

b-quark id in p08

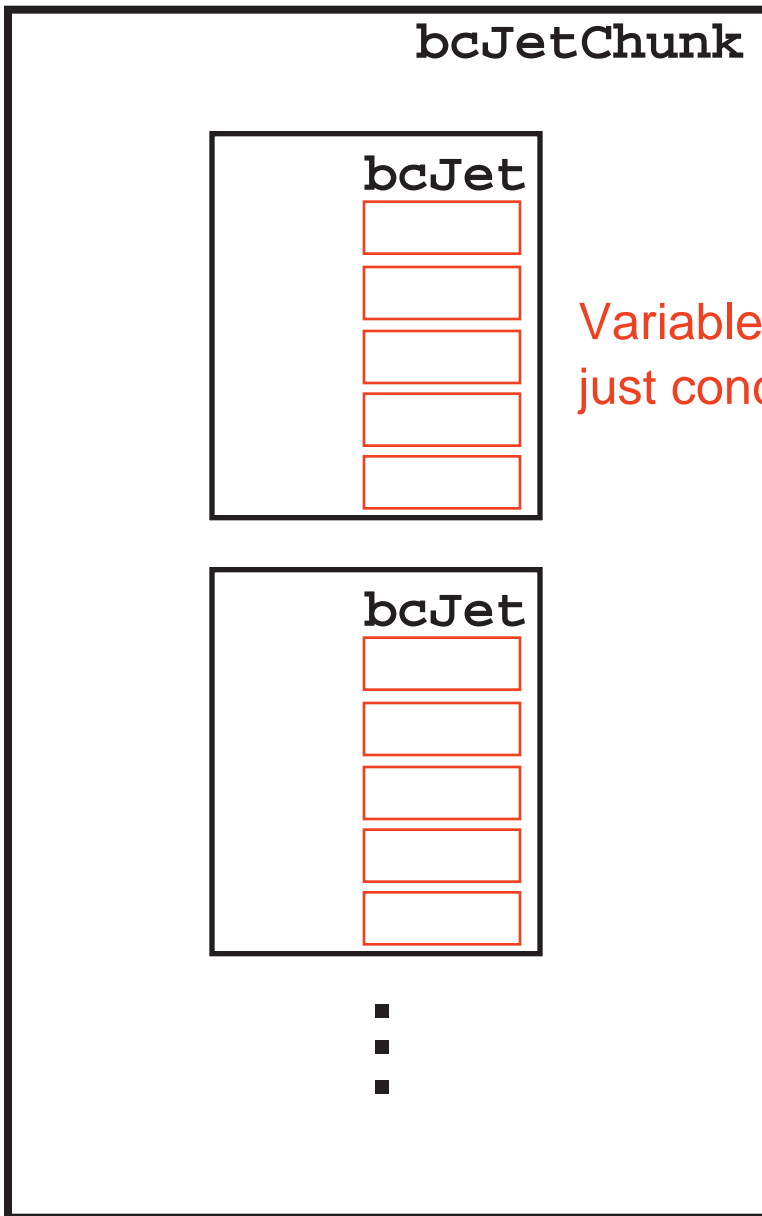
*b-id Group
Rick Van Kooten*

31 Jan. 2001

What was planned for p08:

