

# Event Display

- Focus on the Truth View
  - Since I've worked almost entirely on detector simulation, it's the only display I've used.
  - Got into event-generation problems at the last minute, so I don't have many events to show.
  - A short talk! (Hurray!)

## Using the event display program

- Command is like `ana`, the main FMWK processing program:
  - Typically, you have to supply an XML file with all the libraries needed to read the data structures in the file.
  - Usually, you can use the same XML file that you used to generate the file with `ana`.
  - Example:

```
evd -x prodgeniesim.xml event-file.root
```

## Using the Truth View

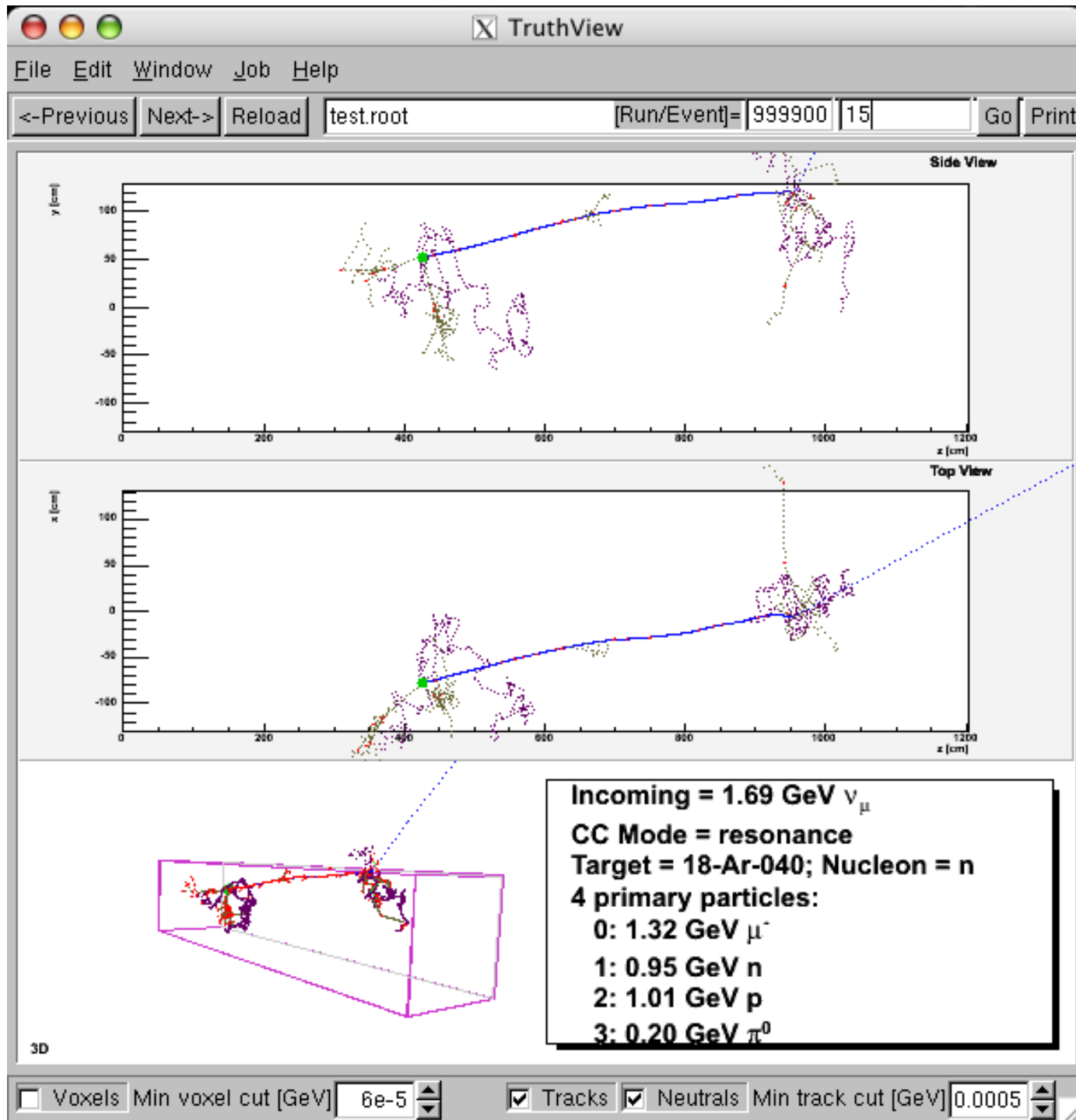
- I just lied to you! The example on the previous page won't do anything useful:
  - “ana -x prodgeniesim.xml” will run the simulation, and at present there's no Hit-finding or Reconstruction in that process.
  - The event display has several “views”; which view you see is controlled by `EventDisplay/evd.xml`.
  - The only view that presently makes sense for a simulation file is the Truth View, and that's not activated in `EventDisplay/evd.xml`.

