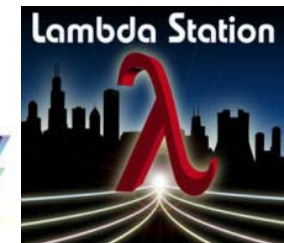
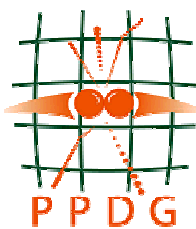




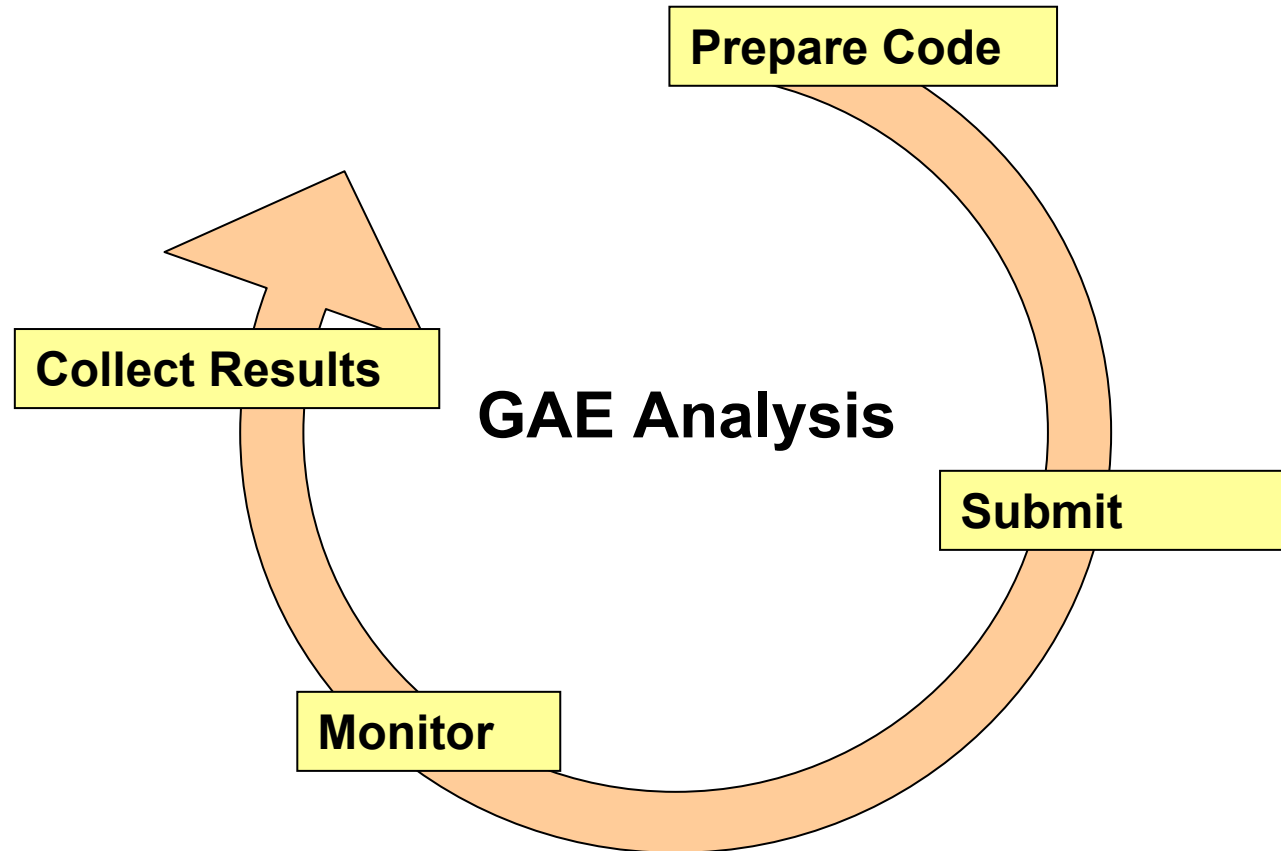
GAE CMS Analysis (Example)

Michael Thomas (thomas@hep.caltech.edu)
(on behalf of the GAE group)