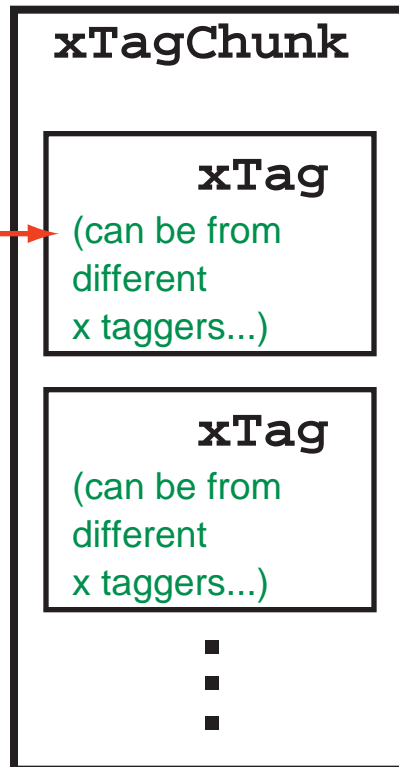
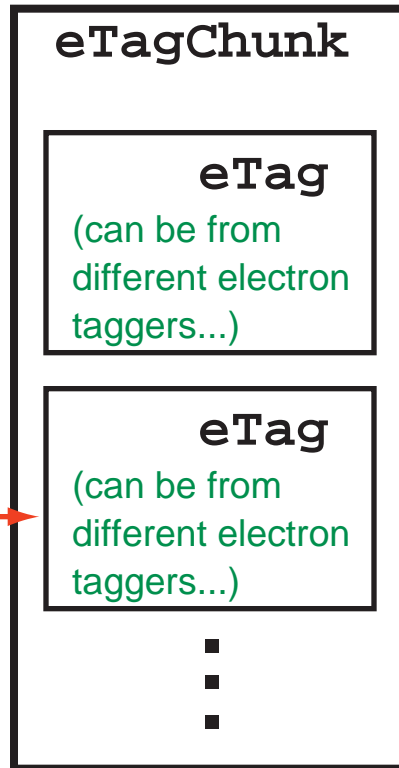
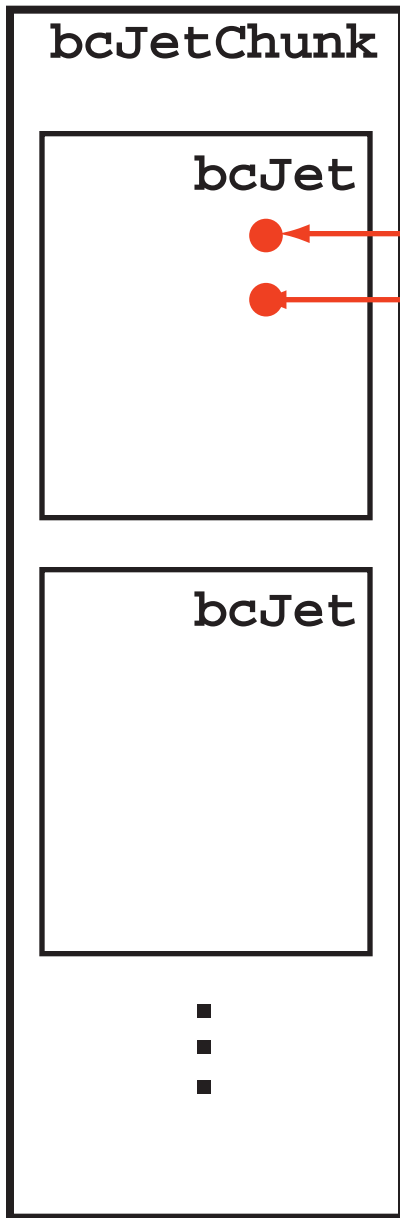
- **Reorganization of bcJetChunk / bcJet**
 - ⇒ increased (necessary) flexibility
 - ⇒ re-running of one tagger, keeping others' info, recombine (e.g., NNet, likelihood)
- Designed (w/ Paterno & Kowalkowski)
- Now being implemented (Baringer/Coppage)
- Design took longer than anticipated, fully implemented and tested won't make p08
- **Fall-back solution** ⇒

- "Old-style" chunk



Variables/output from taggers just concatenated into bcJet

- New, reorganized bcJet chunk



- new chunks / classes in `bcjet_evt`
- separate framework packages for each different tagger types

