

Cyberlab ICT

Sketch of CERN Pilot Project

(Functional content only, no design or graphics)

Choose Simulator

Alpgen

Ariadne

Herwig

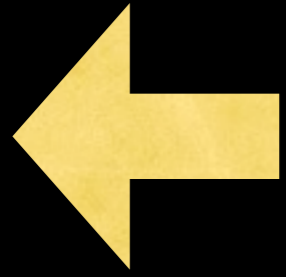
Madgraph

Pythia

Sherpa

Vincia

Whizard

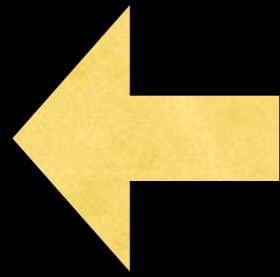


Pythia

(example of self-contained generator)

- Description
- Main Features
- History (with hyperlinks to more details)

Start



Alpgen

Example of chain of simulators
(here two, which is currently max, but code should be written to allow arbitrary numbers of module connections)

- **Description**
- **Main Features**
- **History (with hyperlinks to more details)**

Herwig

Start

Pythia

Start

Choose Accelerator

LEP I

LEP II

AFS

RHIC

Tevatron I

Tevatron II

LHC I

LHC II

LEP I

- Description
- History (hyperlinks to more details)
- The Z Boson



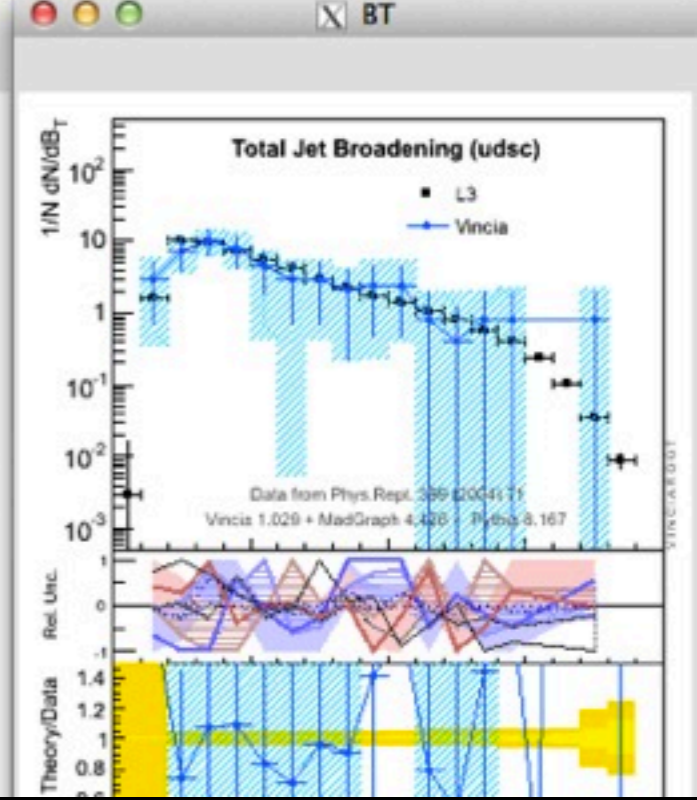
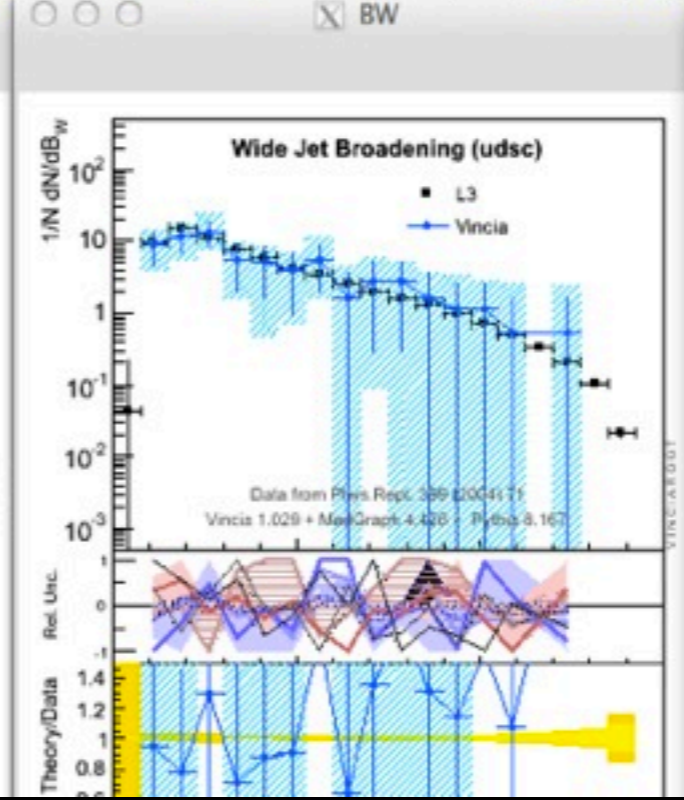
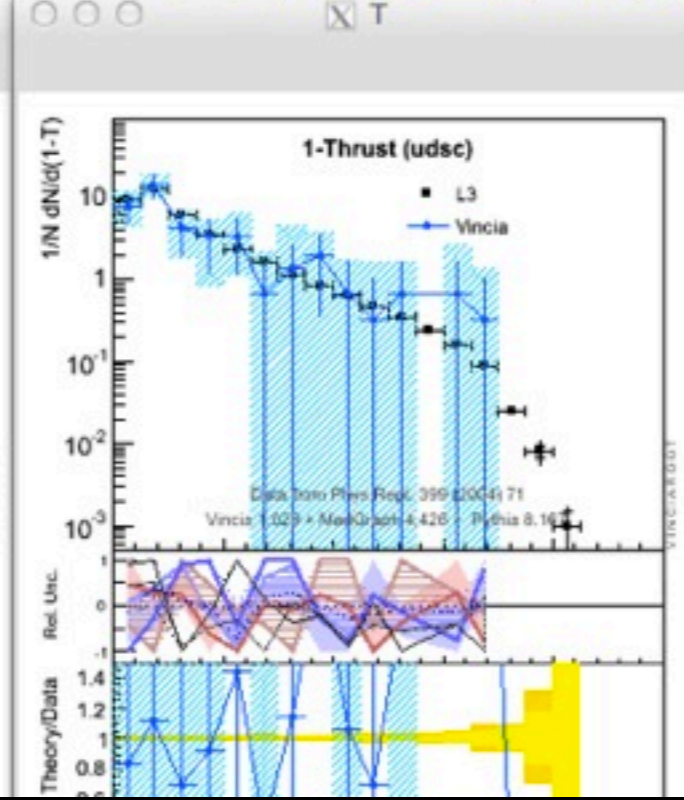
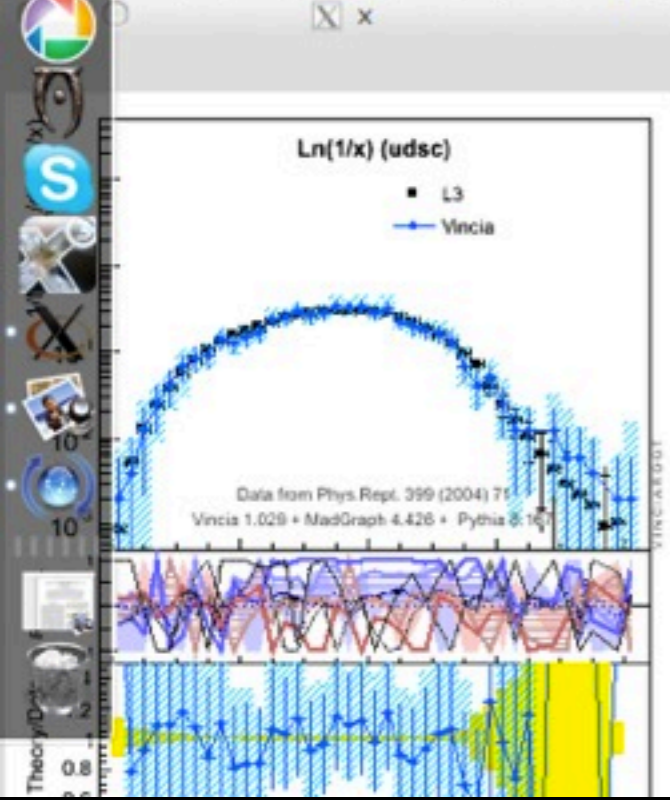
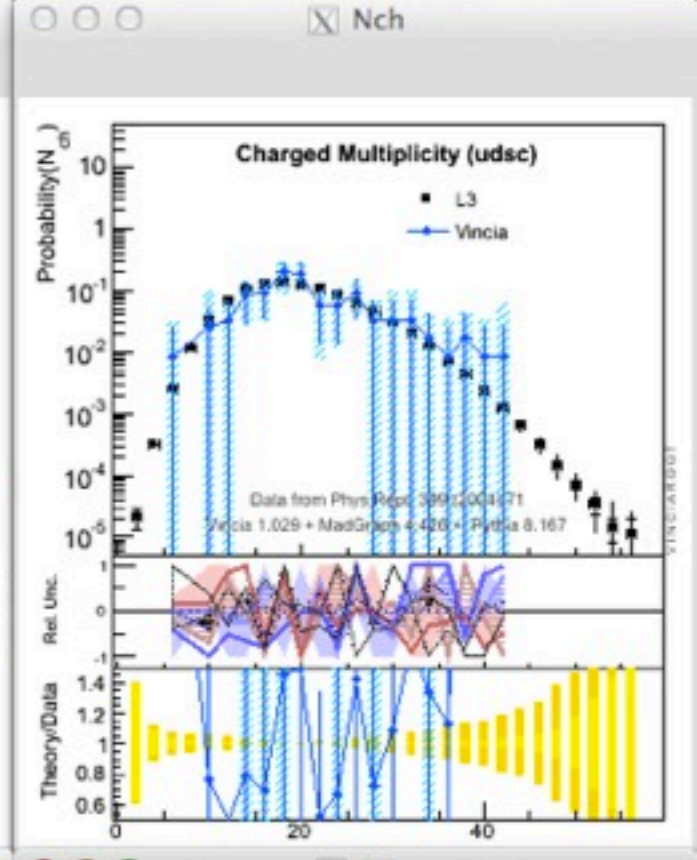
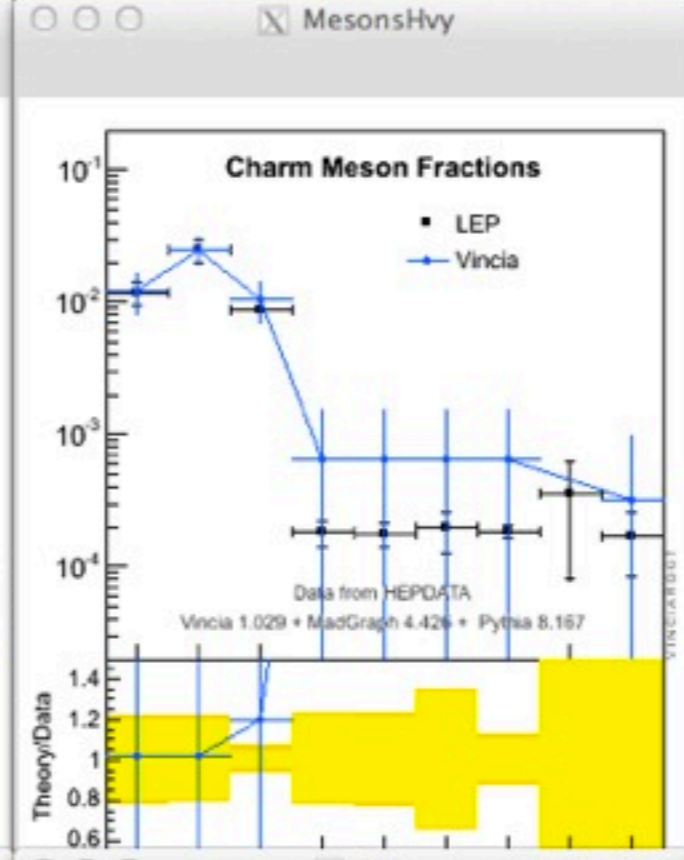
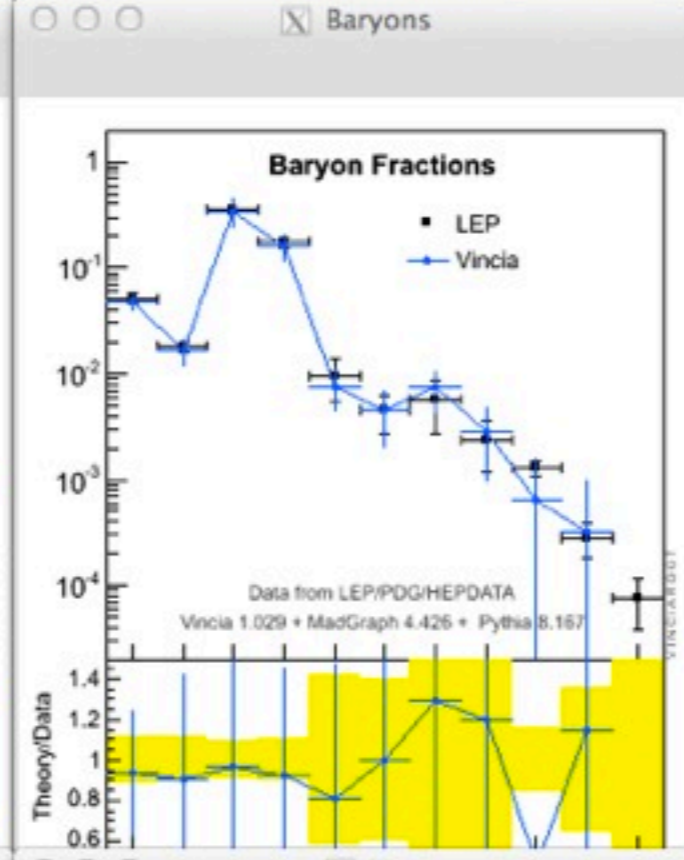
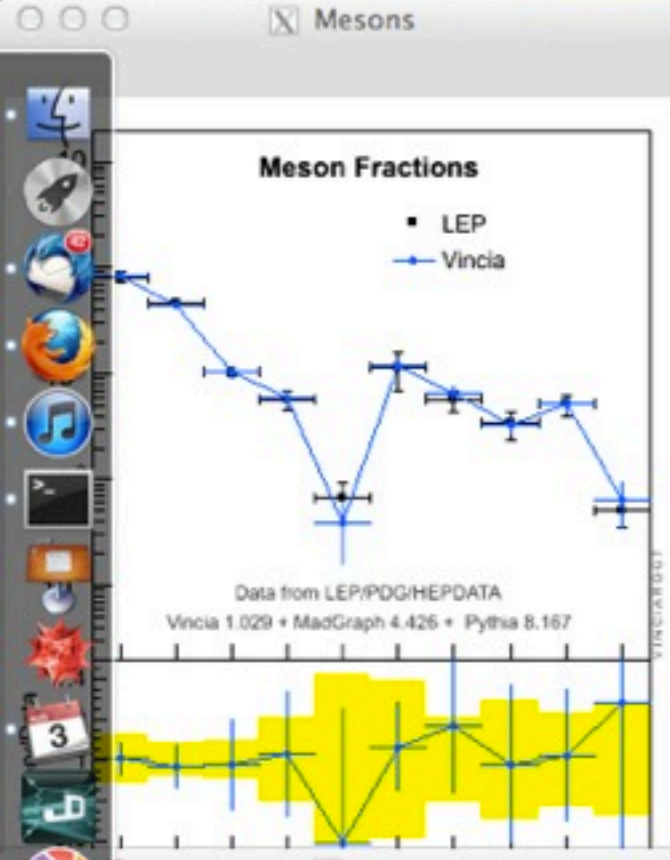
Start

