



Embedding & Efficiency Tools

April 9, 2000

ALICE-STAR Joint Meeting



General Idea

- ✦ Reconstruction chain → Star's Data Model for DST Analysis, "StEvent"
- ✦ Use Similar Data Model to access MC Data, "StMcEvent"
- ✦ Develop a systematic framework for relating Reco. ↔ MC Objects and use it to obtain efficiencies



Tools I : Data Models

✦ StEvent

- ★ OO Data Model, Th. Ullrich's Talk

✦ StMcEvent

- ★ Aim is to analyze Monte Carlo data with the same OO approach as StEvent.
- ★ BUT.. MC data is in tables.
 - ★ Create Objects from existing tables
 - ★ Provide users with similar methods to analyze MC and Reconstructed data



Tools II: StAssociationMaker

- ✦ Uses StEvent & StMcEvent Objects (post DST)
 - ★ Hits, Tracks and Vertices
- ✦ Builds associations between the objects (using loose cuts)
- ✦ Mapping is made available to analysis code downstream
 - ★ use mapping in determination of efficiencies.

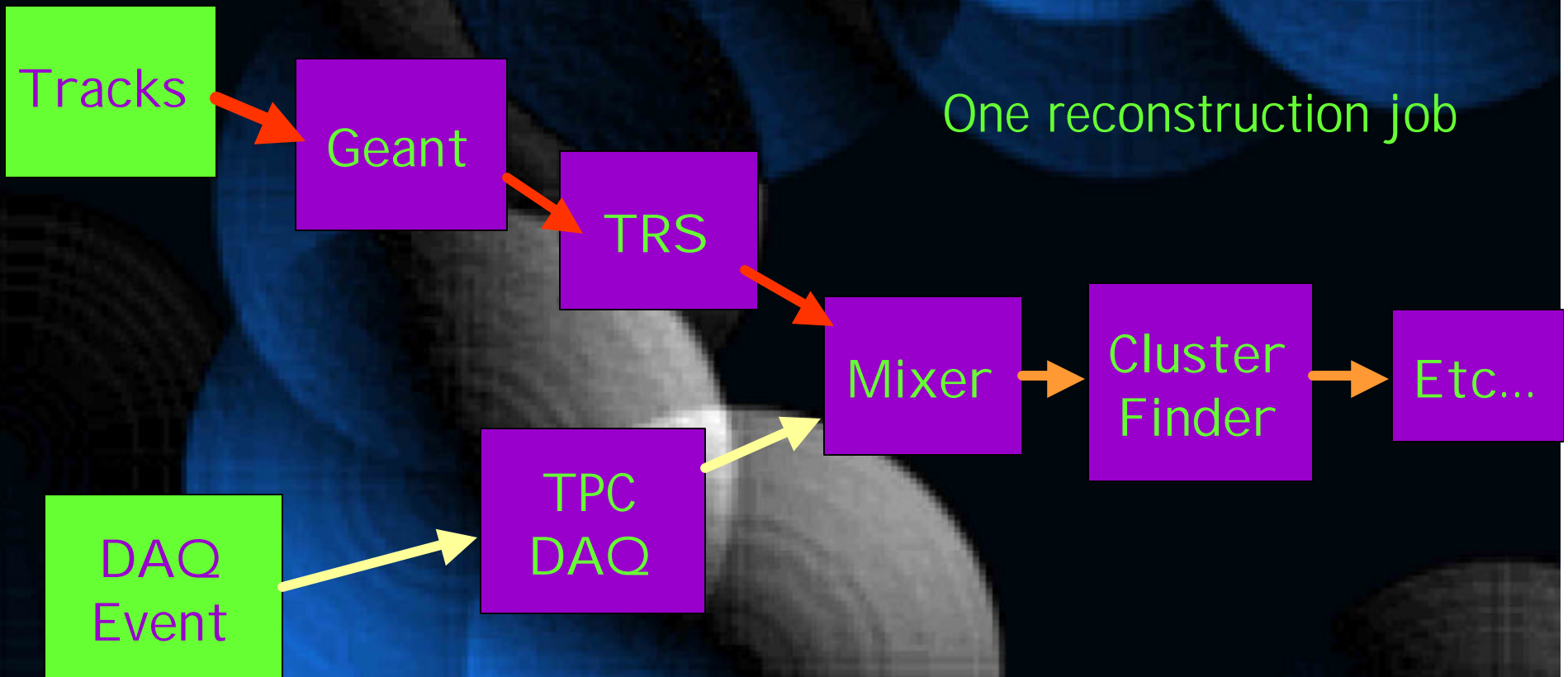


Tools III : Embedding

- ✦ Generate MC tracks and mix into an event before running reconstruction
- ✦ Breaking of the standard chain into:
 - ★ Generating of the embedded tracks
 - ★ Event Generator, GEANT, TRS
 - ★ Reading of an event file
 - ★ DAQ or previously simulated TRS event
 - ★ Mix events at the ADC level and pass Mixed data to rest of the reconstruction code

