



Athena and Data Model a Plea for Help

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The Goal



Use athena-based software to

- Simulate,
- Reconstruct,
- Analyze

the events produced during DC2 starting next February (ish).

How Are we Doing?



- Probably on track, but I am not overconfident...
 - The physics community is doing a great job in moving their codes to athena.
 - But all the real work still rely heavily on atlsim, atrecon etc etc,
 - And no significant amount of data has been produced using the “new software”

What we are working on



- Integration with new persistency technology, LCG POOL (DM talk)
- PileUp Framework
- Python Scripting and Object Browser
- Object Associations
- Processing History
- Event Navigation

Python Scripting



Use an (excellent) programming language to configure and run your jobs.

- Release 7 milestone: full configuration capability (equivalent to existing job opts)
- Fun stuff to come: goal is to consolidate
 - Interactive job control
 - Data object browsing
 - Data analysis using pyroot
- Early involvement of physicists **fundamental**

PileUp Framework



Allow merging of physics and min bias events.

- Provide transparent access to overlaid event.
- Provide access to constituent events.

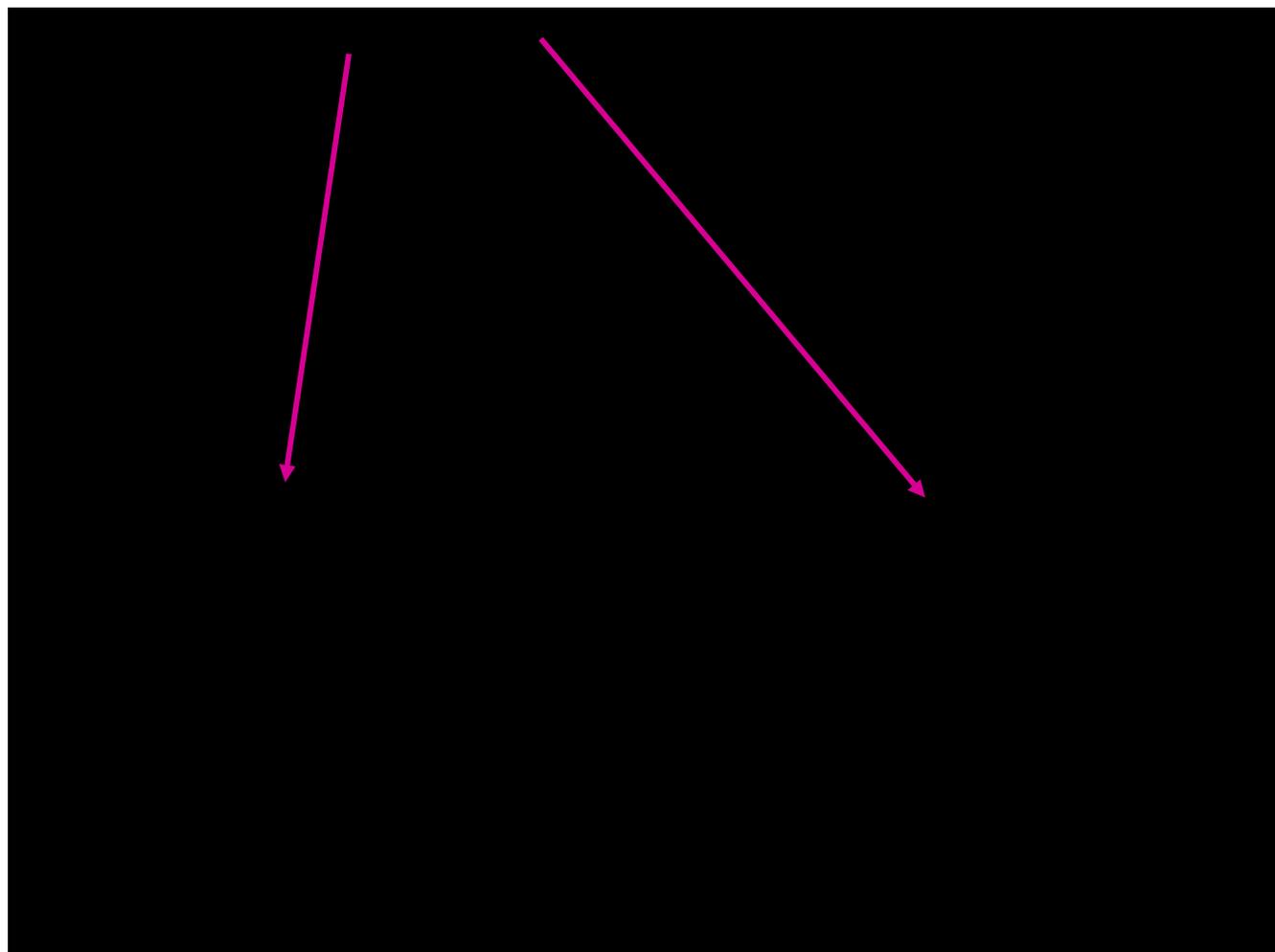
- Technically (almost) ready
 - Persistency-related annoyances
- Tested using Lar and Silicons
- Need a physicist to take responsibility and bring the tool to the community