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- **Fall-back solution**

- ⇒ old-style bcJetChunk released

- ⇒ chunk now made persistent; testing in d0reco, fixing glitches

- ⇒ bcjet_analyze tuple added to d0reco tuple

- ⇒ tuning RCP files

- ⇒ five taggers running

- eTagAlg (semreco),
work started on NNet (Georg Steinbrueck)

- muTagAlg,
working on muon matching (Onne Peters)

- SecVtxAlg,
(interfaces to vertexreco) (Ariel Schwartzman)

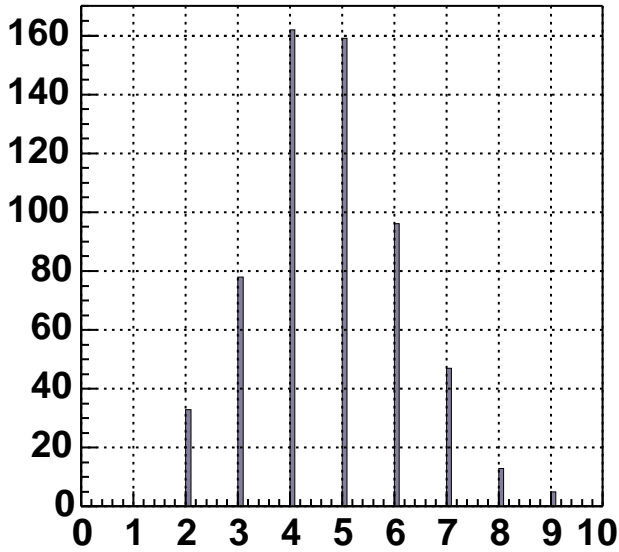
- JetImpAlg,
(needs optimization) (Frank Filthaut,
Bram Wijngaarden)

- LikelihoodAlg,
(two variables) (Pavel Demine, Arnaud Lucotte)

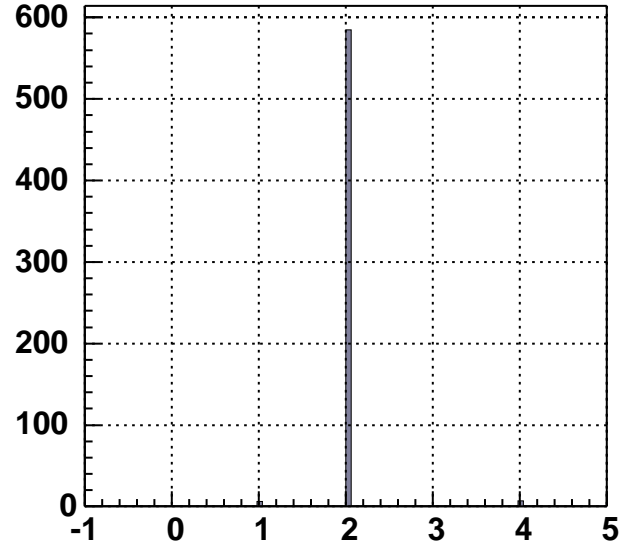
- ⇒ **Verification/certification plots for p08** ⇒
from d0reco tuple **examples**