## Using the Truth View (continued)

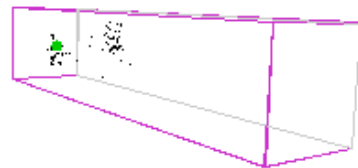
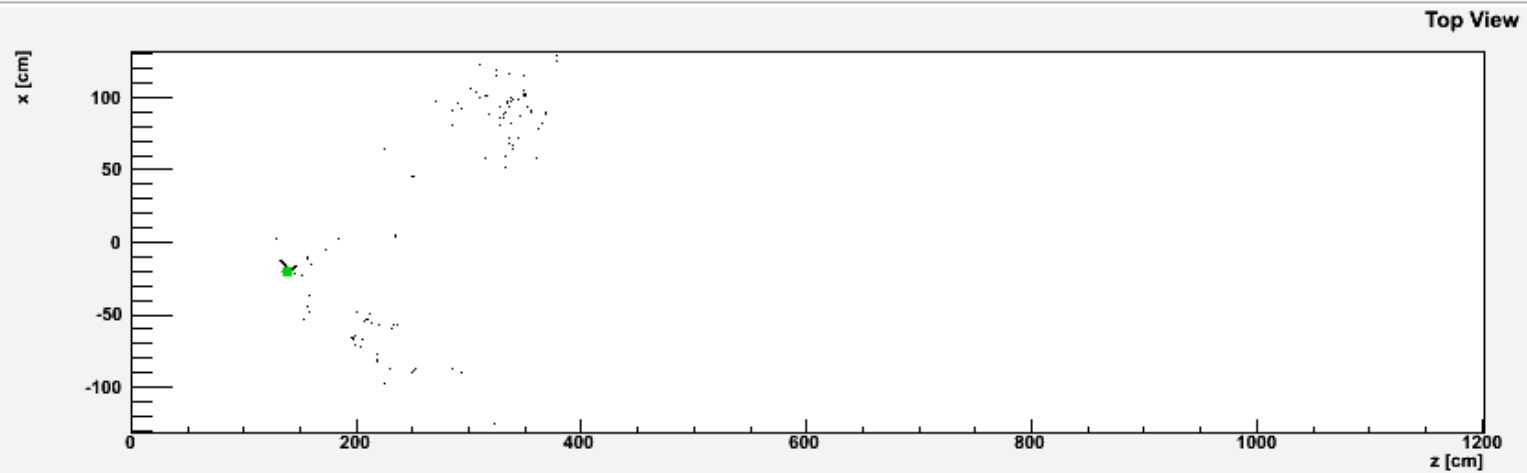
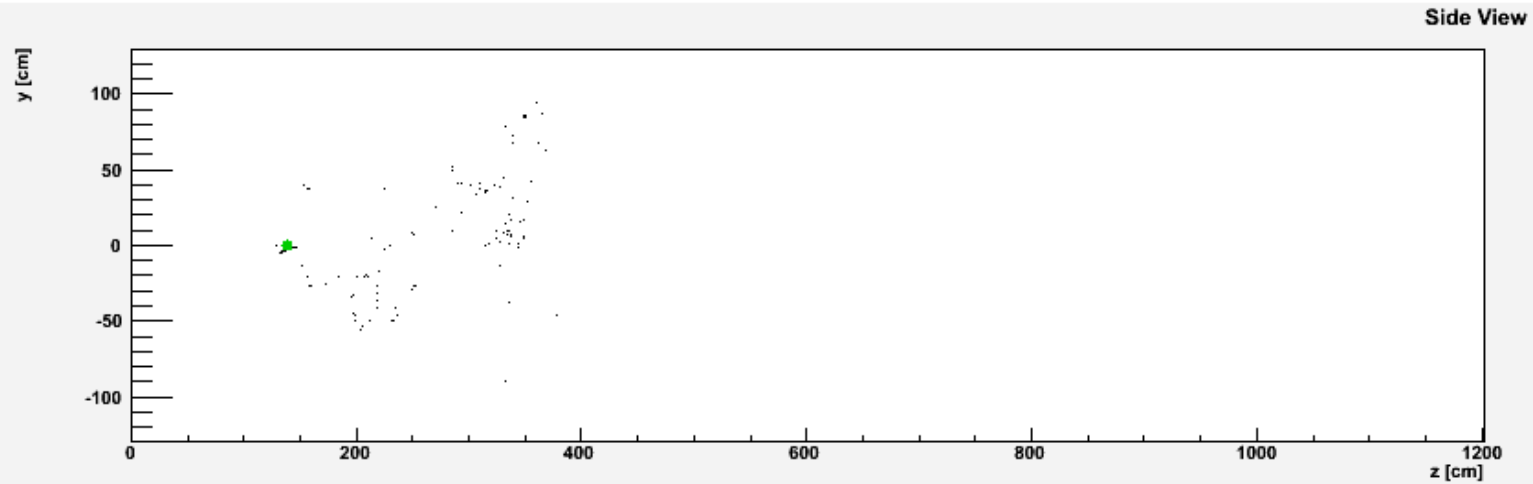
- I've created an XML file, `EventDisplay/evd-truth.xml`, that only displays the Truth View.
- So the command you want is:

```
evd -x prodgeniesim.xml -x evd-truth.xml event-file.root
```