LEP I - STAGE ONE

- Determine: the Strong Coupling Constant at the Z boson mass
 - Symbol: $\alpha_s(M_Z)$
 - Explain Strong Coupling
- Using: Event Shapes
 - Explain Event Shapes



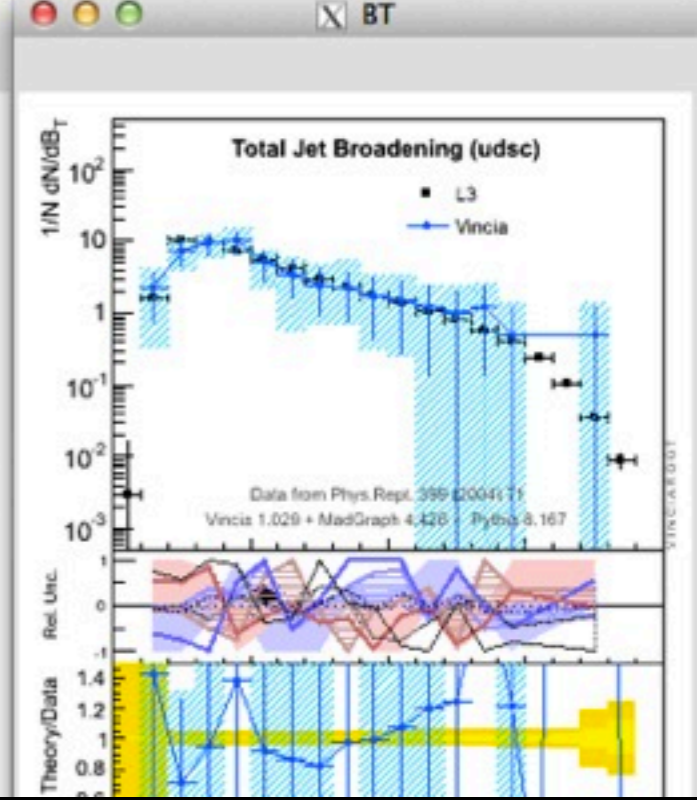
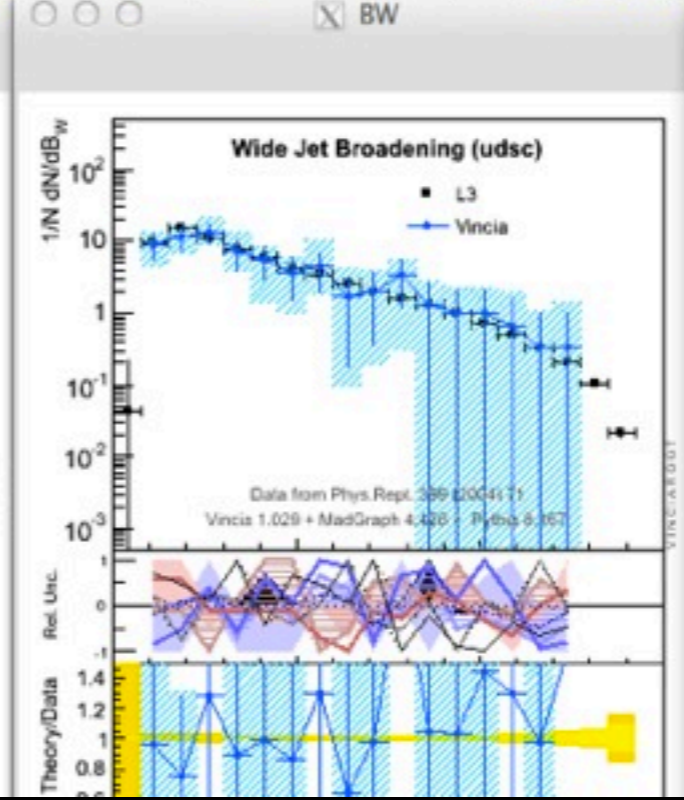
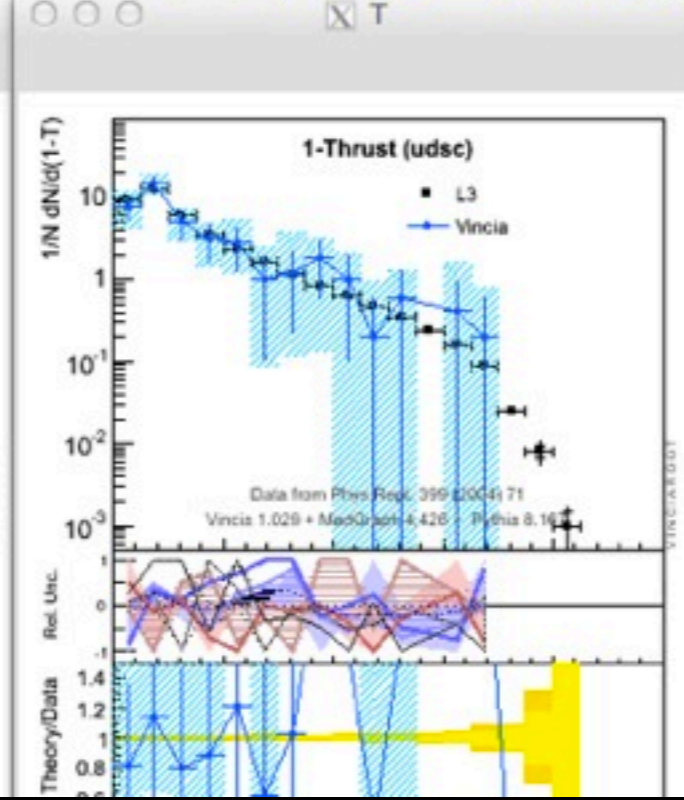
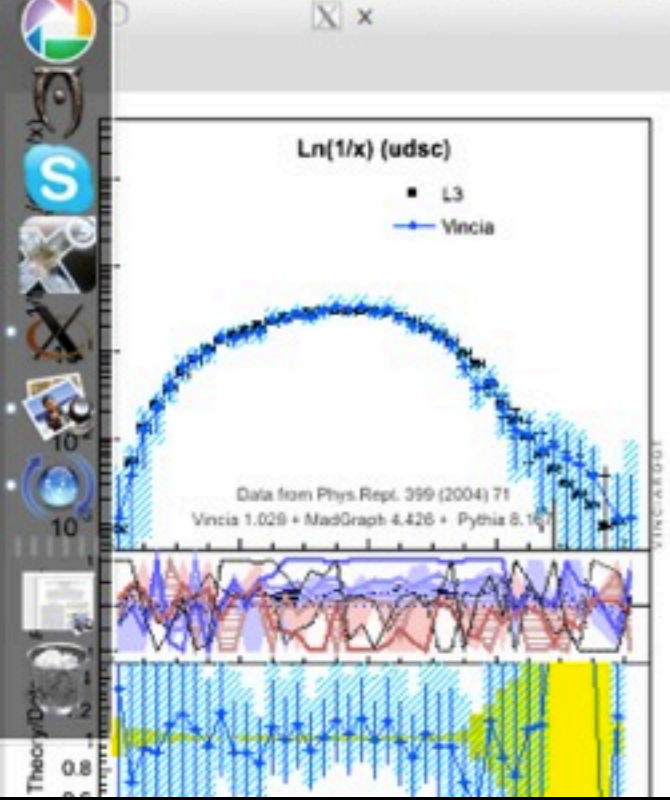
