# Improvements to Tracking Visualization in Wired

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Display of hit modules

- The new detector model is very confusing to look at when all the sensors and modules are displayed (which is why they're now disabled by default).

- I've added a converter that displays only the modules and sensors that have SimTrackerHits in them. Collections exist in the event layer for sensors and modules for each group of SimTrackerHits.

-They can easily be turned on and off by checking or unchecking the appropriate boxes in the EventType hierarchy.

Display of hit modules
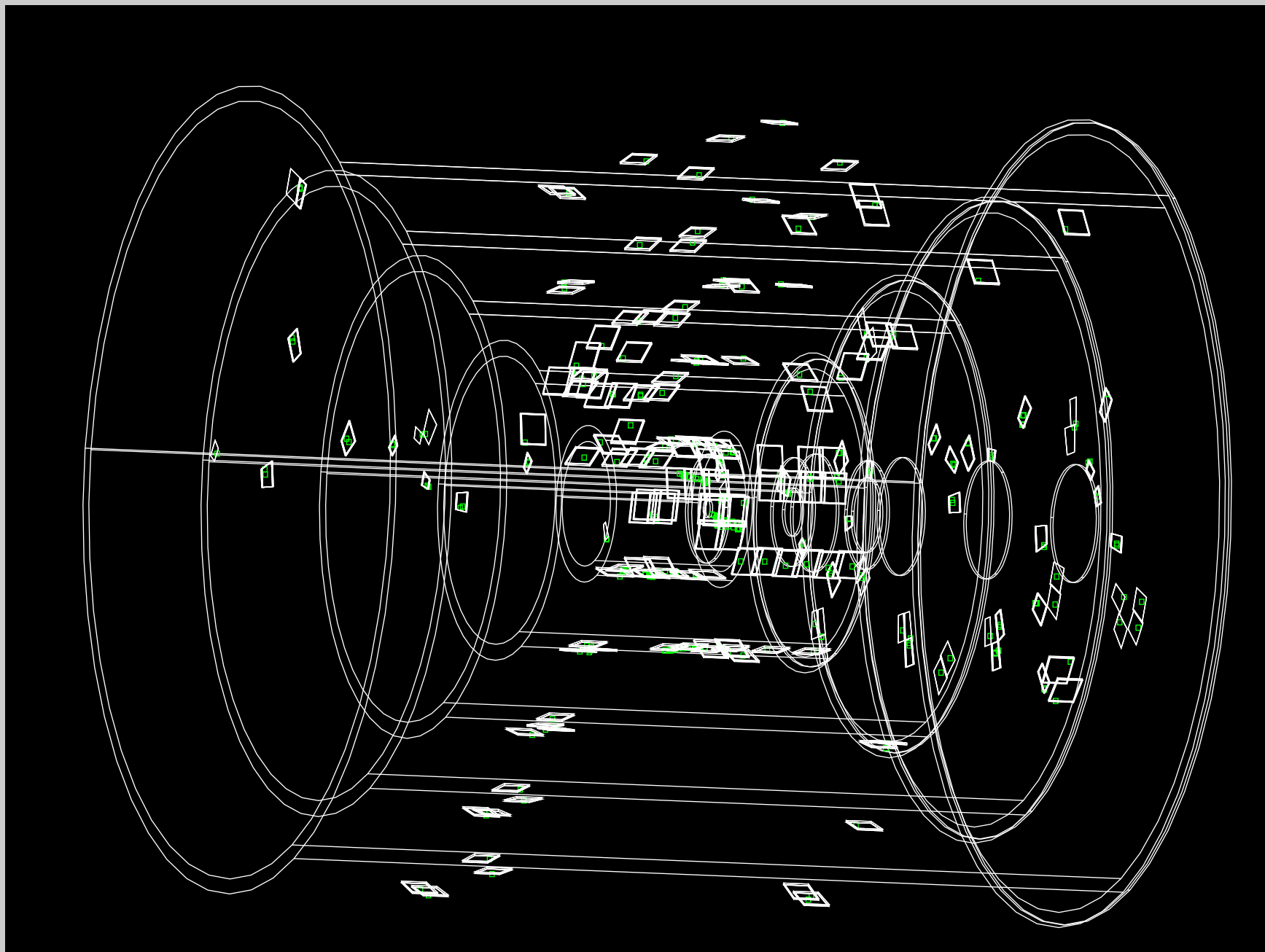
Display of strip line segments

- A converter has also been added to display strips that have registered hits.