Outline





Prepare ORCA Job



Install xcmsi to prepare for local CMS software installation

- ★ http://cmsdoc.cern.ch/cms/oo/repos_standalone/download/download.sh

Install ORCA using xcmsi

- ★ `./xcmsi.pl`
- ★ Select packages to install

Write and compile the ORCA application

- ★ `cd` to ORCA workspace
- ★ Look at `ExRunEvent.cpp` in `ORCA/src/Workspace` as an example
- ★ More info on using ORCA: <http://cmsdoc.cern.ch/orca/>



Submit Job



Describe job in Job Description Language (Chimera DAX)

Submit job to Grid Scheduler (Sphinx)

Sphinx submits job and subtasks to remote sites

Use Sphinx job id to monitor job



Describe Job in JDL



Chimera DAX: <http://www.griphyn.org/chimera/dax-1.6.xsd>

Other Job Description Languages being investigated

JDL contains

- ★ **Input and output logical filenames**
- ★ **Tasks (commands) to be executed**
- ★ **Dependency between Tasks represented as a DAG**
- ★ **Pointer to application data (ORCA shared libraries, .orcarc)**



Submit Job to Scheduler



Use client tool to submit to Sphinx

Web Service interface provides flexibility for clients

- ★ **Sphinx client application**
- ★ **CRAB**
- ★ **Web Browser**

Sphinx returns a Grid Job Id



Sphinx manages job submission



Sphinx locates available resources based on policy information

- ★ Cpu
- ★ Input data
- ★ Network resources

Submit job to remote site via BOSS



Monitor Progress



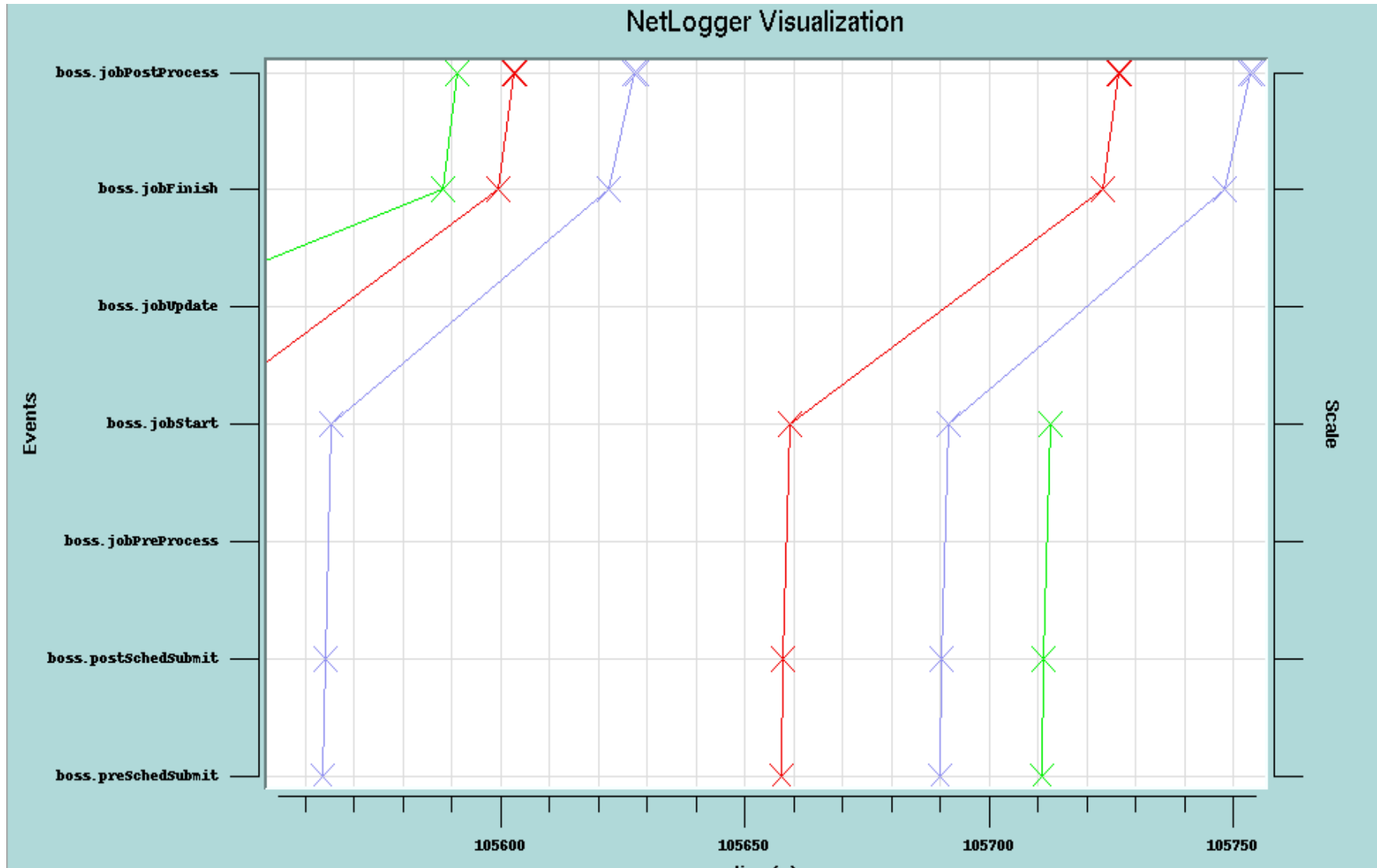
Lifelines give immediate feedback on all job status

