The seal of the Massachusetts Institute of Technology (MIT) is positioned on the left side of the slide. It features a circular border with the text "MASSACHUSETTS" at the top and "INSTITUTE OF TECHNOLOGY" at the bottom. Inside the circle, there are two figures: a Native American on the left and a European on the right, standing on either side of a central pedestal. The pedestal has a scroll with the Latin motto "MENS ET MANUS" and the year "1860" below it. Two stars are placed on either side of the central figures.

# A Tutorial to Online Analysis Scripting System

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# What's This?

- ▶ Online Analysis Scripts are a collection of Hall A Analyzer based scripts, which process and check data during data taking
- ▶ Target computer are `adaqlx.jlab.org`
- ▶ Target users are shift works and experiment specialists
- ▶ This talk concerns the one used on recently finished E04007 and E08007

# Advantages of the system

- ▶ Stable
- ▶ Up2date and Good Capability
- ▶ Self Protection
- ▶ Smart Inputs
- ▶ Easy maintenance

# Components

- ▶ Analyzer, Additional Libraries (Bigbitelib)
- ▶ Reply Script
  - `ReplayCore.C`, `Def.h`
  - `Replay_xxx.C`
- ▶ Parameter Database
- ▶ Online Plots and Check
  - `Online_GUI`
- ▶ Peripheral Code
  - `Batch Replay`
  - `Set_golden`

# Code Libraries

- ▶ Analyzer
- ▶ Bigbite Library
  - A collection of Hall A analyzer based modules designed for Bigbite Family Experiment:
    - BigBite Spectrometer
    - Trigger Plane
    - MWDC (both versions of Ole's Treesearch and GEn)
    - Total Shower (GEn)
    - Optics
    - Debug
  - Well Documented:  
<http://www.jlab.org/~jinhuang/BigBiteDoc/>

# Scripts

- ▶ `ReplayCore.C`
  - Find An Instance of Analyzer
  - Look for Raw Datafile
  - Get Reasonable Replay Number and Root file address
  - Run the analyzer and Iteration through all segments of raw data
  - Easy to use
- ▶ A replay script
  - Load all detectors
  - Call `ReplayCore.C`
- ▶ `Def.h`, `rootlogon.C` and Peripheral Code

# Compiled VS Noncompiled Scripts

- ▶ Fast Bug Sweep
- ▶ Minor faster execution
- ▶ Hard to maintenance

Compiled Scripts

- ▶ Easy Operational
- ▶ Incomplete Support for C
- ▶ Hidden Bugs

Non-compiled Scripts

# Parameter Database

- ▶ Managed by CVS Daily back up (B. Moffit)
  - Check out database for a specific day:

```
cvcs -d :ext:cvs.jlab.org:/home/moffit/CVS co -r v20080611 DB
```

- ▶ Shared by all experiment
- ▶ `db_run.dat` is updated after each run automatically (V. Sulkosky)



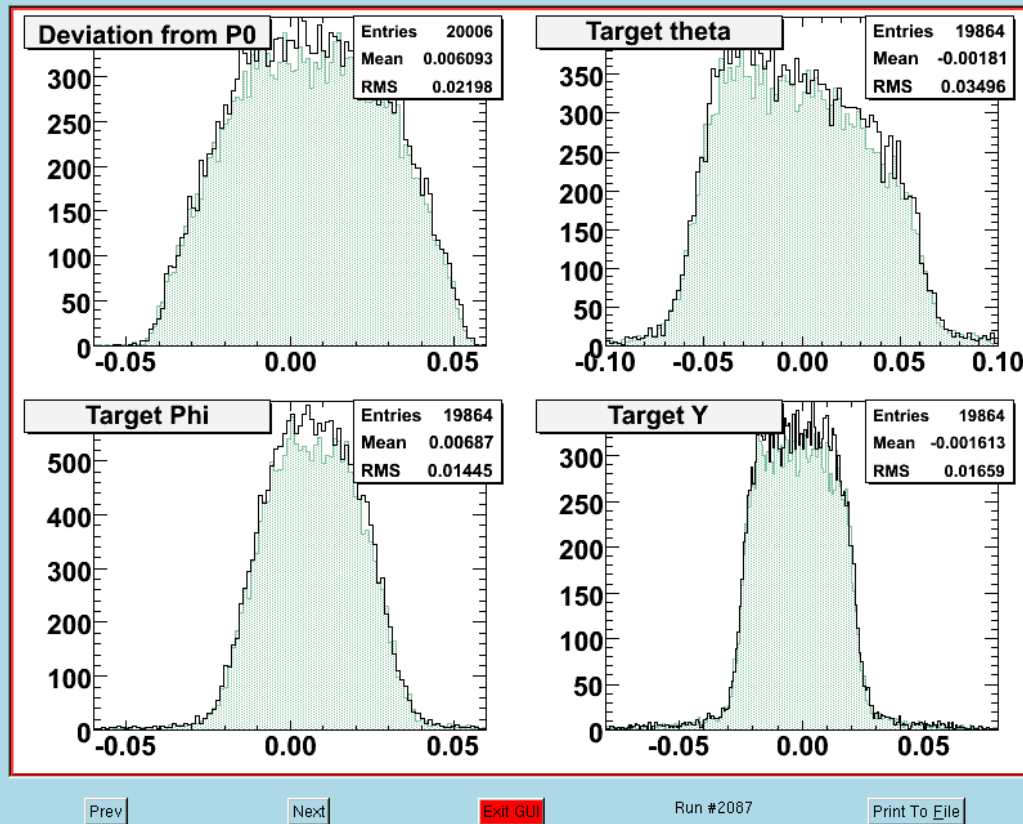
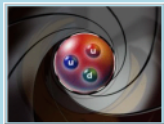
# Online Plot and Checking

## ▶ Online GUI (B. Moffit)

◦ <http://www.jlab.org/~moffit/onlineGUI/>

◦

- L-arm S1 ADC
- L-arm S2 ADC
- L-arm S1 TDC
- L-arm S2 TDC (0-5)
- L-arm VDC wires and timing
- VDC efficiency
- L-arm transport
- Helicity check
- Coincidence Time
- BigBite shower block ADCs
- BigBite total shower ADCs
- BigBite shower block hits



# Directory Structure

- ▶ Link to replay scripts/files
- ▶ Link to <Lib>.so
- ▶ Link to ROOT File Directory ...
- ▶ Read database from bbsoftw

Working Dir for Shift Work  
Only for using script and  
generating root files

```
adaq@adaqlx:~ /<Exp ID>/onlana
```

- ▶ <Exp ID>/onlana
  - Replay Scrips/files
  - Folder for ROOTFile ...
- ▶ Code Library
  - BigBiteLib
  - OnlineGUI (compiled)
- ▶ Database

Source Dir for all codes  
and configurations. Only  
accessible for expert

```
bbsoftw@adaqlx:~/
```



# Where to read more

- ▶ Log into `adaqlx` and `goonlana`
- ▶ Examples Downloads:
  - <http://www.jlab.org/~jinhuang/Meeting/2008.06.12%20Analyzer%20Workshop/Scripts/>
    - NonCompile replay SDK:  
`Replay_NonCompiled.tar.gz`
    - E04007 replay final version (Replay Script for Compile):  
`e08007OnlineSuiteFinal.tar.gz`
    - E08007 replay final version (NonCompile Scripts):  
`e08007OnlineSuiteFinal.tar.gz`
- ▶ BigBite Library Documentation Page  
<http://www.jlab.org/~jinhuang/BigBiteDoc/>