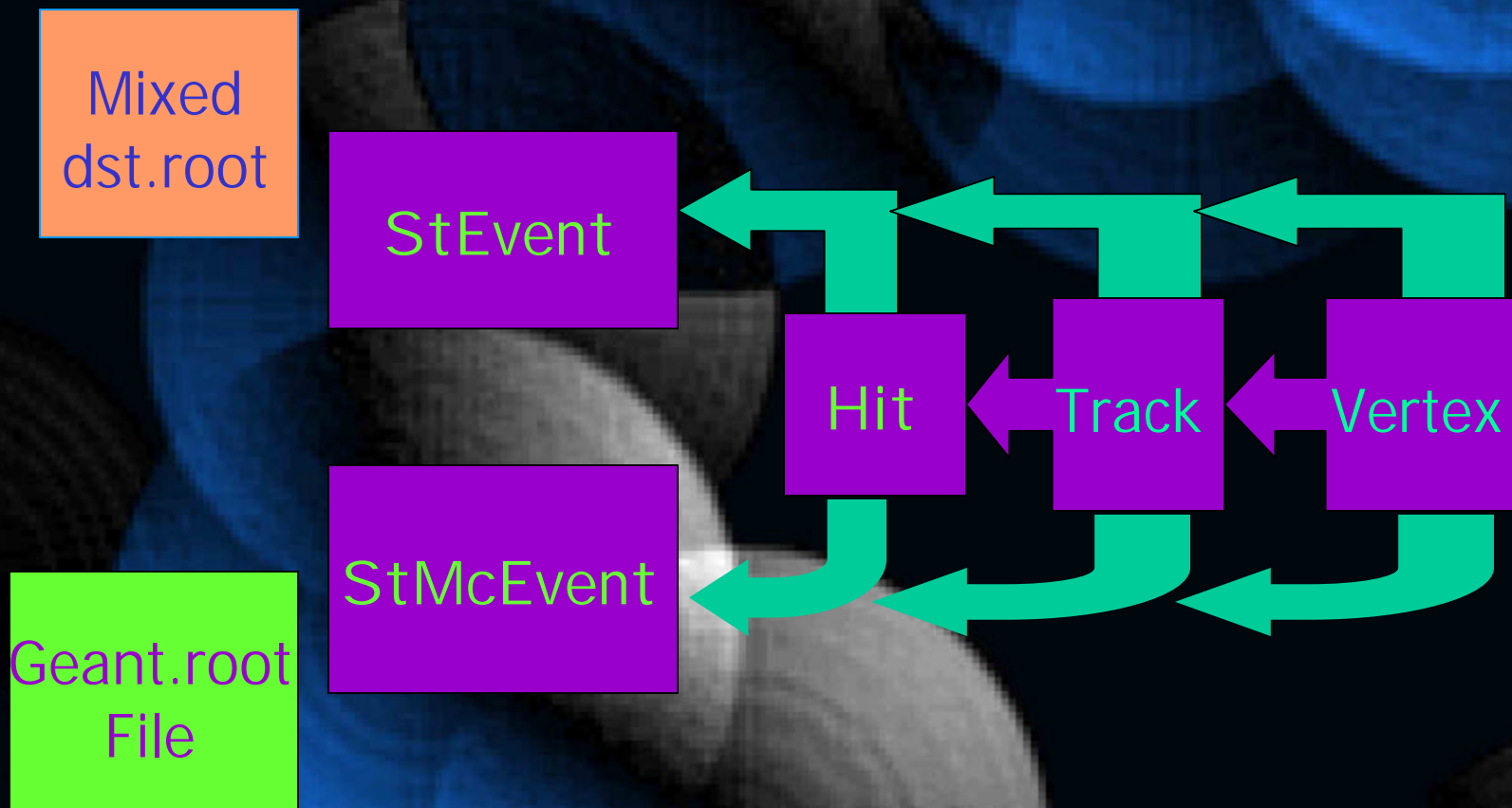


Embedding Chain(s)





Embedding & Associations





Association Criteria

- ✦ Hit Association (TPC, SVT, FTPC)
 - ★ Proximity Matching
- ✦ Track Association
 - ★ Number of Common Hits
- ✦ Vertex Association
 - ★ Vertex topology
 - ★ Parent & Daughter tracks are matched
 - ★ Matched tracks are also Parent-Daughter
- ✦ Many to Many Association in all cases



Status & Summary

- ✦ StMcEvent & Association Maker are currently in use
- ✦ Mixing chain in final stages of development
- ✦ Framework will be in place for analysis of real data...stay tuned.