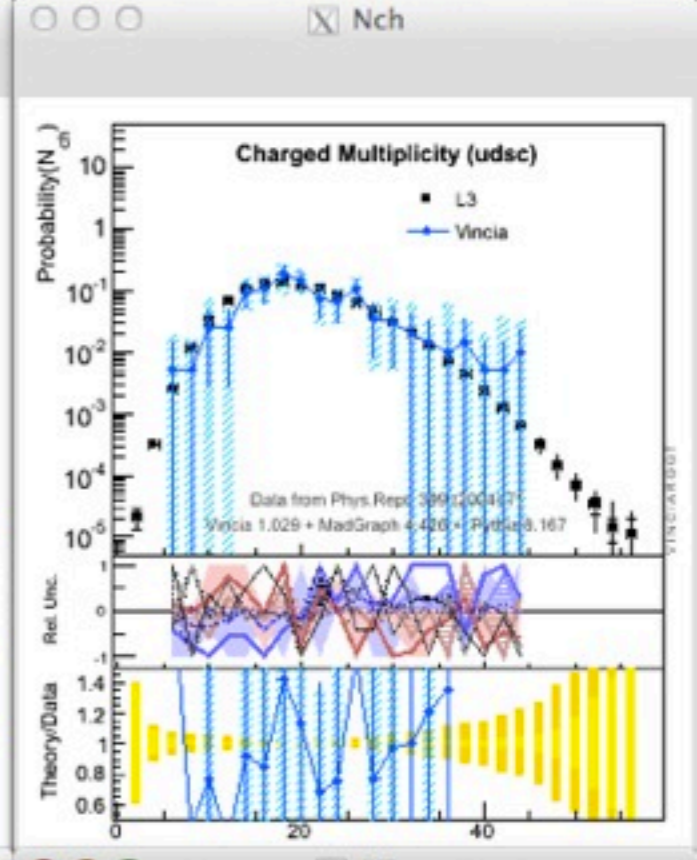
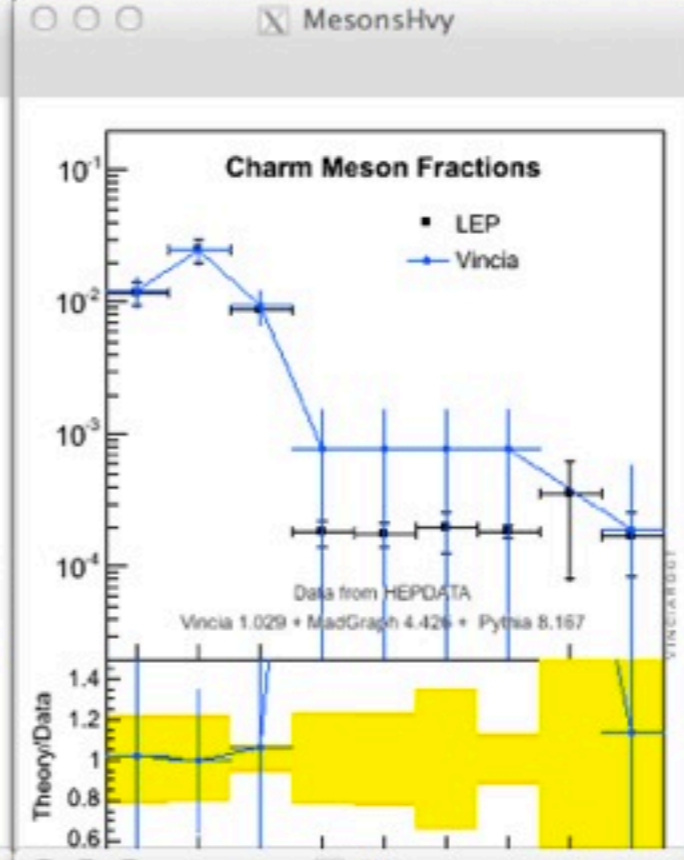
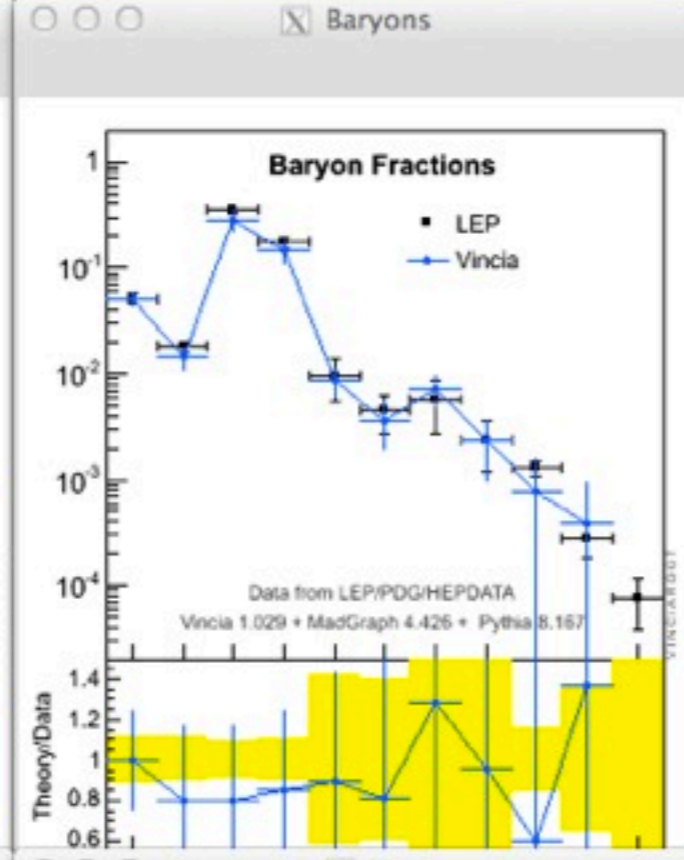
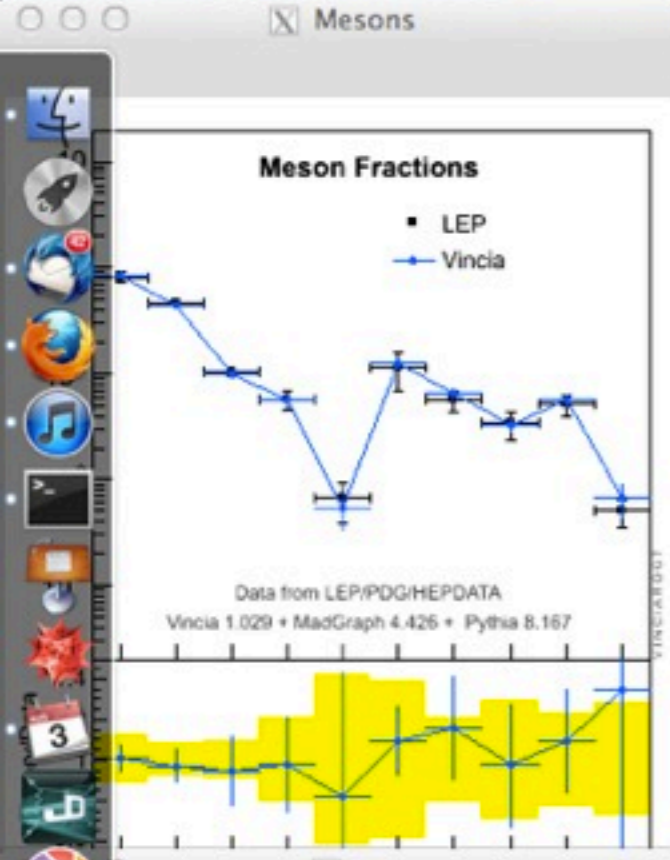
Start



