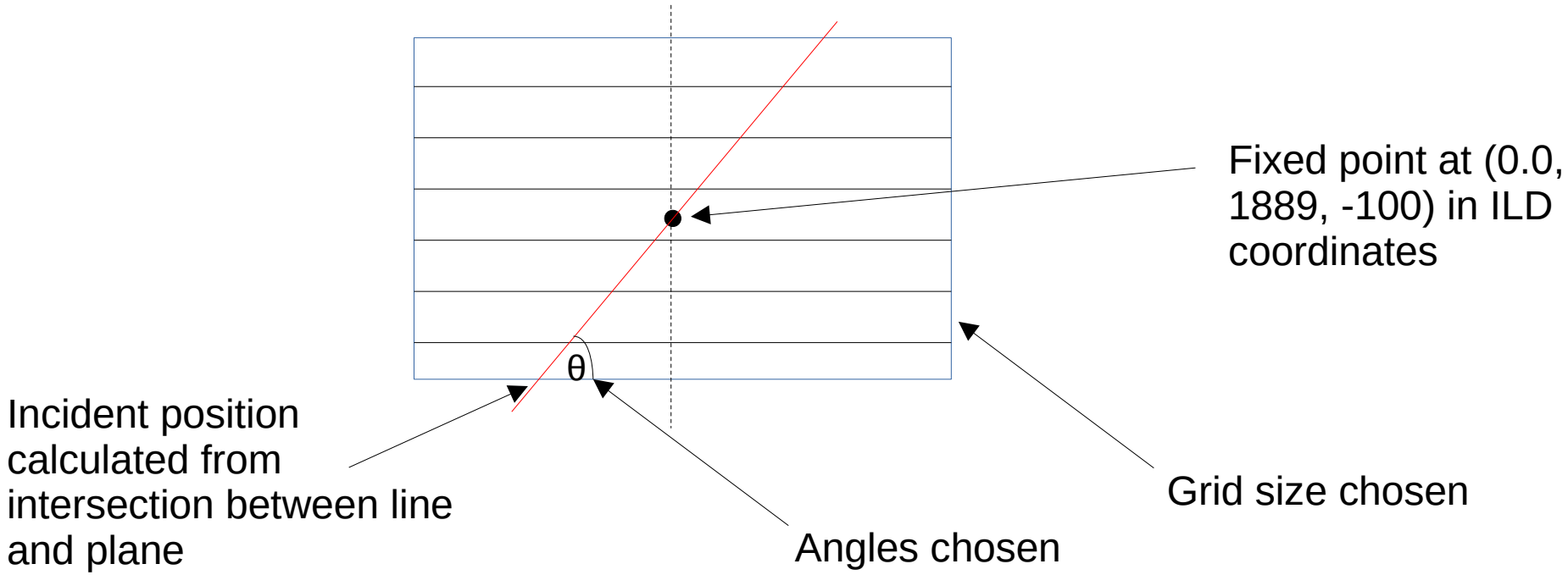
Two Angle Dataset First Steps

01.06.2023

Plan for dataset creation

- Three key points:
  - Want to build dataset in such a way that it can be plugged back in to DDML later
  - Need to cover range of energies and angles for physics
  - Need to keep grid size as small as possible

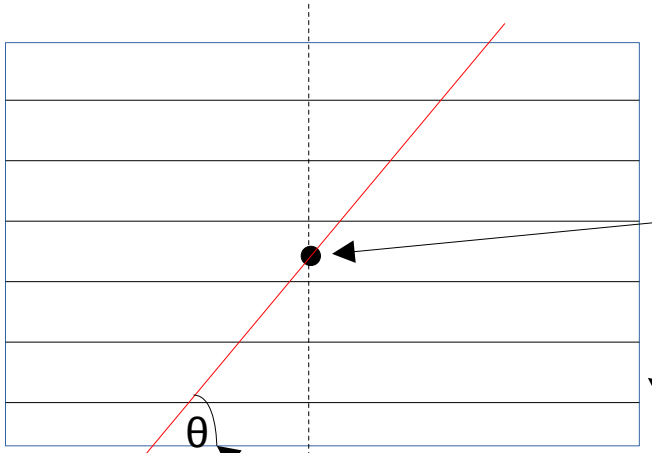
- Choose a set up which allows the incident cell for each angle combination to be calculated



Plan for dataset creation

- Initial data setup:
  - Photons
  - Energy: 10-100 GeV, Theta: 30-90 degrees, Phi: 65-90 degrees (octogonal barrel)