- Only SiTrackerHit1D objects can be displayed in this way.

- You can use the driver org.lcsim.contrib.CosminDeaconu.StripMakerDriver in JAS3 to create these hits for the newest detector model.

- A converter will soon be available for SiTrackerHit2D objects.

Display of strip line segments
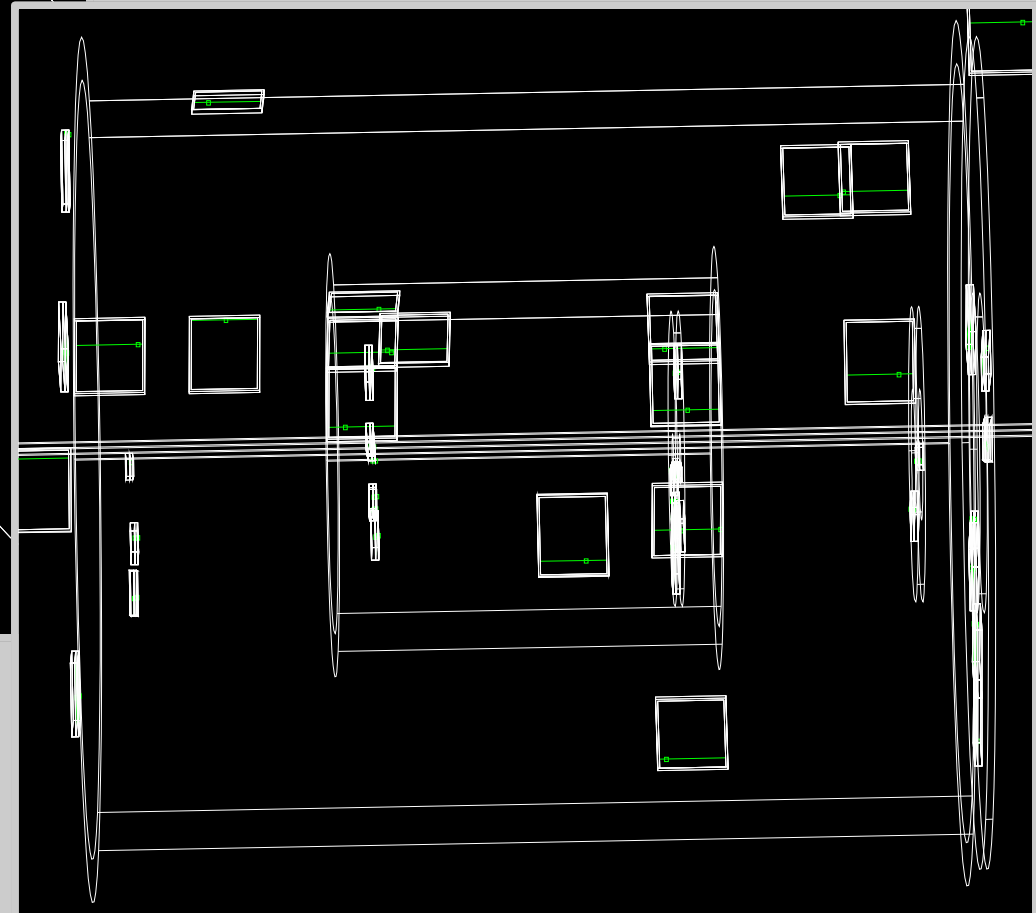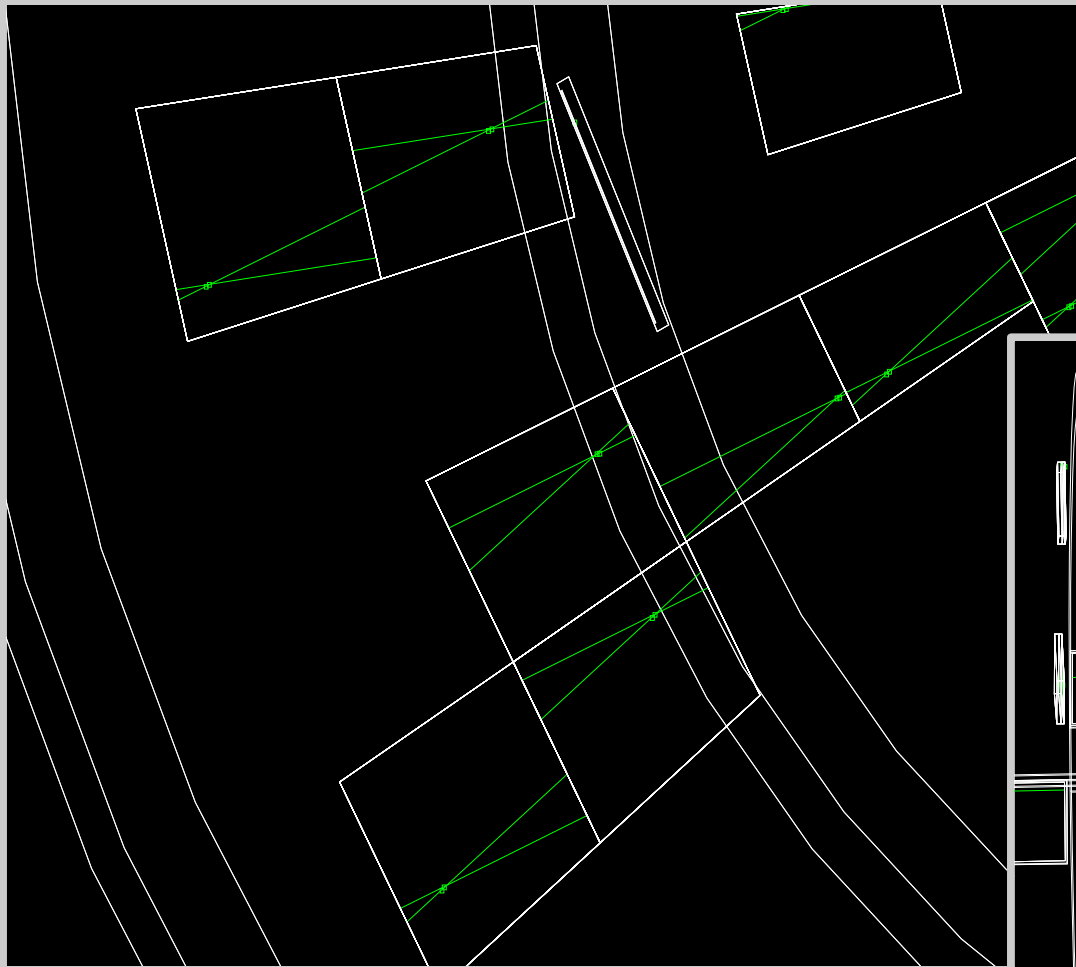
New idea for displaying MCParticles