A complete window, with all the widgets;  
remaining slides show what you get if you hit the Print button

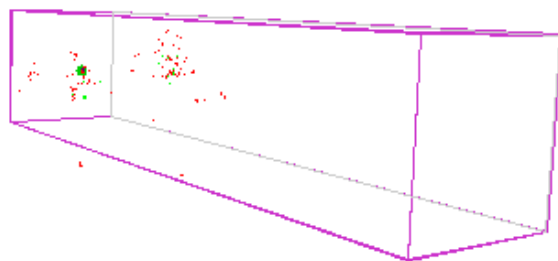
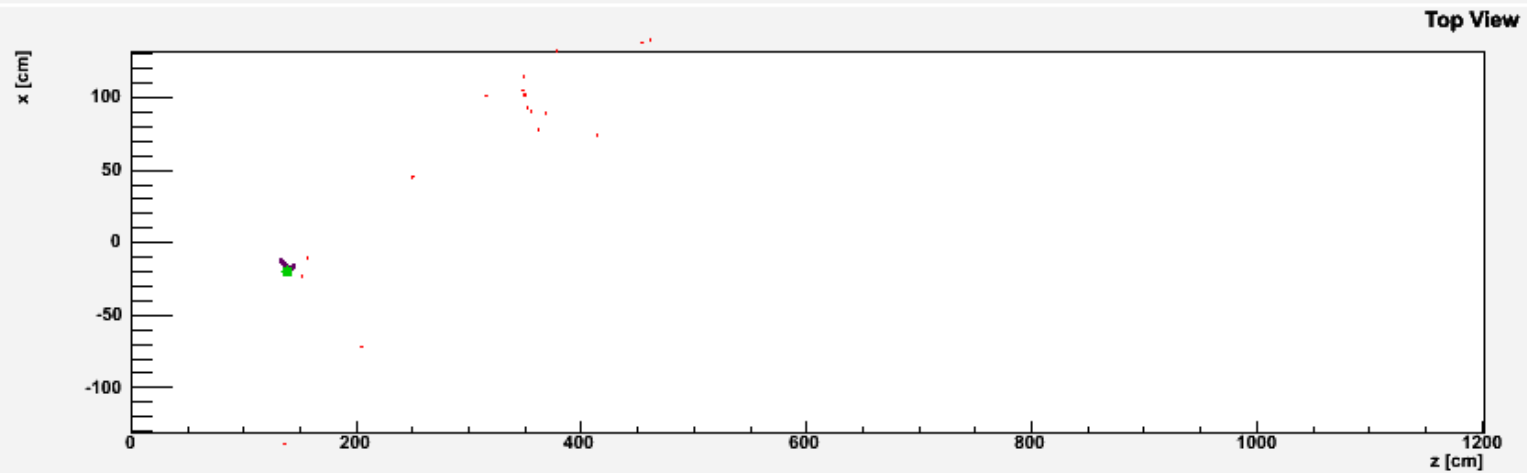
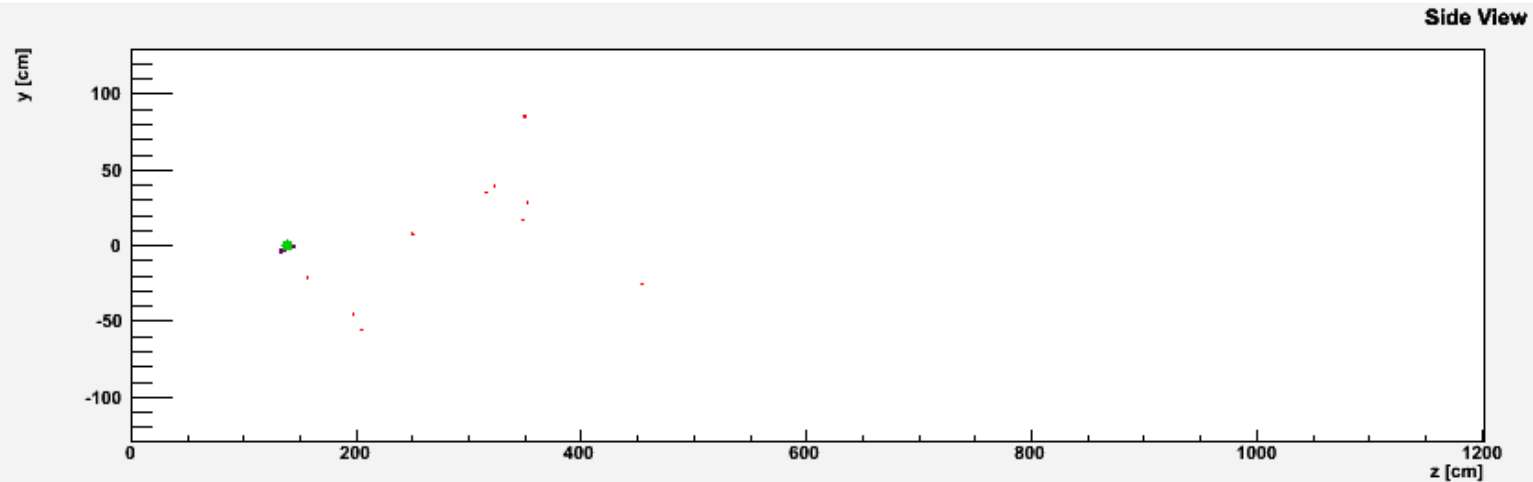