Controls

Controls

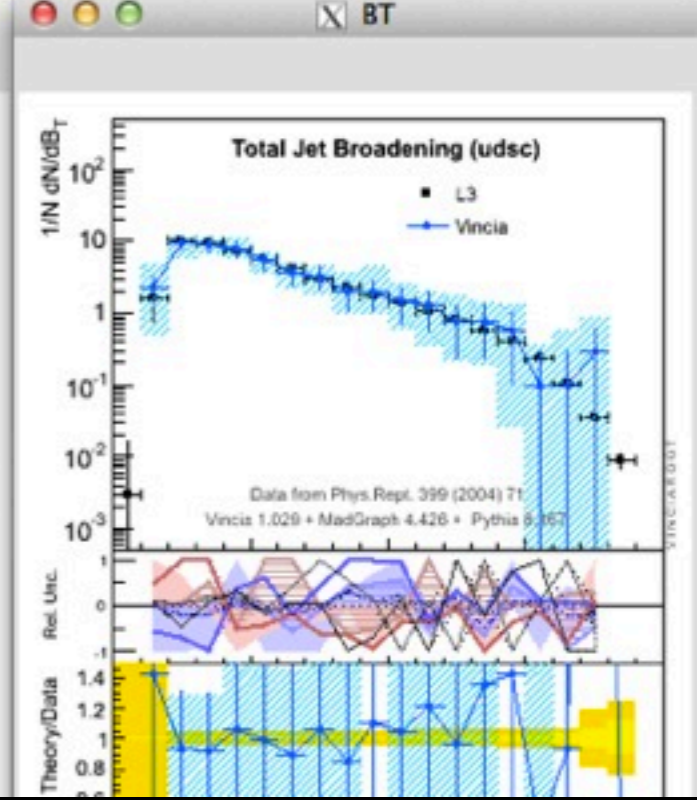
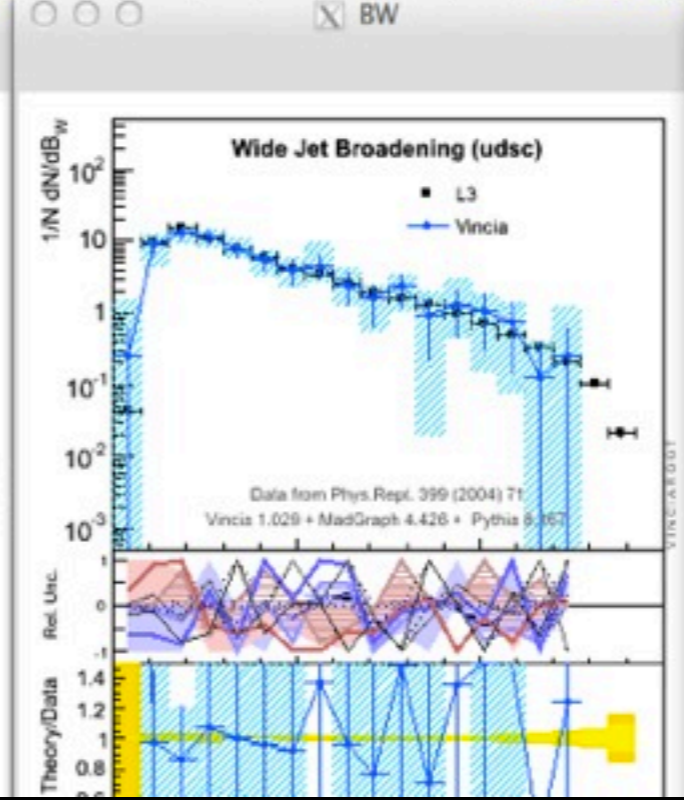
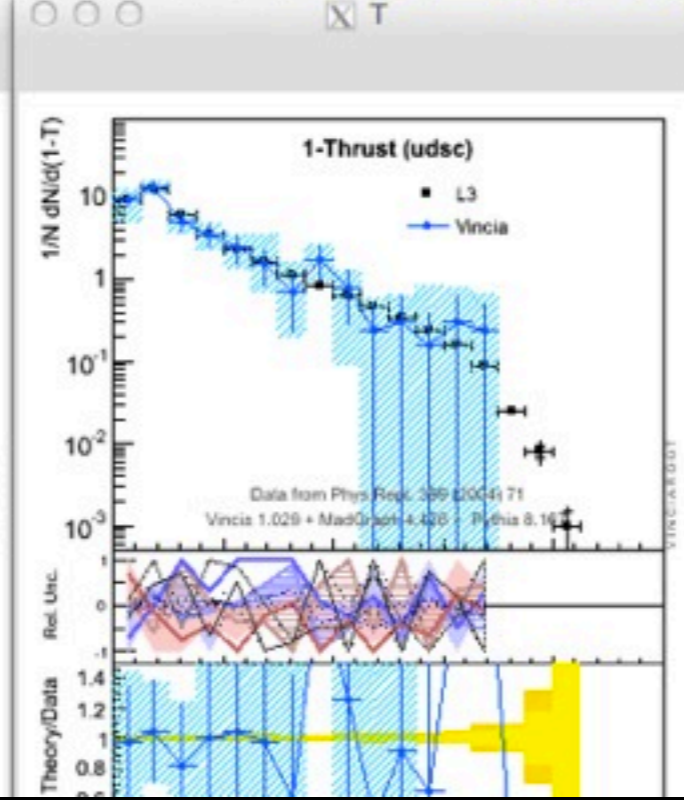
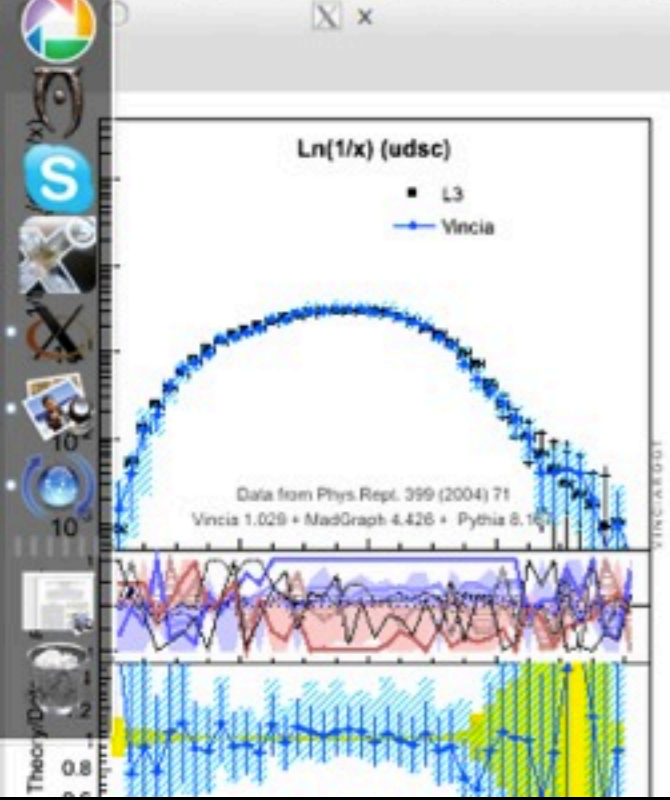
