

# Analysis Code, SVN and Trigger

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OU HEP meeting

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# Analysis update

- **2012 Analysis code:**
  - Committed the first compiling and running version (tested on MC12 file)
    - <https://svnweb.cern.ch/trac/atlasusr/browser/bernius/TauPlusJets2012>
  - Code **NOT** updated to 2012 recommendations yet
    - still work on-going
  - Regarding MC/data:
    - Most samples (signal sample not ready yet!)
    - Status can be seen here:
      - <https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/TopMC12>
      - see AMI ntup\_top link!!

additionalFields	logicalDatasetName	nFiles	totalEvents	dataType	PDF	TransformationPackage
<a href="#">+</a>	<a href="#">mc12_8TeV.105200.McAtNloJimmy_CT10_tbar_LeptonFilter.merge.NTUP_TOP.e1193_s1469_s1470_r3542_r3549_p1104</a> <small>Campaigns - DQ2 - GANGA export - Provenance - Series</small>	0	0	NTUP_TOP		17.2.3.5.1 17.2.3.5.1

- From email exchange with Ford: We are/will be one of the first groups using these samples and recommendations, they need feedback from us!!
- Updated twiki page:
  - <https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/TopCrossSectionTauJetsChannel>
  - Not many contributions so far....this should change!!

# Analysis update - atlasusr SVN



atlasusr

logged in as bernius | [Logout](#) | [Preferences](#) | [Help/Guide](#) | [About Trac](#)

	<a href="#">Wiki</a>	<a href="#">Timeline</a>	<a href="#">Roadmap</a>	<b><a href="#">Browse Source</a></b>	<a href="#">View Tickets</a>	<a href="#">New Ticket</a>	<a href="#">Search</a>
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[Last Change](#) | [Revision Log](#)

root / **bernius**

View revision:

Name ▲	Size	Rev	Age	Last Change
<a href="#">..</a>				
▶ <a href="#">HplusCore</a>		90434	2 weeks	bernius: removing wrong tag directory
▼ <a href="#">TauPlusJets2012</a>		93015	3 days	bernius: inputPars DEBUG =0 again
▼ <a href="#">tags</a>		93013	3 days	bernius: first running version
▶ <a href="#">TauPlusJets2012-00-00-01</a>		90501	2 weeks	bernius: initial import
▶ <a href="#">TauPlusJets2012-00-00-02</a>		92576	5 days	bernius: <a href="#">Bill/Anirvan?</a> changes adapted
▶ <a href="#">TauPlusJets2012-00-00-03</a>		92600	5 days	bernius: working version
▶ <a href="#">TauPlusJets2012-00-00-04</a>		92846	4 days	bernius: see <a href="#">ChangeLog?</a>
▶ <a href="#">TauPlusJets2012-00-00-05</a>		93007	3 days	bernius: first running version
▶ <a href="#">TauPlusJets2012-00-00-06</a>		93013	3 days	bernius: first running version
▼ <a href="#">trunk</a>		93015	3 days	bernius: inputPars DEBUG =0 again
▶ <a href="#">HplusChallenge</a>		92987	3 days	bernius: added missing file
▶ <a href="#">hplusRootCoreRelease</a>		92843	4 days	bernius: see <a href="#">ChangeLog?</a>
▶ <a href="#">myMacros</a>		90449	2 weeks	bernius: initial import
▶ <a href="#">run</a>		93015	3 days	bernius: inputPars DEBUG =0 again
▶ <a href="#">scripts</a>		92668	4 days	bernius: removed files from scripts
<a href="#">ChangeLog</a>	7.6 KB	93012	3 days	bernius: first running version
<a href="#">README</a>	6.4 KB	93011	3 days	bernius: first running version

Note: See [TracBrowser](#) for help on using the browser.



# A few words about SVN (1)

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- SVN (Subversion):
  - <https://twiki.cern.ch/twiki/bin/viewauth/Atlas/SoftwareDevelopmentWorkBookSVN>
- SVN Repositories:
  - 3 main repositories: `atlasoff`, `atlasusr`, `atlasgrp` (read-only mode, will eventually be abandoned)
    - Combined performance repository: `atlasperf`
    - Institutes repository: `atlasinst`
    - physics groups repository: `atlasphys`
    - new groups repository: `atlasgroups`
- Access to SVN Repositories:

```
svn+ssh://svn.cern.ch/repos/atlasoff
svn+ssh://svn.cern.ch/repos/atlasusr
svn+ssh://svn.cern.ch/repos/atlasgrp
svn+ssh://svn.cern.ch/repos/atlasgroups
svn+ssh://svn.cern.ch/repos/atlasphys
svn+ssh://svn.cern.ch/repos/atlasperf
svn+ssh://svn.cern.ch/repos/atlasinst
```