Voxels only



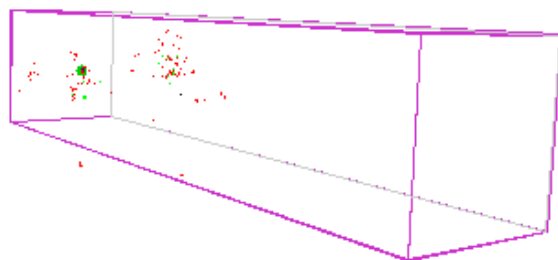
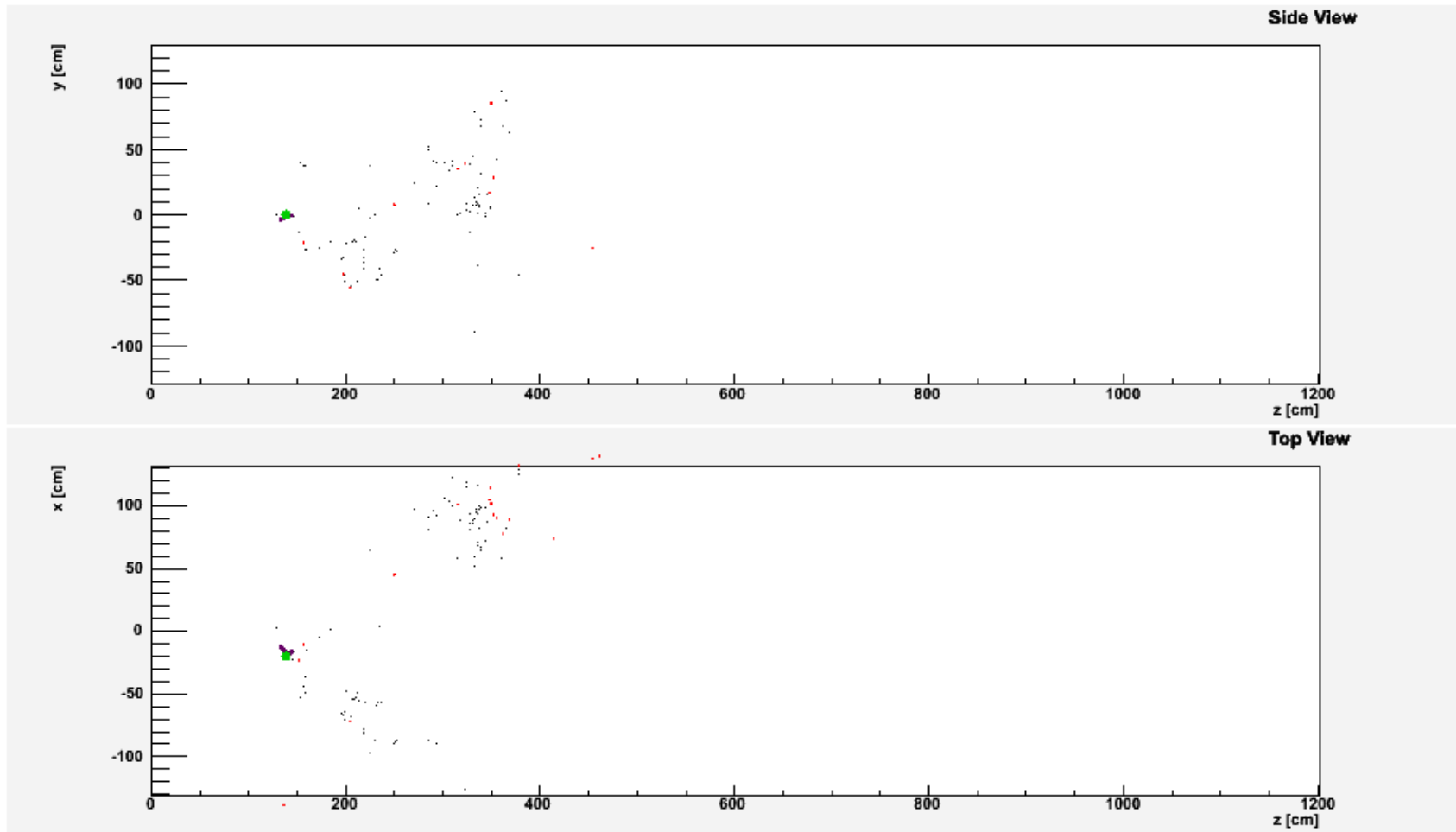
Incoming = 4.00 GeV  $\bar{\nu}_e$   
NC Mode = DIS  
Target = 18-Ar-040; Nucleon = p  
3 primary particles:  
0: 3.52 GeV  $\bar{\nu}_e$   
1: 1.07 GeV n  
2: 0.34 GeV  $\pi^+$