BOSS Job Monitoring

MonALISA Monitoring



Job Lifeline





BOSS Job Monitoring



Clarens BOSS Interface

(Batch Object Submission System)

- [\[show job types\]](#)
- [\[show job schedulers\]](#)
- [\[register job type\]](#)
- [\[register scheduler\]](#)
- [\[execute query\]](#)
- [\[display user jobs\]](#) *Select an operation from the left pane*
- [\[delete job type\]](#)
- [\[delete scheduler\]](#)
- [\[kill job\]](#)
- [\[delete jobs from db\]](#)
- [\[purge jobs from db\]](#)

Displaying User job status information

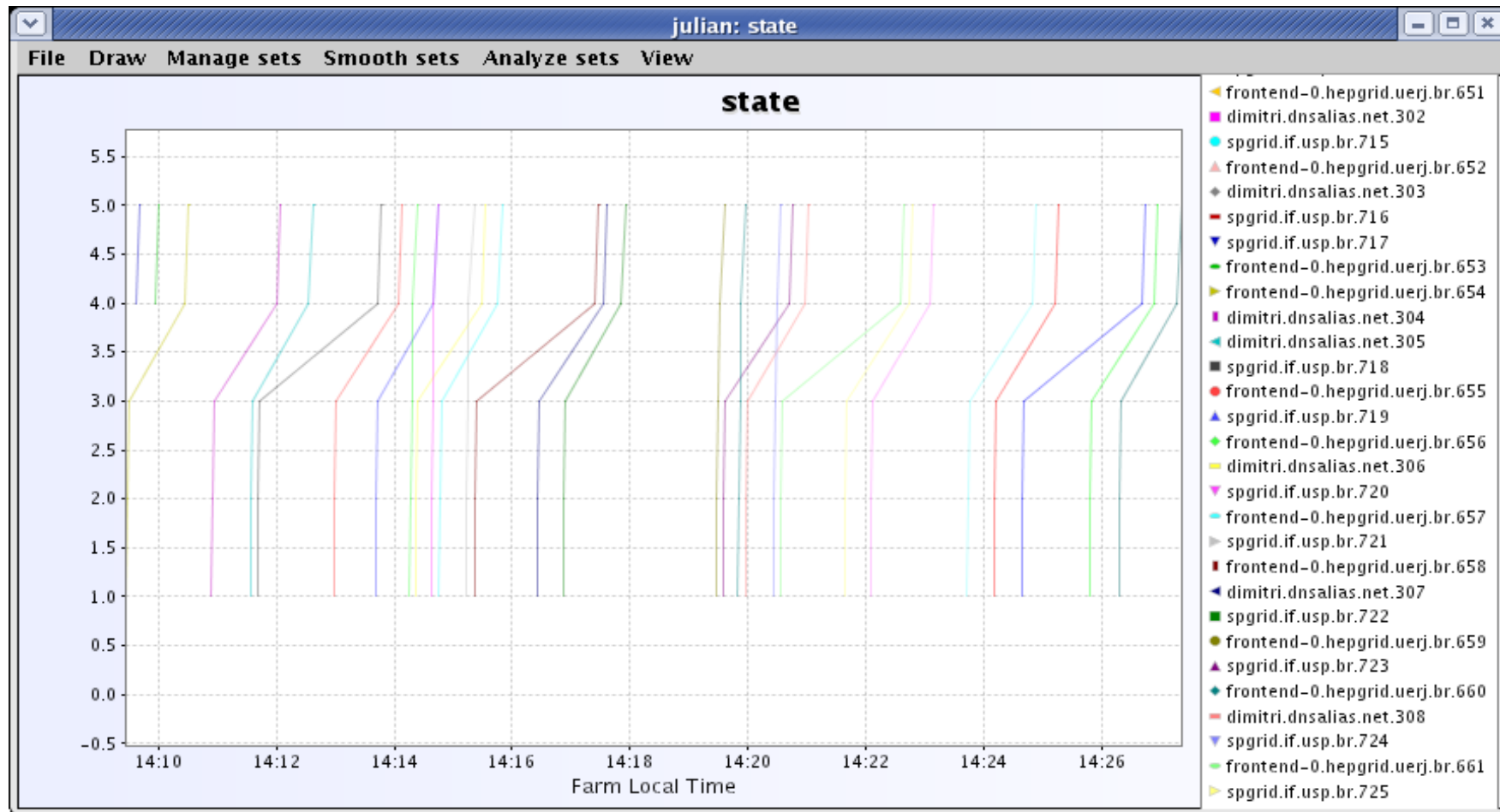
ID	TYPE	SCH	S_HOST	S_PATH	ARGS
117	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
118	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
119	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
120	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
121	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
122	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
123	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
124	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
125	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200
126	test	Scheduler Name >> fork	clarens.dnsalias.net	/mnt/hdd/home/fvlingen/tmp/BossTestDir	200