# A few words about SVN (2)

- Structure of SVN repositories
  - Within each repository, there is a tree of directories and files
  - directories can contain other directories and packages
  - packages are directories which contain only trunk, tags and branches:
    - trunk: head version which contains the latest modifications
    - tags: contains named subdirectories (tags) which correspond to trunk versions at certain times (snapshot of trunk at a given time)
    - branches: correspond to development branches of the package

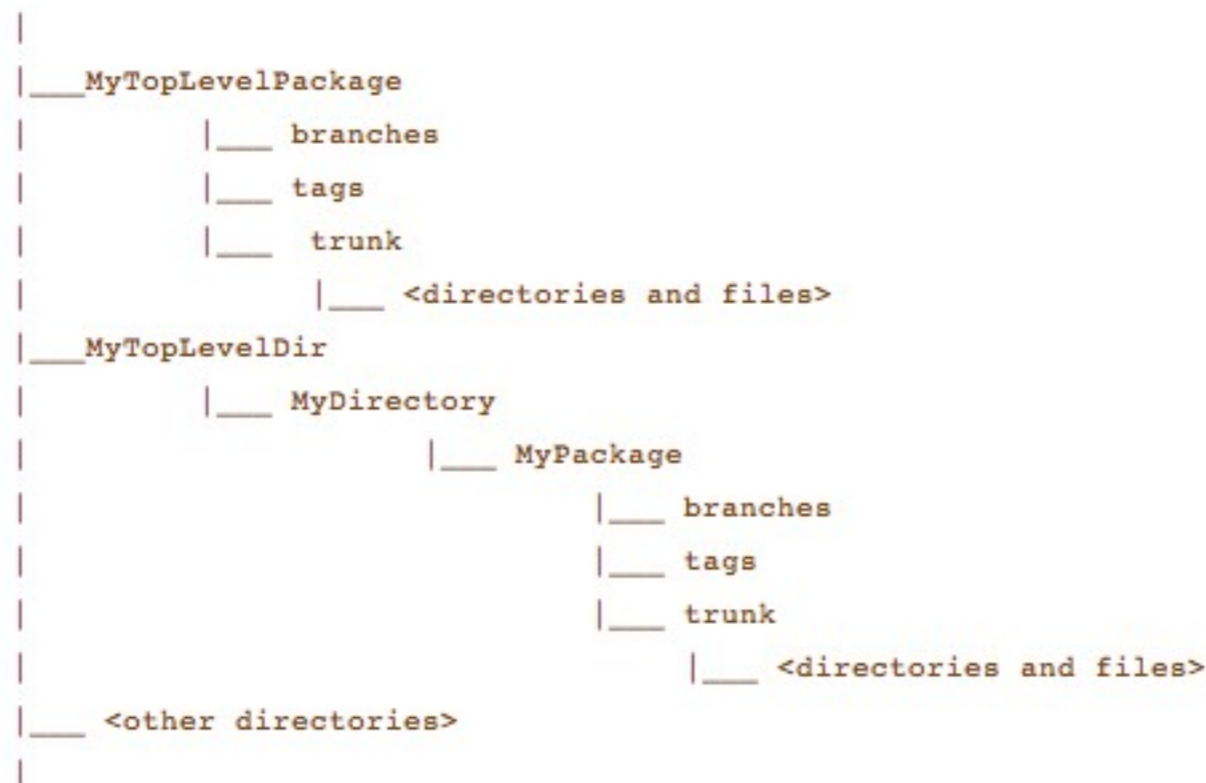
```
|  
|__ MyTopLevelPackage  
|    |__ branches  
|    |__ tags  
|    |__ trunk  
|        |__ <directories and files>  
|__ MyTopLevelDir  
|    |__ MyDirectory  
|        |__ MyPackage  
|            |__ branches  
|            |__ tags  
|            |__ trunk  
|                |__ <directories and files>  
|__ <other directories>  
|
```





# A few words about SVN (3)

- Structure of SVN repositories
  - Within each repository, there is a tree of directories and files
  - directories can contain other directories and packages
  - packages are directories which contain only trunk, tags and branches:
    - trunk: head version which contains the latest modifications
    - tags: contains named subdirectories (tags) which correspond to trunk versions at certain times (snapshot of trunk at a given time)
    - branches: correspond to development branches of the package





# A few words about SVN (4)

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- After checking out a package, you have a local version in your home area
- You can modify this local version, test it and make sure your changes are compiling and running without (new) errors/warnings
- Then check your local version with eventual changes from svn that might have been done in the meanwhile before committing your changes
- Make an entry in ChangeLog in the base directory with a detailed description of your work. This is important so that your co-developers can see what changes you made without having to look at the code line by line, file by file!
- Commit your changes to the trunk, this will automatically merge your local changes with the svn version
- Finally tag your changes, in case something has gone wrong despite testing, it's easier to revert to a working version using tagged packages

**REMEMBER:** It is your responsibility to make sure that the code you are submitting is compiling/running. Otherwise you slow down the progress of your colleagues!