- **Work continuing in parallel on new chunk and interfacing**

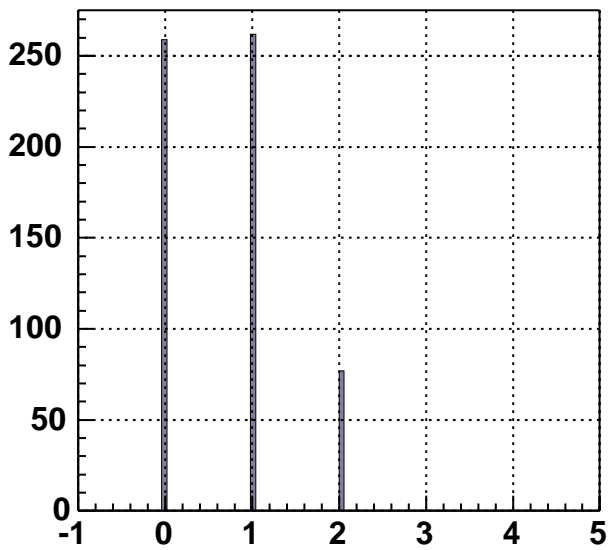
Number of jets



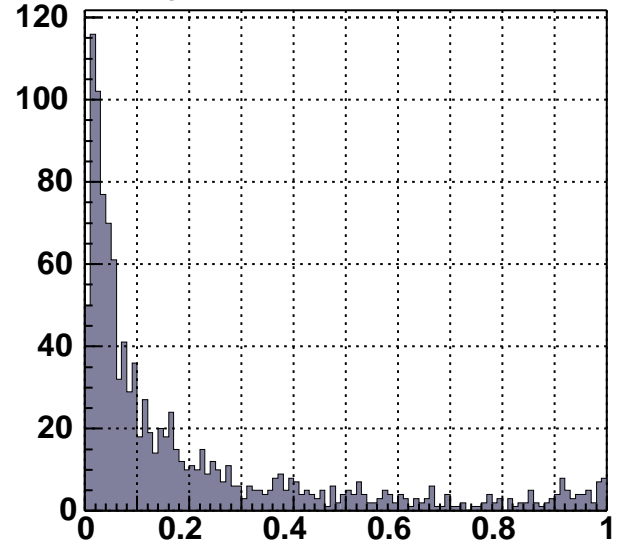