Charged tracks only



Incoming = 4.00 GeV  $\bar{\nu}_e$   
NC Mode = DIS  
Target = 18-Ar-040; Nucleon = p  
3 primary particles:  
0: 3.52 GeV  $\bar{\nu}_e$   
1: 1.07 GeV n  
2: 0.34 GeV  $\pi^+$

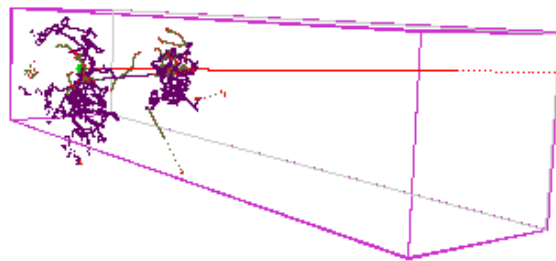
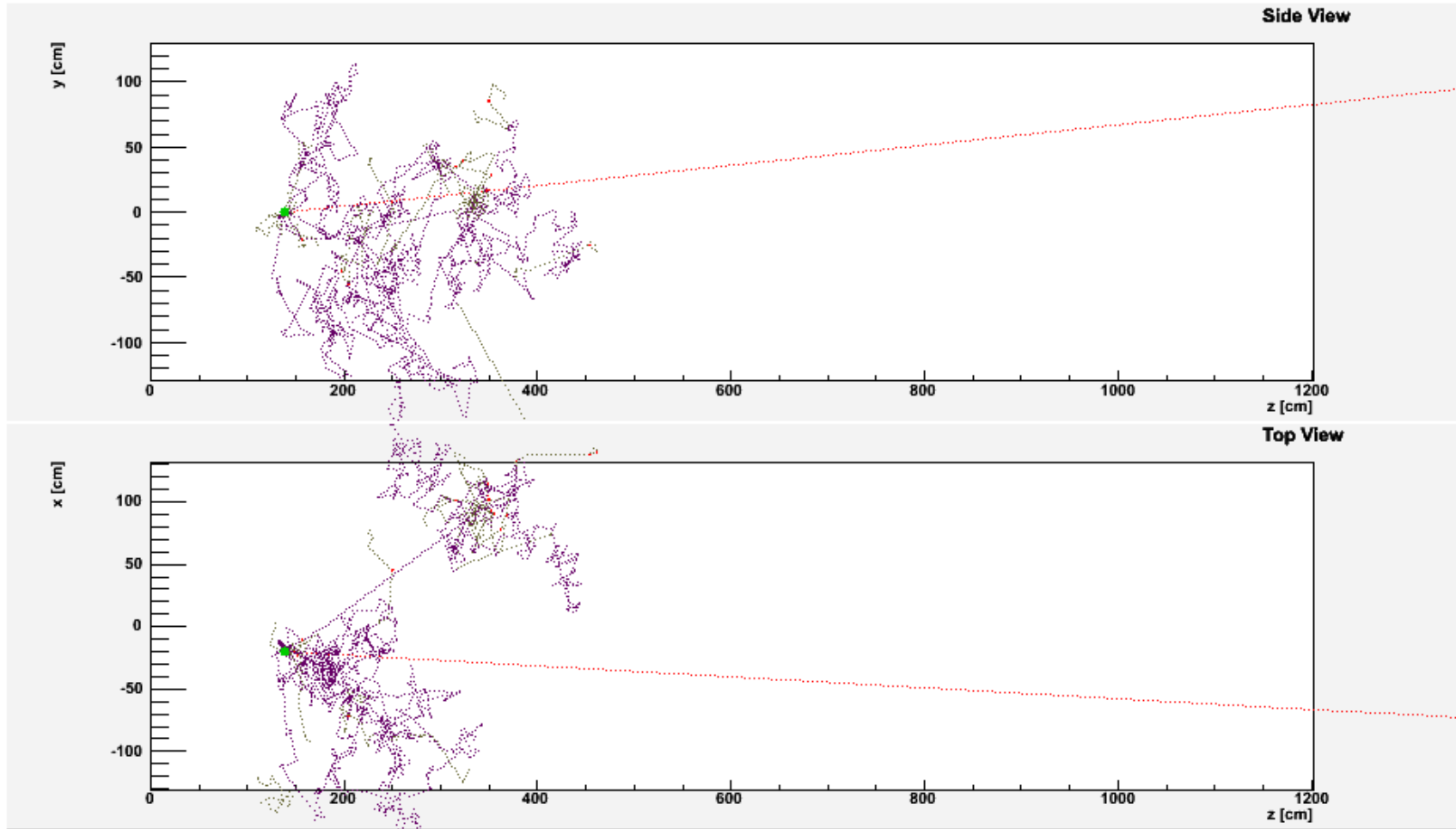
With voxels and tracks; no neutral tracks



