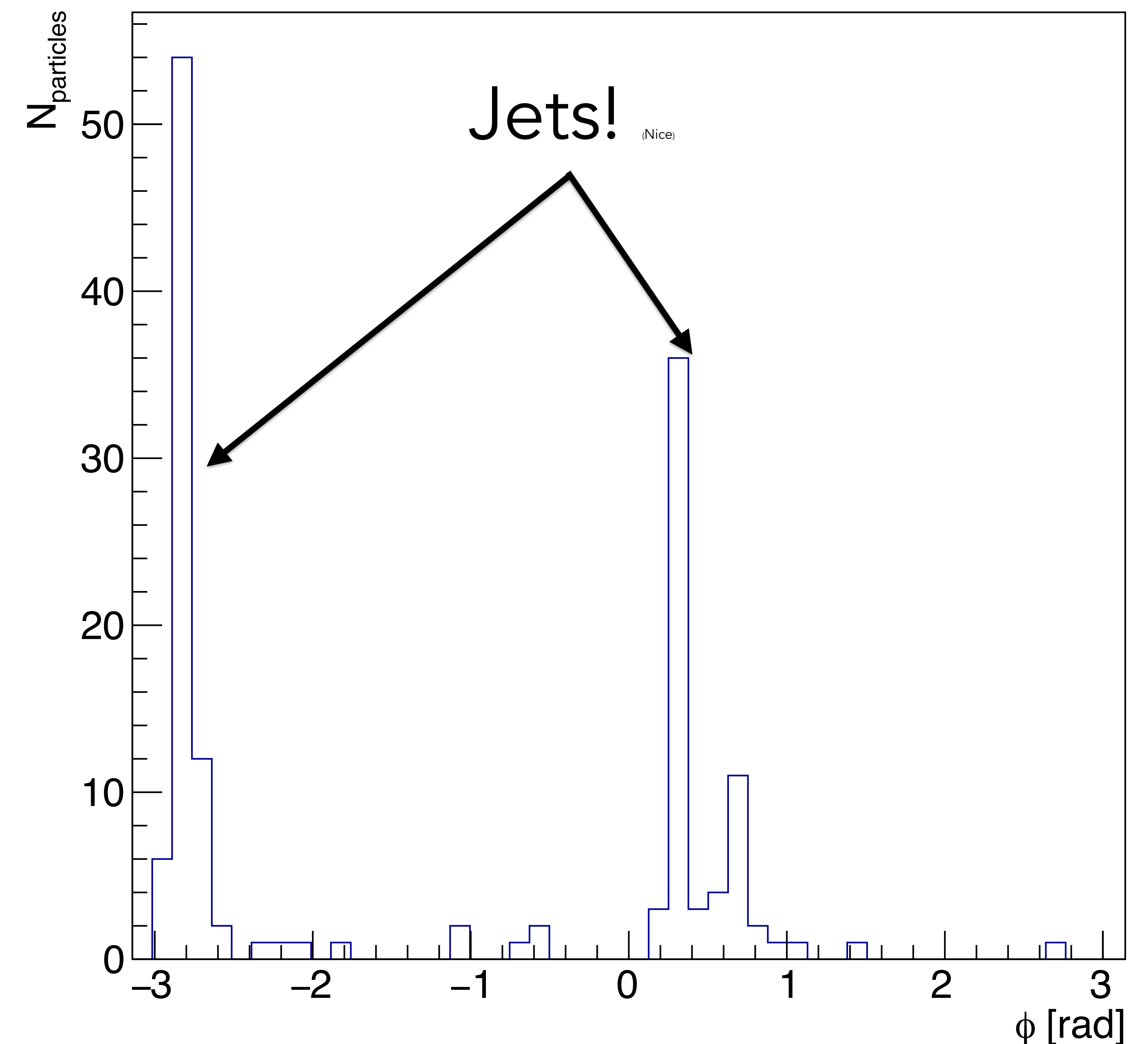


# Jet Reconstruction Update

Ben Johnson

- Started by creating jets:
  - Generated 1,000 diquark events in MadGraph via  $\mu^+\mu^- \rightarrow u\bar{u}$  at  $\sqrt{s} = 10$  TeV by default.
  - Showered these quarks using Pythia8 (had to do these steps locally. Couldn't get MadGraph's Pythia8 interface to work on the snowmass cluster?)
- Currently sending some of these events through simulation process with 10TeV\_v0A geometry without BIB [1] via Fede's steering files [?] (thanks Fede!)
  - Will report features (PDGid,  $p_T$ ,  $\eta$  and  $\phi$  distribution, ...) of the reconstructed objects once this is finished.



[1] [https://github.com/madbaron/detector-simulation/tree/KITP\\_10TeV/geometries/MuColl\\_10TeV\\_v0A](https://github.com/madbaron/detector-simulation/tree/KITP_10TeV/geometries/MuColl_10TeV_v0A)

[?] Unsure of what specific steering file to use. Fede?

# Empty event files for Pion Gun

- Many 3TeV pion gun samples have empty /reco\_k4 files.
- Documented the specific files here, along with the (slow) script I wrote:  
[https://github.com/bjohn214/test\\_for empties](https://github.com/bjohn214/test_for empties).
- Some findings:
  - ~93% of the files were empty.
  - Most populated was pionGun\_10 with 32 non-empty out of 100.
  - 500, 1000, 5000 were completely empty.
- Checked .sclio files *moments ago*.
  - Slightly more data with only ~84% of files having no events
  - Same trend for higher numbered files.