Number of b-quarks



Number of matched b-jets

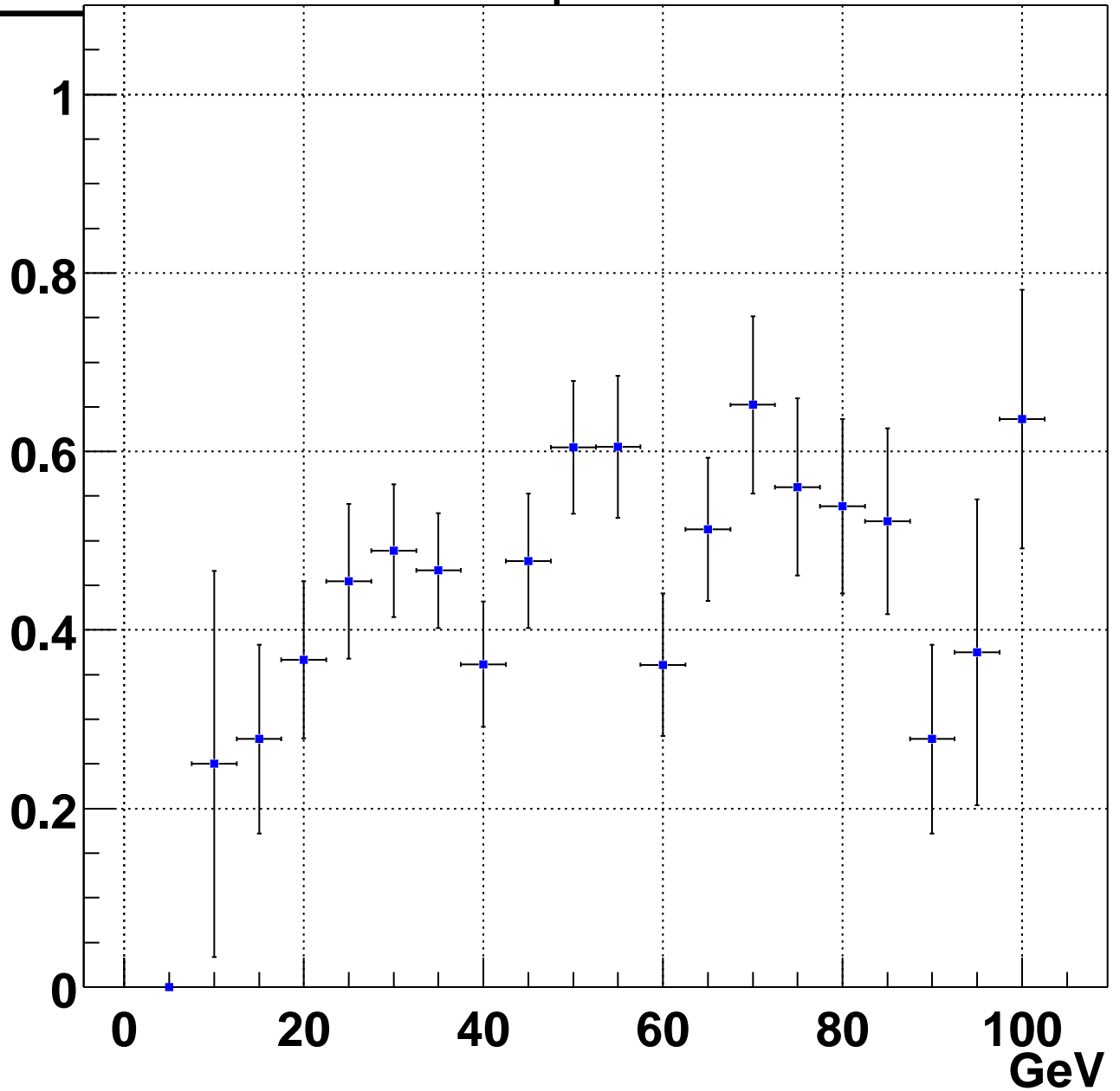


DR jet-quark