Incoming = 4.00 GeV  $\bar{\nu}_e$   
NC Mode = DIS  
Target = 18-Ar-040; Nucleon = p  
3 primary particles:  
0: 3.52 GeV  $\bar{\nu}_e$   
1: 1.07 GeV n  
2: 0.34 GeV  $\pi^+$



Charged and neutral tracks

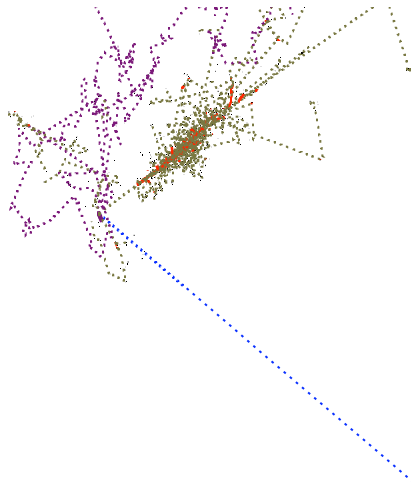


**Incoming = 4.00 GeV  $\bar{\nu}_e$**   
**NC Mode = DIS**  
**Target = 18-Ar-040; Nucleon = p**  
**3 primary particles:**  
**0: 3.52 GeV  $\bar{\nu}_e$**   
**1: 1.07 GeV n**  
**2: 0.34 GeV  $\pi^+$**

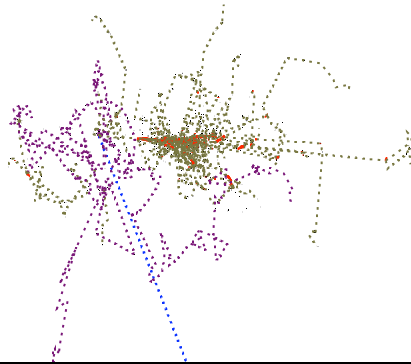
From an older version (buggy) of the event display, to illustrate points from my earlier talk