# A few words about SVN (5)

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- Useful commands:

- Checking out a package:

```
svn co svn+ssh://$CERN_USER@svn.cern.ch/repos/atlasusr/bernius/  
TauPlusJets2012/trunk TauPlusJets2012
```

- Updating your local version:

```
svn update
```

- Committing your changes to the trunk:

```
svn commit -m "description of your changes"
```

- Tagging your changes:

```
svn cp . svn+ssh://$CERN_USER@svn.cern.ch/repos/atlasusr/bernius/  
TauPlusJets2012/tags/TauPlusJets2012-00-00-01 -m "description of your  
changes"
```





# A few words about SVN (5)

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- Useful commands:
  - Checking out a package:

```
svn co svn+ssh://$CERN_USER@svn.cern.ch/repos/atlasusr/bernius/  
TauPlusJets2012/trunk TauPlusJets2012
```
  - Updating your local version: `svn update`
  - Committing your changes to the trunk: `svn commit -m "description of your changes"`
  - Tagging your changes:

```
svn cp . svn+ssh://$CERN_USER@svn.cern.ch/repos/atlasusr/bernius/  
TauPlusJets2012/tags/TauPlusJets2012-00-00-01 -m "description of your  
changes"
```
- Tracking down changes:
  - Click on a file, e.g. <https://svnweb.cern.ch/trac/atlasusr/browser/bernius/TauPlusJets2012/trunk/HplusChallenge/cmt/Makefile.RootCore>
  - In top right corner, “Last Change”, “Annotate” and “Revision Log”
    - Last Change: gives you a diff between the current and previous version <https://svnweb.cern.ch/trac/atlasusr/changeset/92597/bernius/TauPlusJets2012/trunk/HplusChallenge/cmt/Makefile.RootCore>
    - Revision Log: gives you a list of changes that have been made to this file <https://svnweb.cern.ch/trac/atlasusr/log/bernius/TauPlusJets2012/trunk/HplusChallenge/cmt/Makefile.RootCore>



# Trigger in 2011 & 2012

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- Tau+met triggers used by HSG6 group in 2011:
  - data period B-K: tau29\_medium\_xe35\_noMu
  - data period L-M: tau29T\_medium\_xe35\_noMu\_3L1J10
- 2012 baseline tau+met triggers:
  - tau29Ti\_medium1\_xe45\_tight
  - tau38T\_medium1\_xe45\_tight
  - after Menu Coordination meeting (10 May):
    - <https://indico.cern.ch/conferenceDisplay.py?confId=189612>
      - new baseline trigger tau29T\_medium1\_xe55\_tclcw\_tight
      - keep tau29T\_medium1\_xe55\_tclcw and tau29T\_medium1\_xe50\_tclcw\_tight as extras
  - first look at efficiencies for these triggers (Patrick):
    - between 53% - 70% depending on  $m(H^+)$
    - will study this in detail next week



# Trigger Study Code

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- Code Status:
  - Started implementing the necessary code in HplusCore
    - doTauTrigMatch function with a  $\Delta R$  match between the trig\_EF\_tau object and the selected  $\tau$  candidate
    - count number of times a certain trigger fired as well
    - calculate efficiencies for each trigger item at EF
    - implement the same for L1
    - write macro for plotting efficiency and turn on curves

→ This will need implementation in TauPlusJets2012 (will do it this weekend!!)