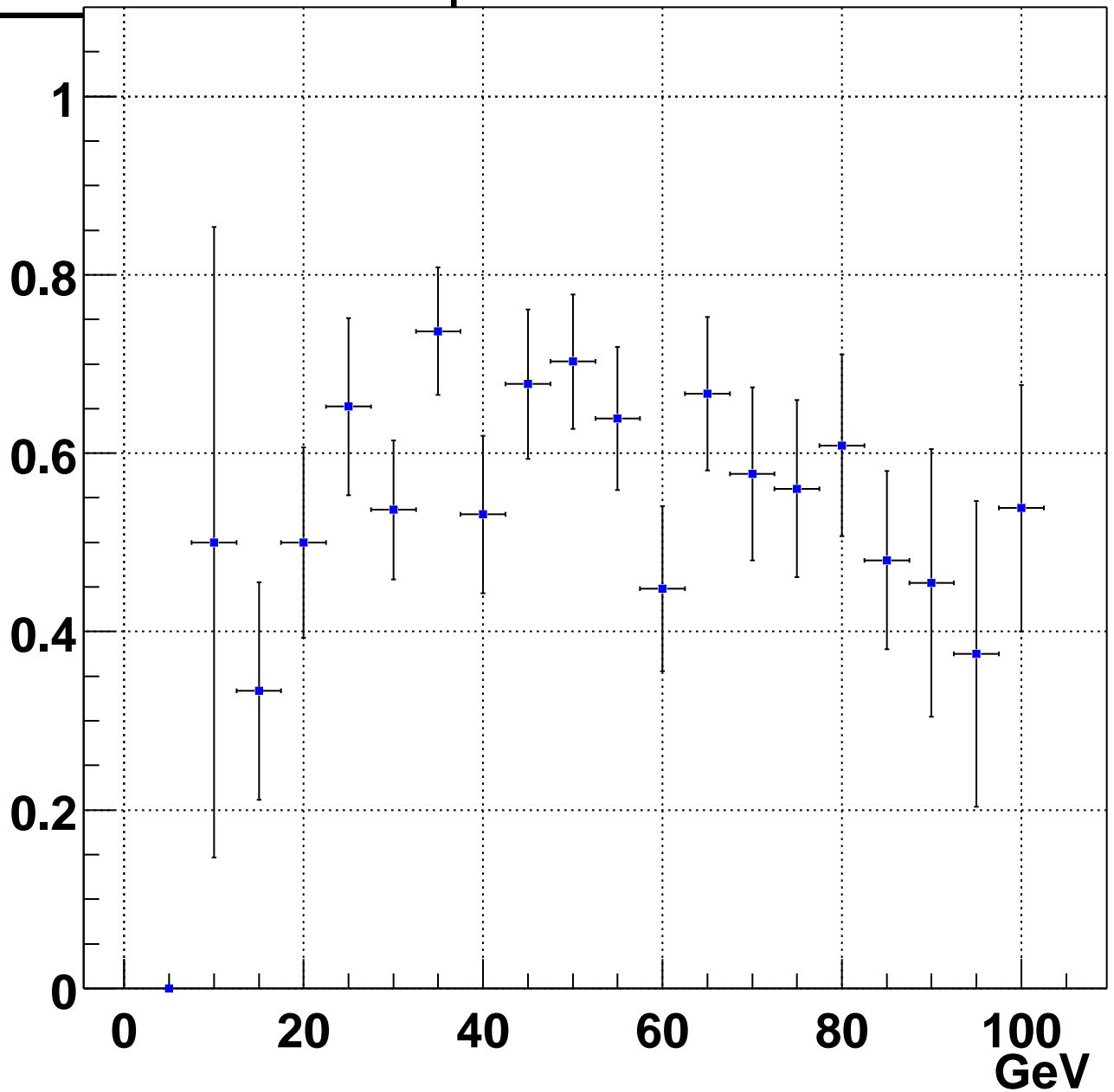
- e.g., definition of *b* jet for efficiency:
reco jet classified as a *b* if closest *b* quark at a distance $dR < 0.3$