“Technically Ready” is Not Enough!



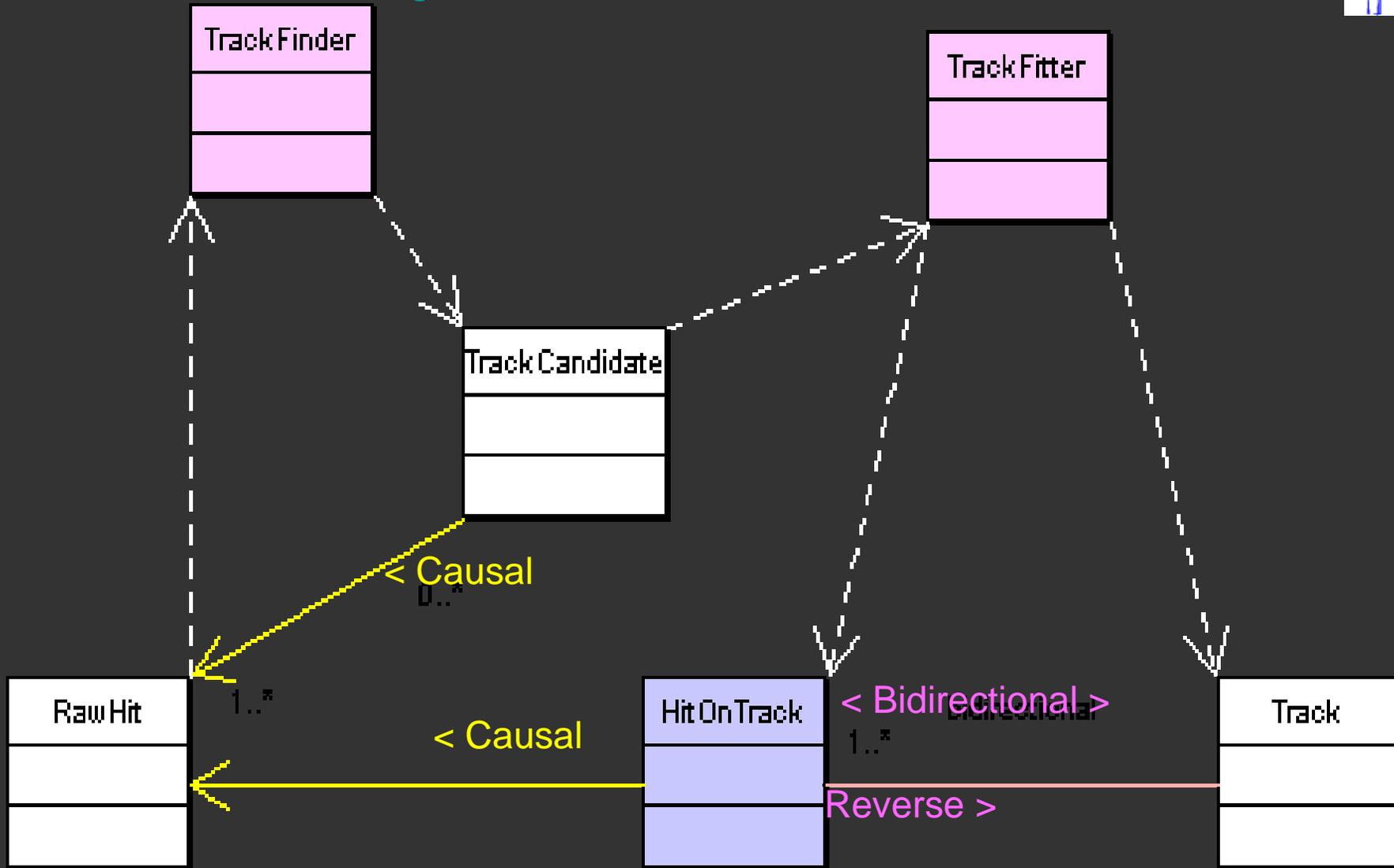
Energy from optimal filter not
correct for very out of time pulses
(no iteration)