- Checked maths with muons



Fixed point at (0.0, 1889, -100) in ILD coordinates

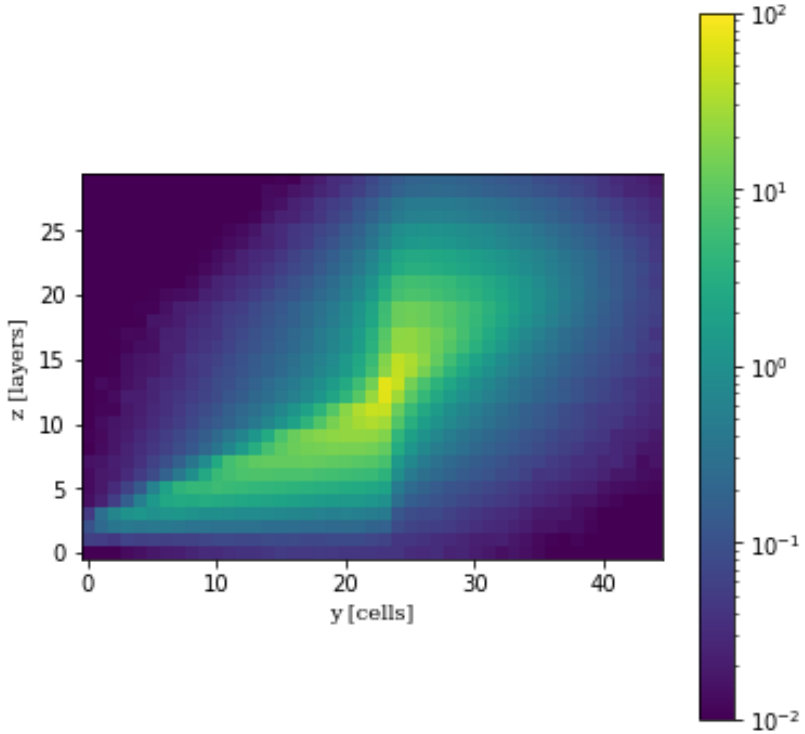
Incident position calculated from intersection between line and plane

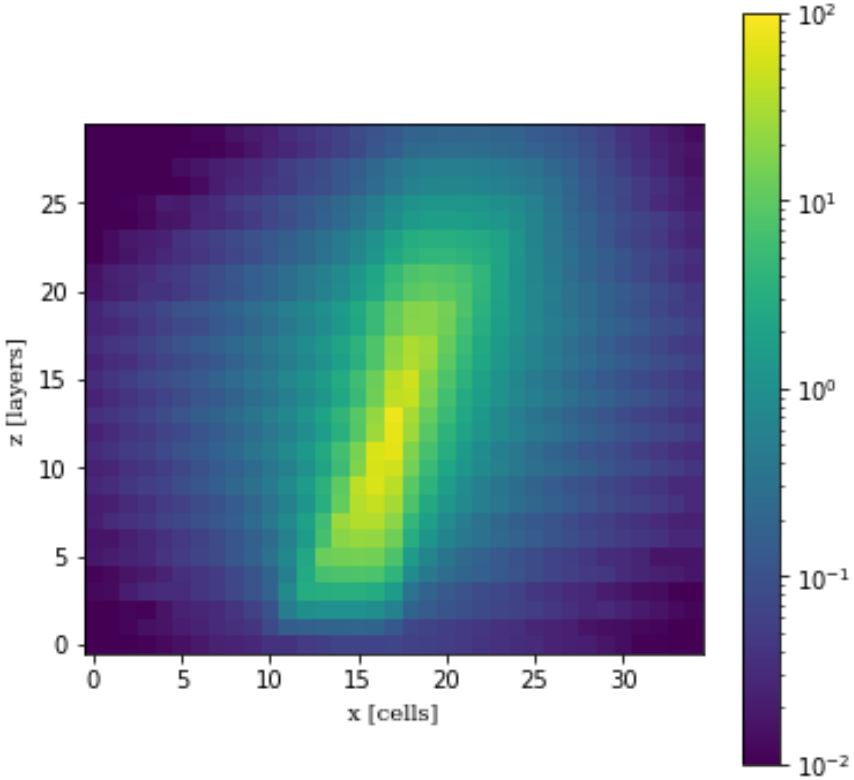
Angles chosen

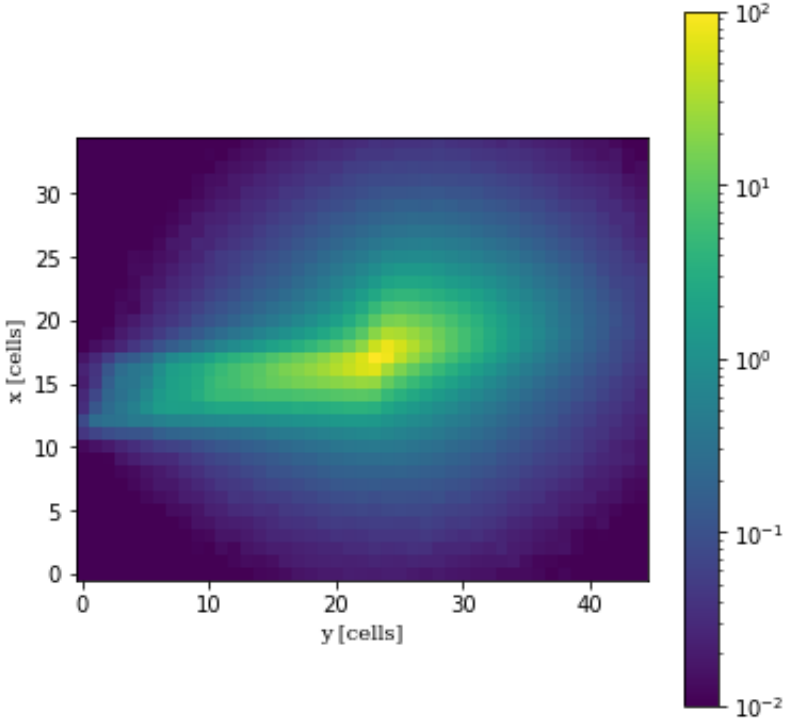
Grid size chosen

Some initial overlays

- Initial grid size: (z,x,y) = (30, 35, 45)







Next Steps

- Write script to calculate energy fraction in grid for varying grid size in (x, y) + plot to find optimal grid size
- Pin down a (multiple) physics process to define energy and angle range
- Produce datasets!