With voxels and tracks; neutral tracks included

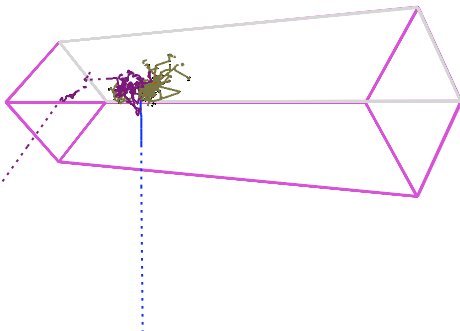
Side



Top



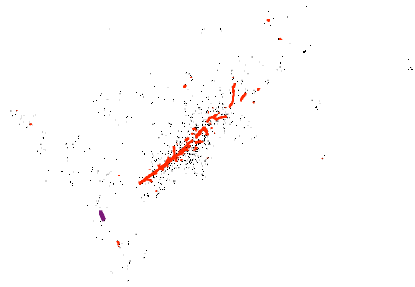
3D



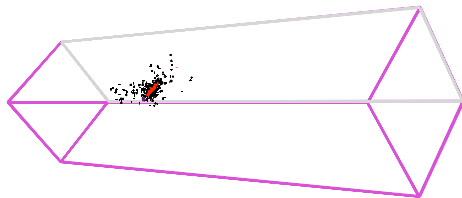
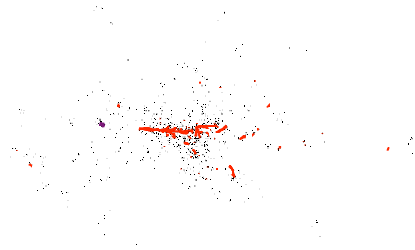
2009-03-05 23:17:59  
Run=999900, event=10  
Incoming=nu\_mu  
Energy=1.42 GeV  
NC Mode=DIS  
Target=N(14)  
Nucleon=neutron, Quark=d  
# primary particles=7

With voxels and tracks; neutral tracks *not* included

Side



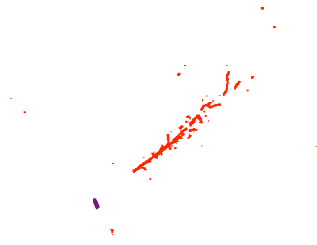
Top



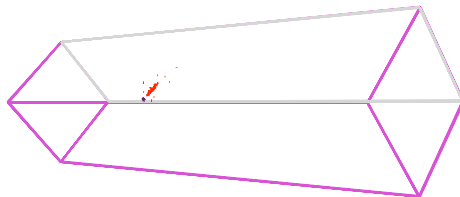
**2009-03-05 23:17:59**  
**Run=999900, event=10**  
**Incoming=nu\_mu**  
**Energy=1.42 GeV**  
**NC Mode=DIS**  
**Target=N(14)**  
**Nucleon=neutron, Quark=d**  
**# primary particles=7**

Tracks; neutral tracks *not* included; no voxels

Side



Top



**2009-03-05 23:17:59**  
**Run=999900, event=10**  
**Incoming=nu\_mu**  
**Energy=1.42 GeV**  
**NC Mode=DIS**  
**Target=N(14)**  
**Nucleon=neutron, Quark=d**  
**# primary particles=7**

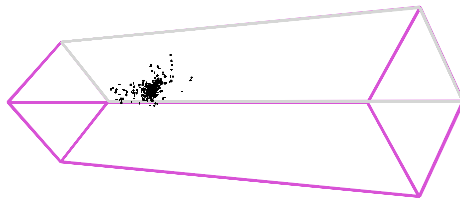
Voxels only



Side



Top



2009-03-05 23:17:59  
Run=999900, event=10  
Incoming=nu\_mu  
Energy=1.42 GeV  
NC Mode=DIS  
Target=N(14)  
Nucleon=neutron, Quark=d  
# primary particles=7