G. Unal
Nov 02



BNL Aug 2003
US Atlas Computing & Physics

Object Associations





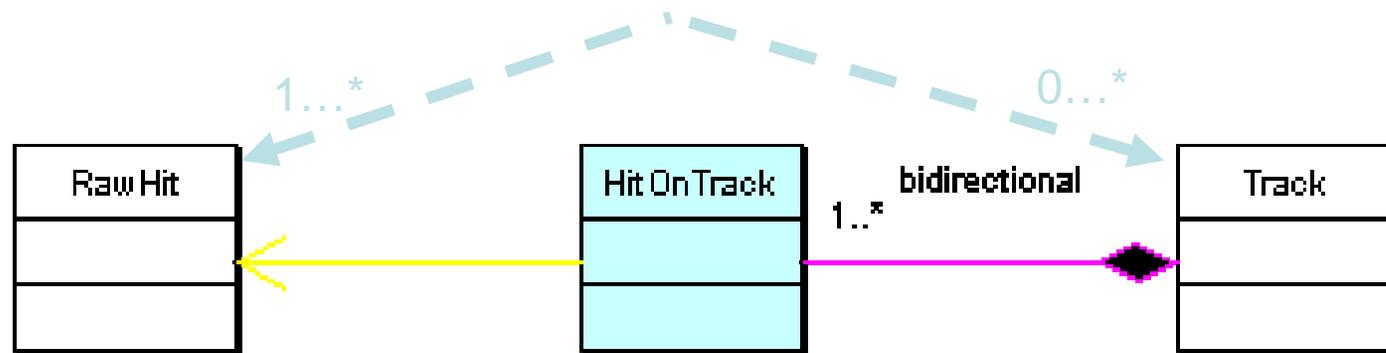
Association Object

A re-fitted hit has an association to each fitted track it belongs to

A fitted track has a list of assoc hits

Many to many, bi-directional association implemented using a separate Association Obj