## Some additional information...

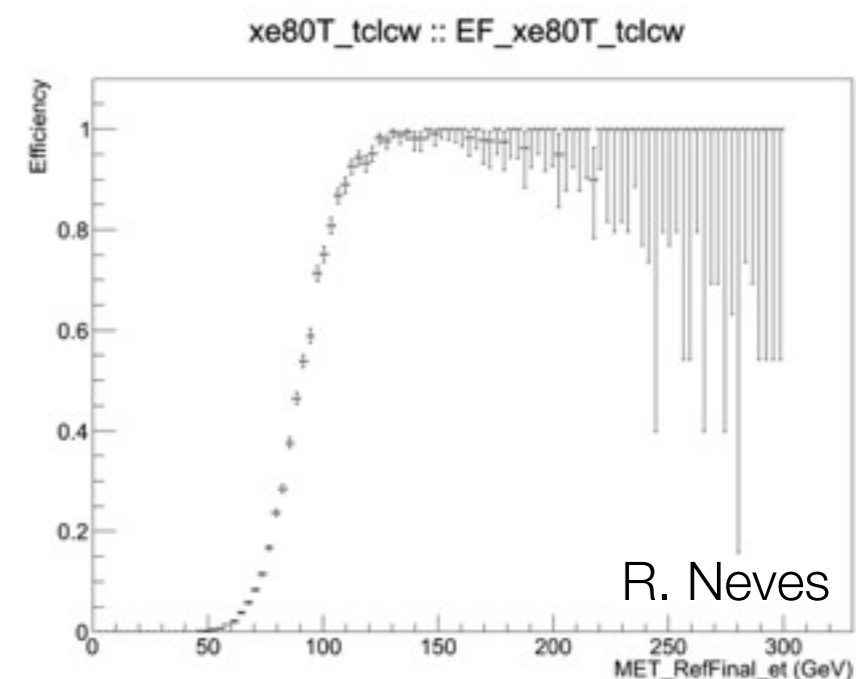
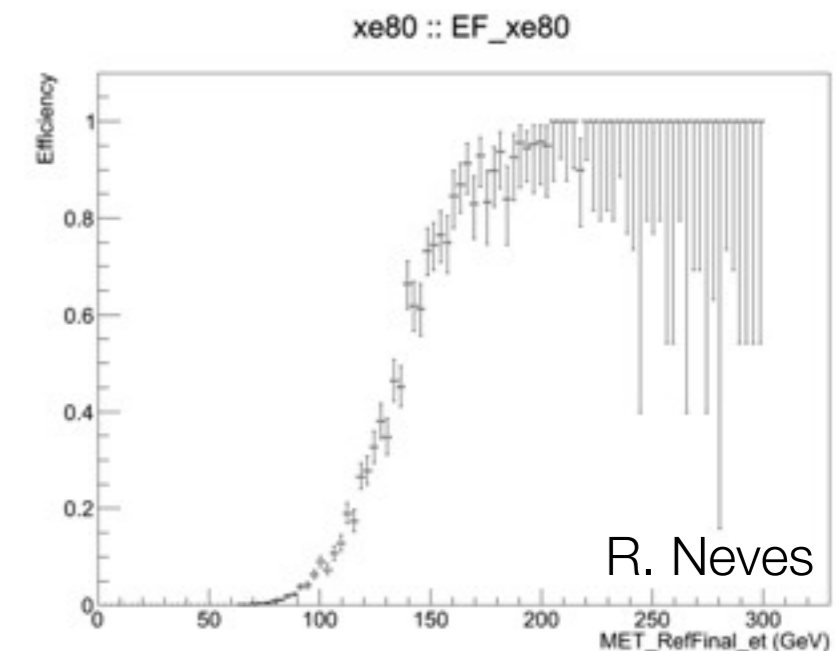
---





# Trigger naming in 2012

- Explanation of trigger names:
  - tau29T: T stands for a tighter L1 item
  - tau29Ti: i stand for (EM)-isolation at L1
  - \_medium1 stand for 1||2||3  $\tau$  tracks at EF
- xe45\_tight: \_tight stand for higher L1 seed than used before
- \_tclcw: running TrigCaloClusterMaker\_topo\_fullscan, calculate MET by summing over topos
- BGRP7 triggers: e.g. xe80T instead of xe80
  - skips the first 3 bunches in a train
  - calorimeter values are determined based on an offset that includes pileup from previous bunches
  - sharp rate increase in first few bunches  $\rightarrow$  cutting them out decreases rate
  - may allow for setting the thresholds lower







# Useful Twiki pages

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- [https://twiki.cern.ch/twiki/bin/viewauth/Atlas/LowestUnprescaled#Taus\\_electron\\_muon\\_MET](https://twiki.cern.ch/twiki/bin/viewauth/Atlas/LowestUnprescaled#Taus_electron_muon_MET)
  - bold triggers are baseline triggers (no prescale)
  - baseline trigger for tau+met will be **EF\_tau29T\_medium1\_xe55\_tclcw\_tight**
- <https://atlas-tagservices.cern.ch>
  - Browser showing the most relevant info concerning a run/period of the data taking
  - e.g. [https://atlas-tagservices.cern.ch/tagservices/RunBrowser/runBrowserReport/rBR\\_Period\\_Report.php?fnt=data12%](https://atlas-tagservices.cern.ch/tagservices/RunBrowser/runBrowserReport/rBR_Period_Report.php?fnt=data12%https://atlas-tagservices.cern.ch)
    - data taking after April technical stop. Trigger menu changes: switch to isolated single lepton trigger, deploy pileup noise cuts at L1, fixes for tau trigger and b-tag trigger, dropped some high rate extra triggers. XS triggers misconfigured in B1 to B5 included