MonALISA Job Monitoring



Correlate Lifelines with remote system status





Collect Results



When job is finished, use Logical File Result and Dataset Catalog to obtain result data

CAVES used for version control on ROOT session

- * Allows sharing analysis code between users and groups**

ROOT display for visualization of results



CAVES code management



```
dimi@localhost: caves
*****
*                               Welcome To CAVES                               *
* Collaborative Analysis Versioning Environment System                       *
*                               Dimitri Bourilkov & Mandar Kulkarni          *
*                               version 0                                   *
*                               Dimitri Bourilkov                           *
*                               version 1                                   *
*                               University of Florida                       *
*                               Gainesville, USA                          *
*                               You are Welcome to visit our website        *
*                               http://cern.ch/bourilkov/caves.html         *
*****
Pserver for this session: :pserver:blazer@ufgrid02.phys.ufl.edu:/state/partition1/caves-cvs

*****
*                               TO GET STARTED:                             *
*                               just type help at the command prompt        *
*                               ROOT commands are delegated to ROOT        *
*****
*                               W E L C O M E to R O O T                    *
*                               Version 4.00/04 30 April 2004                *
*                               You are welcome to visit our Web site       *
*                               http://root.cern.ch                          *
*****

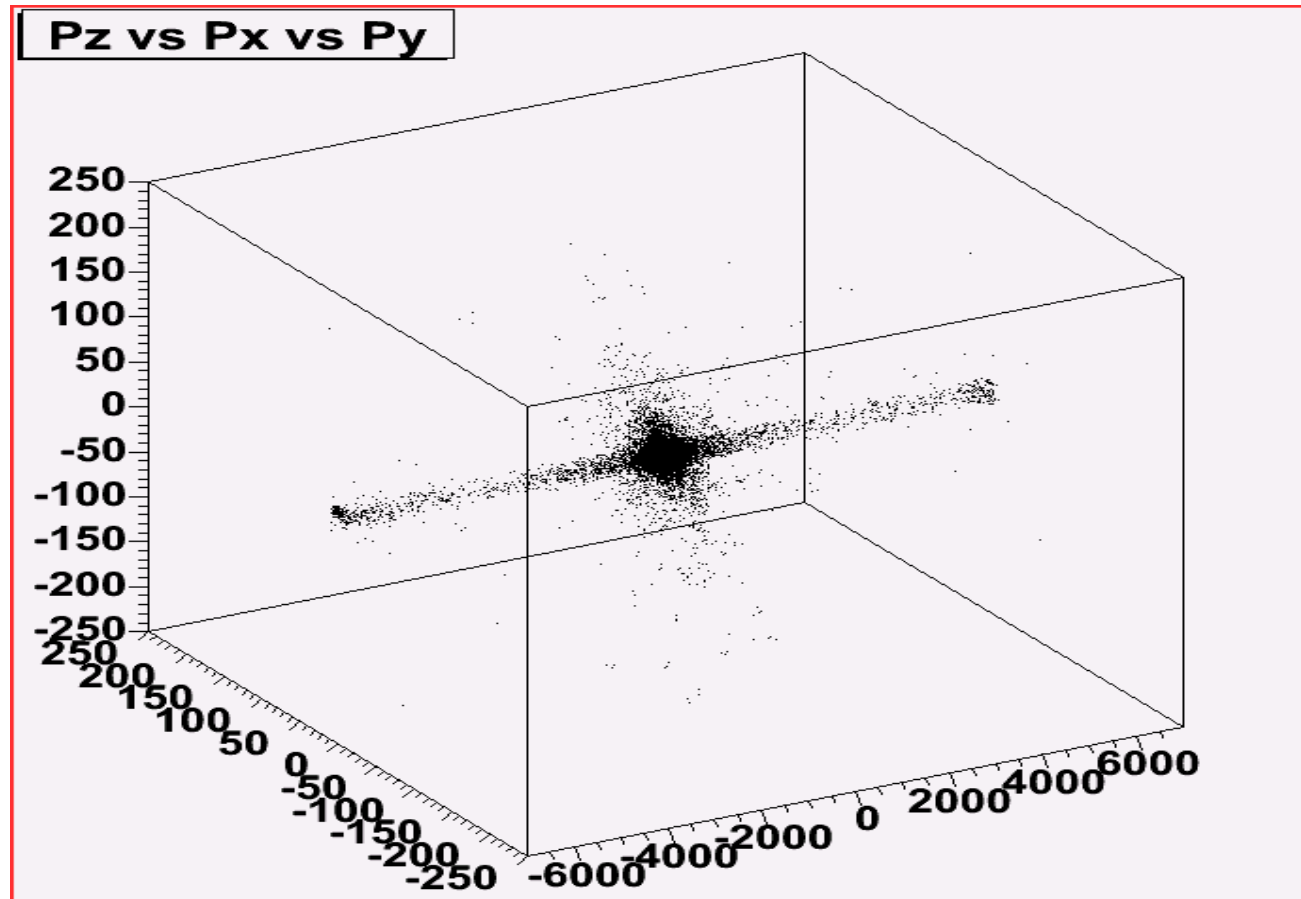
FreeType Engine v2.1.3 used to render TrueType fonts.
Compiled for linux with thread support.

CINT/ROOT C/C++ Interpreter version 5.15.133, Apr 18 2004
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.
root [0] browse
higgs-ww-plotpxpypz (revision: 1.9)
test-007 (revision: 1.8)
test-006 (revision: 1.7)

root [1] extract higgs-ww-plotpxpypz
*****Storing data for usage....*****
ROOT Command is :.x
Macro is :dbpit1.C
Argument is 1000
Argument is input "higgs.root"
Argument is output "higgs-ww-plotpxpypz"
Command is :.x dbpit1.C(1000,"higgs.root","higgs-ww-plotpxpypz")
TFile** higgs-ww-plotpxpypz.root
TFile* higgs-ww-plotpxpypz.root
KEY: TCanvas canv2;1 ROOT PYTHIA Plotter D.Bourilkov University of Florida
.x dbpit1.C(1000,"higgs.root","higgs-ww-plotpxpypz")
*****End*****
root [2] .q
```



View Results



Pz,Px,Py plot of Higgs -> WW



View Results