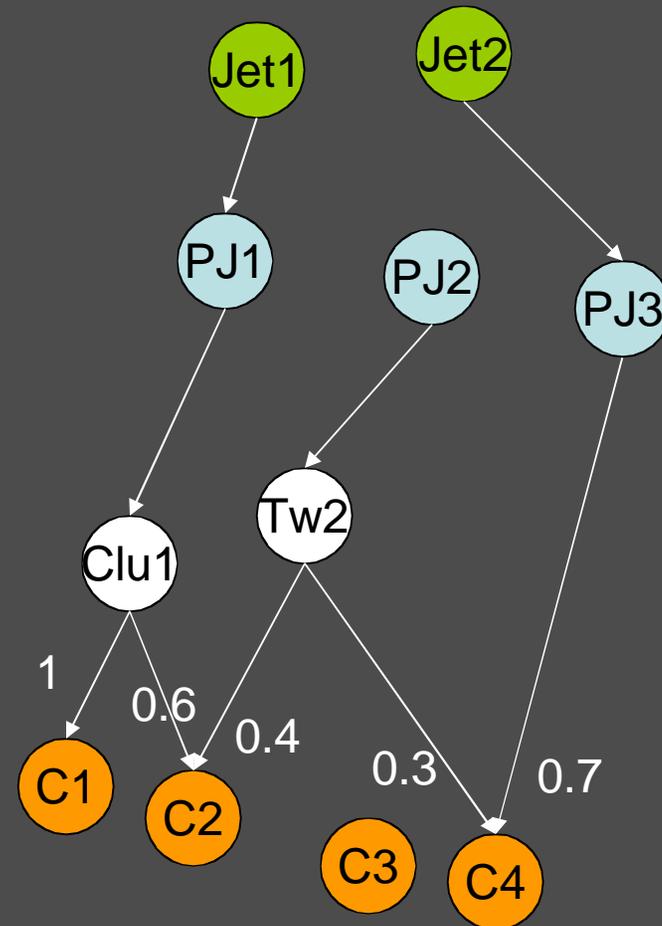
```
list<HitOnTrack> m_refHits;
```





Event Navigation

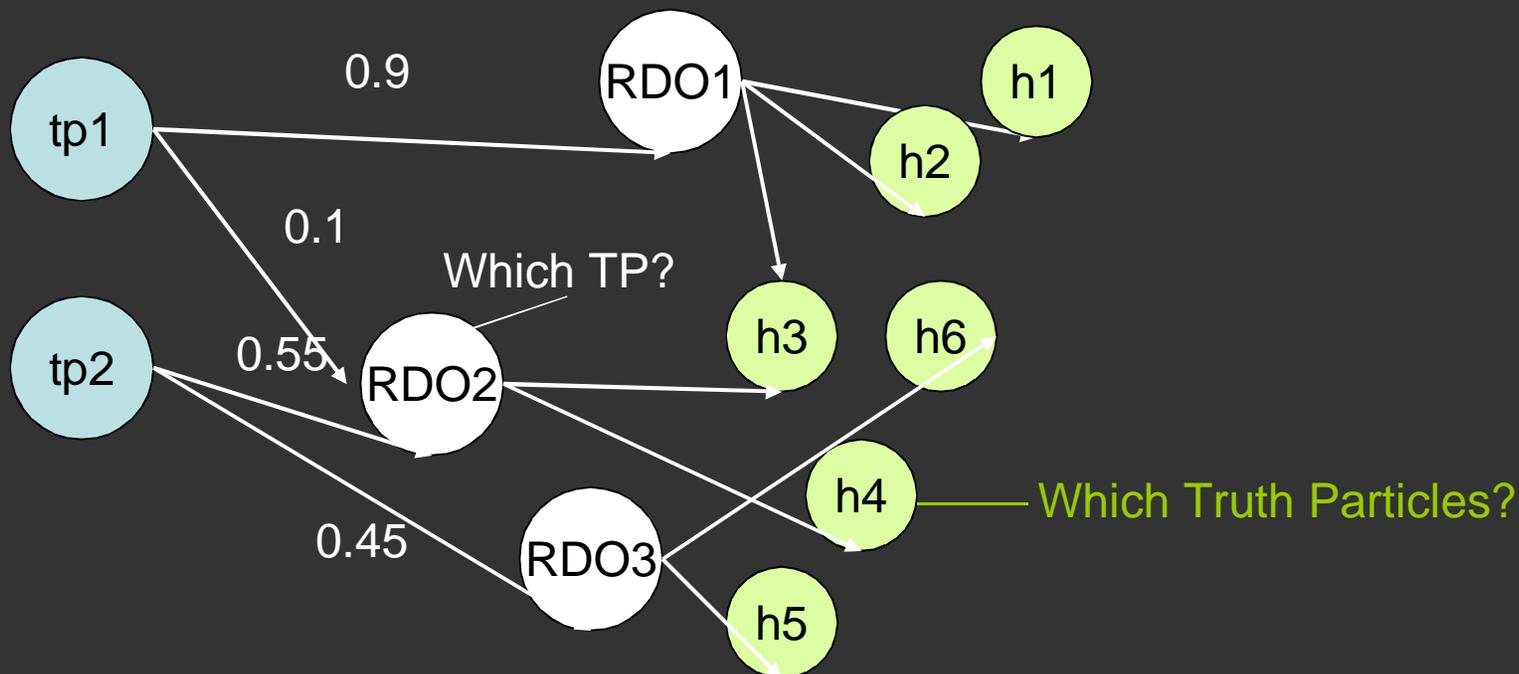
- Which Cells belong to Jet1?
- What's the Jet energy?
- Which Jet Cell4 belongs to?
- Which Cells do not belong to any Jet?
- What's the unassigned energy?





Truth Navigation

- Navigate from generator particles to simulated (Raw) Data Objects & viceversa
 - Optionally associate weights with edges



You Can Help!



- Ask questions and complain if we don't answer.
- Pitch in! We badly need physicists to get involved as kibitzers, designers, developers and early adopters.
 - PileUp is ripe to be picked by one or more physicists who know what to do with it!
 - Associations/Navigation is the hot subject of RTF discussions and IMO will be its most important follow-up.