B-Tagging efficiency vs. Pt

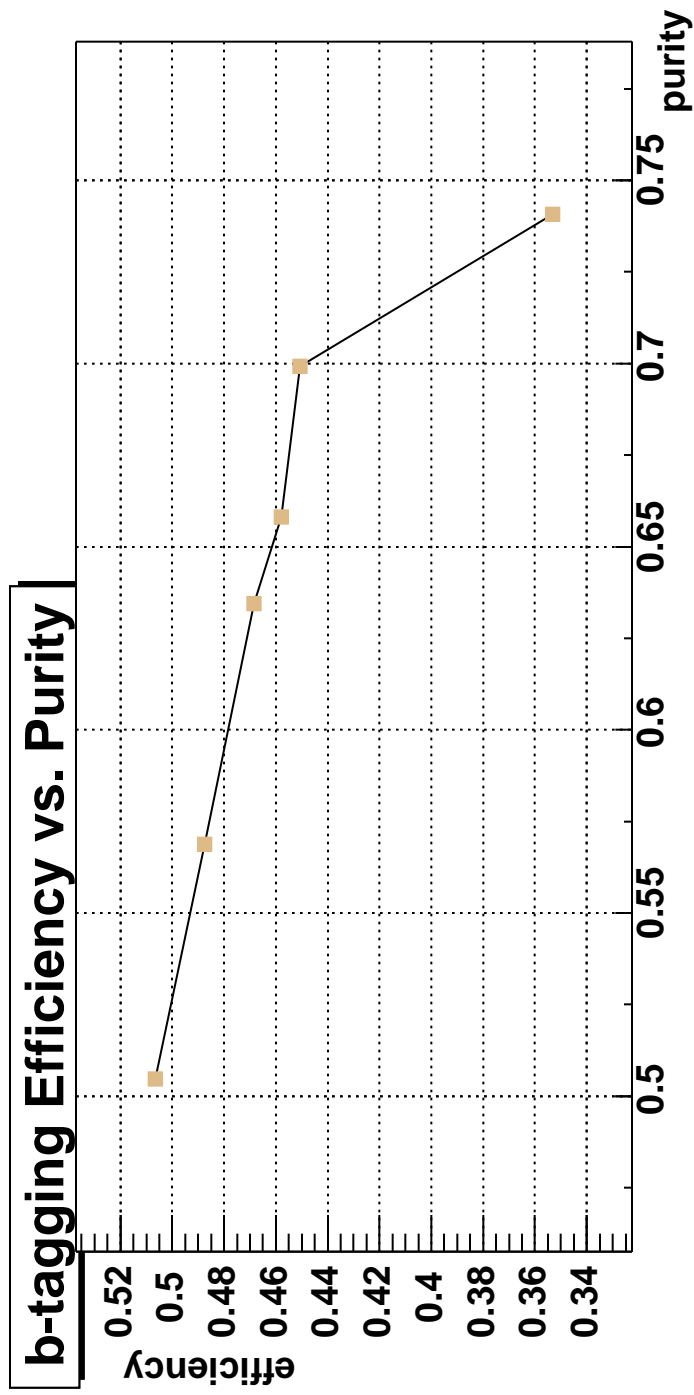
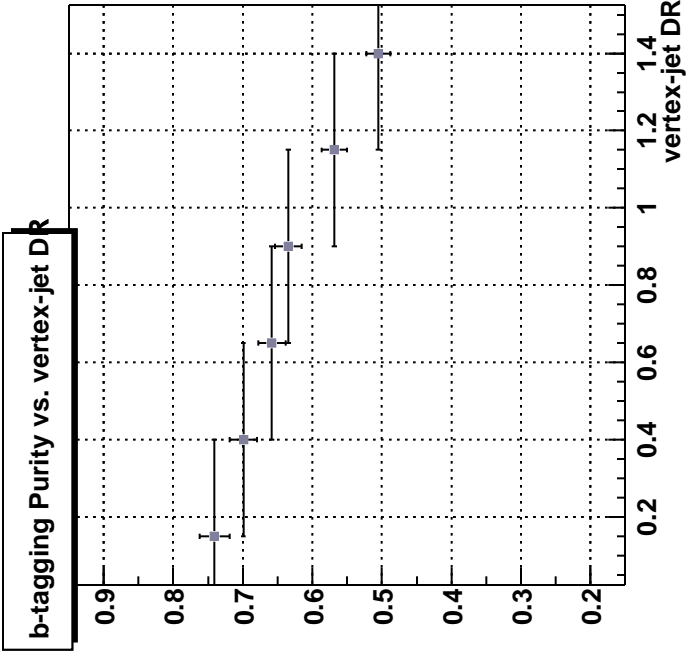
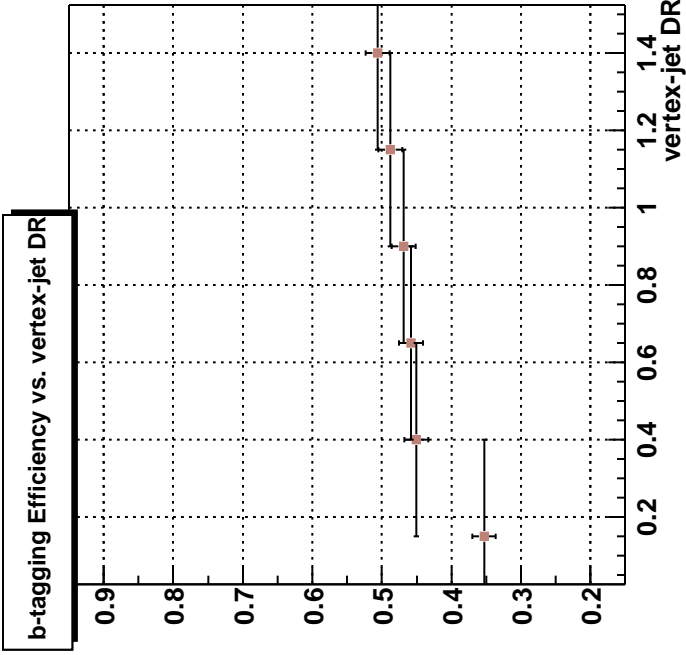


- $t\bar{t}$ certification sample, 600 events, verification plot, SecVtxAlg (Ariel S.)