- The existing MCParticle converter uses the initial momentum to determine a helix and then swims the helix until the radius of the endpoint is reached.

- Two problems:

  - Tracks that reach that the endpoint radius more than once are cut off short.

  - The particle's momentum changes as it hits stuff,so the drawn trajectory becomes inaccurate. One symptom of this is that the track usually doesn't go through the simhits it should.

New idea for displaying MCParticles

- Solution: Recalculate the helix between each pair of associated SimTrackerHits. Swim until z of next hit.

- org.lcsim.contrib.CosminDeaconu. ConnectTheDotsConverter implements this strategy (good ideas for a name are welcome).

- Limitation in Wired: An instance may only have 3000 points. Current workaround by splitting any tracks that would too many points into multiple instances.

- If you're interested in trying it out, instructions can be found in the source file.

New idea for displaying MCParticles
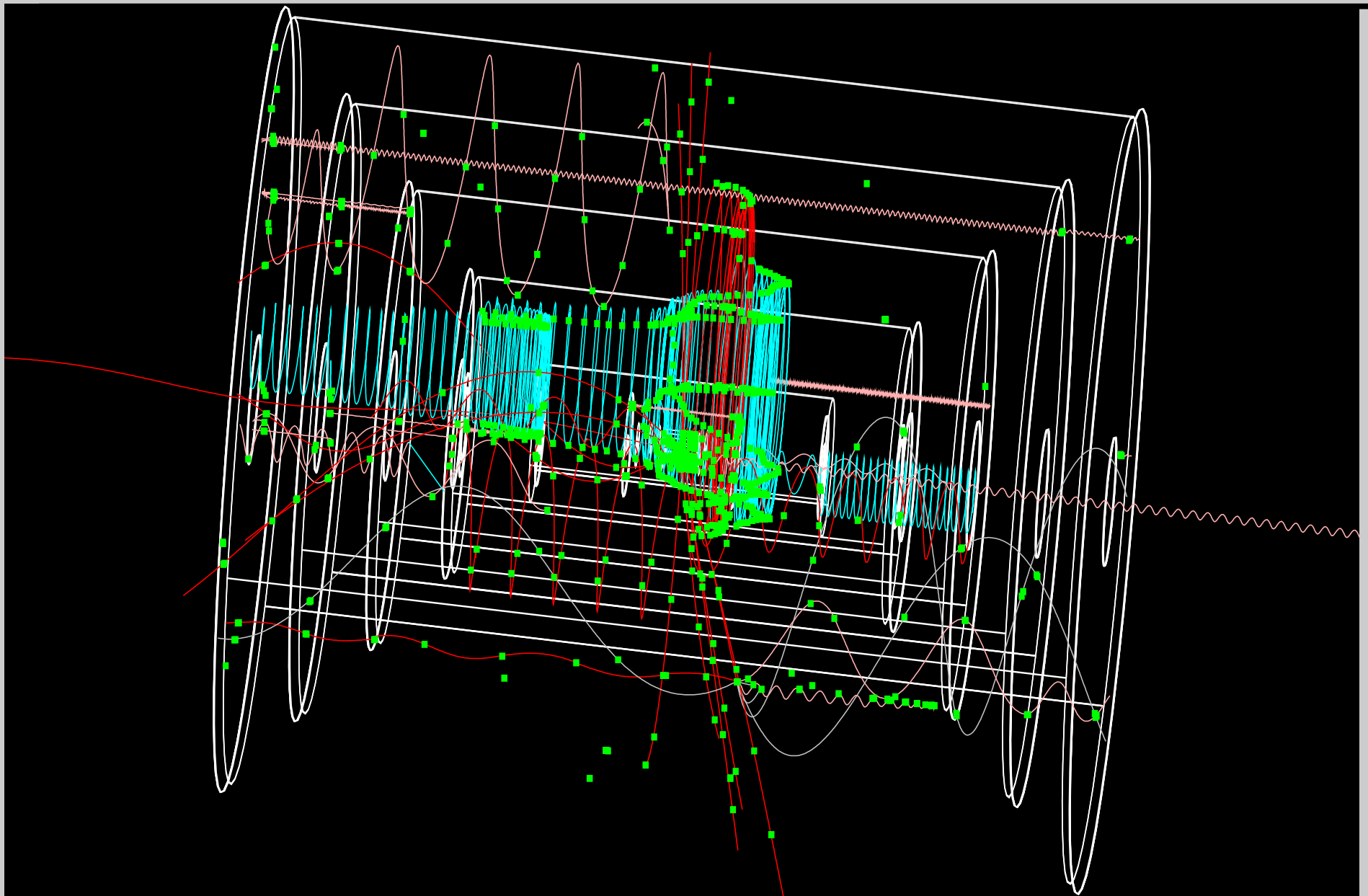
Summary

- Detector modules that were hit will show up in the event layer of the newest detector models.

- Any SiTrackerHit1D objects in an event will be drawn with a line segment. Stay tuned for SiTrackerHit2D objects.

- An alternative to the current MCParticle converter is available in my contrib area.

-Any questions/comments/suggestions are welcome!