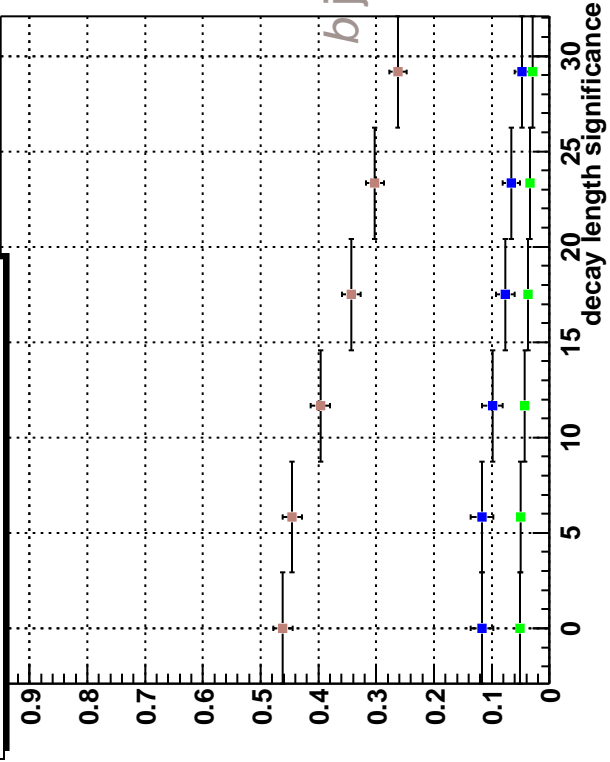
B-Tagging purity vs. Pt



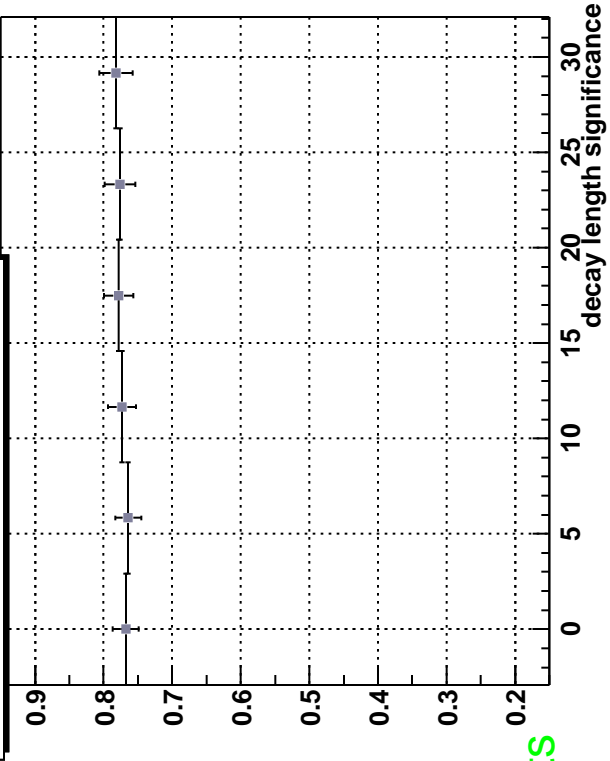
- $t\bar{t}$ certification sample, 600 events
verification plot, SecVtxAlg (Ariel S.)



b-tagging Efficiency vs. decay length sig



b-tagging Purity vs. decay length sig



b-tagging Efficiency vs. Purity