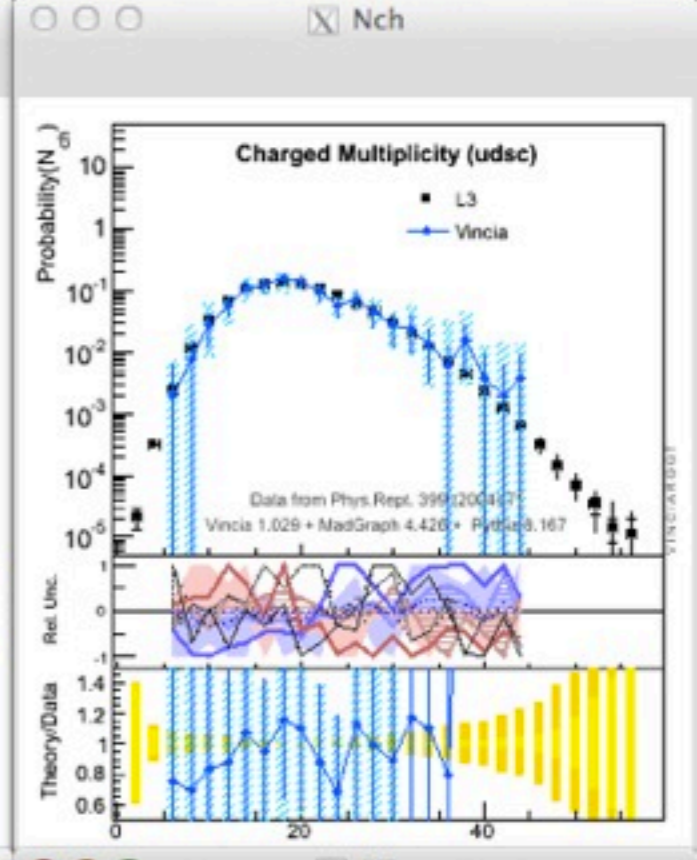
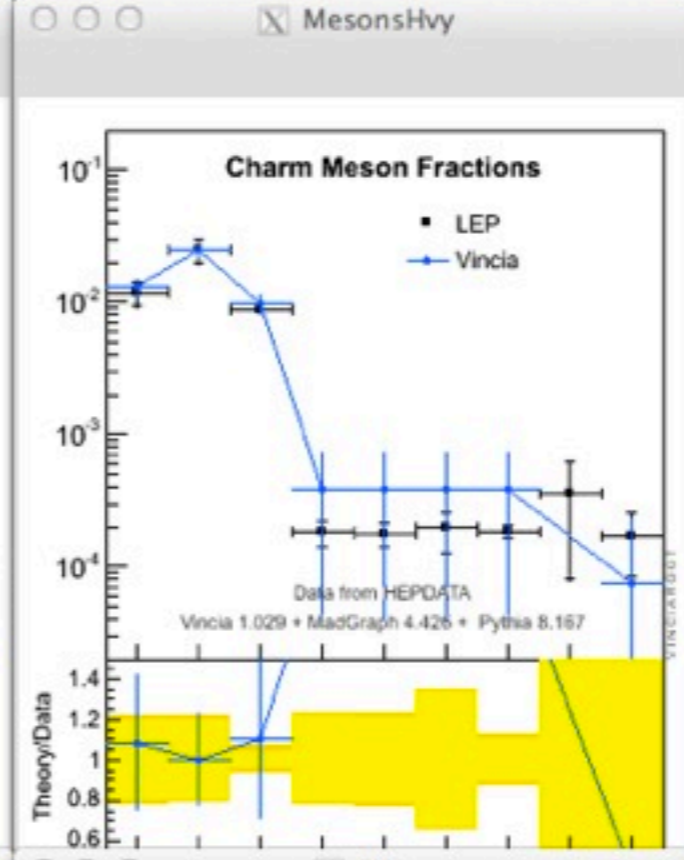
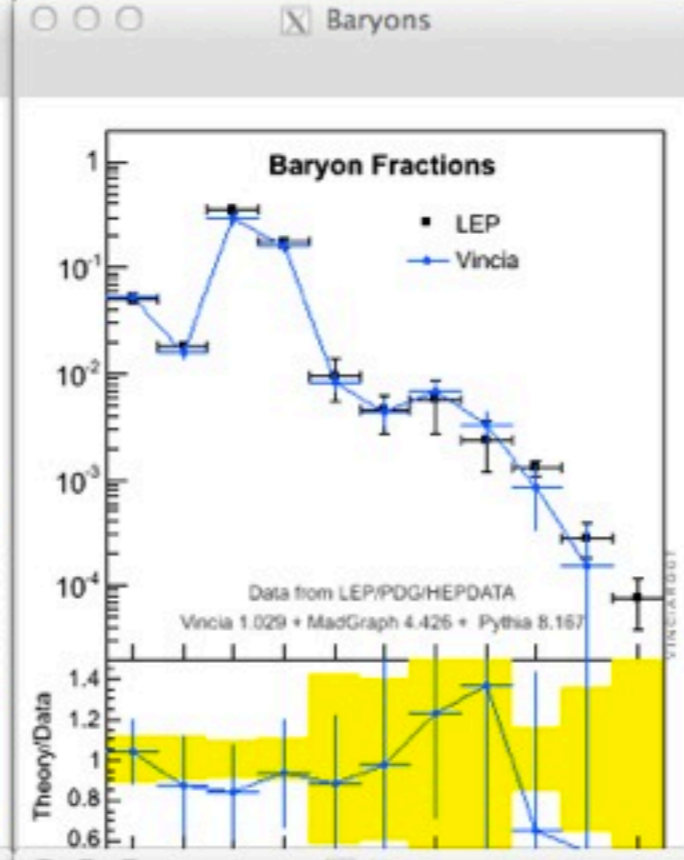
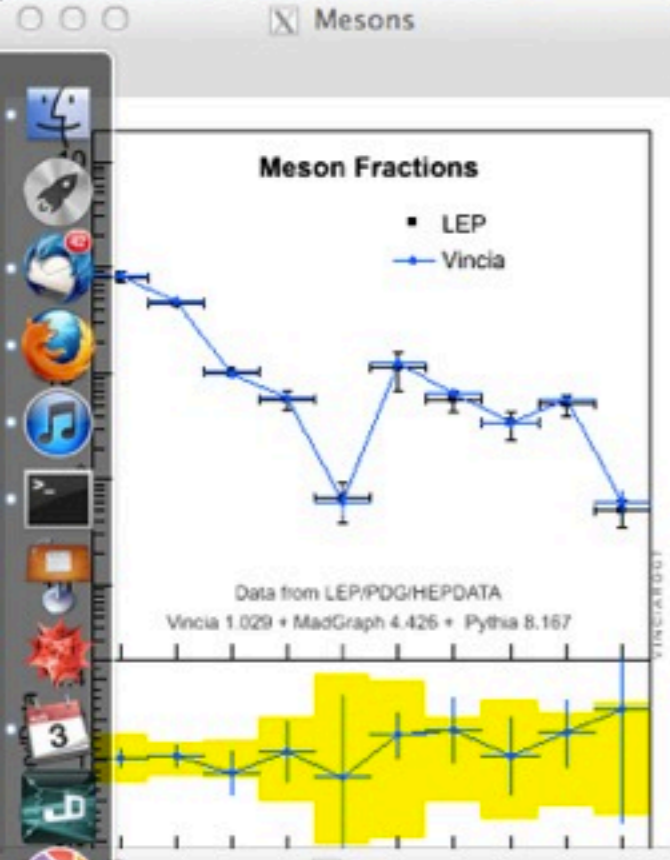
Controls



Controls

Controls

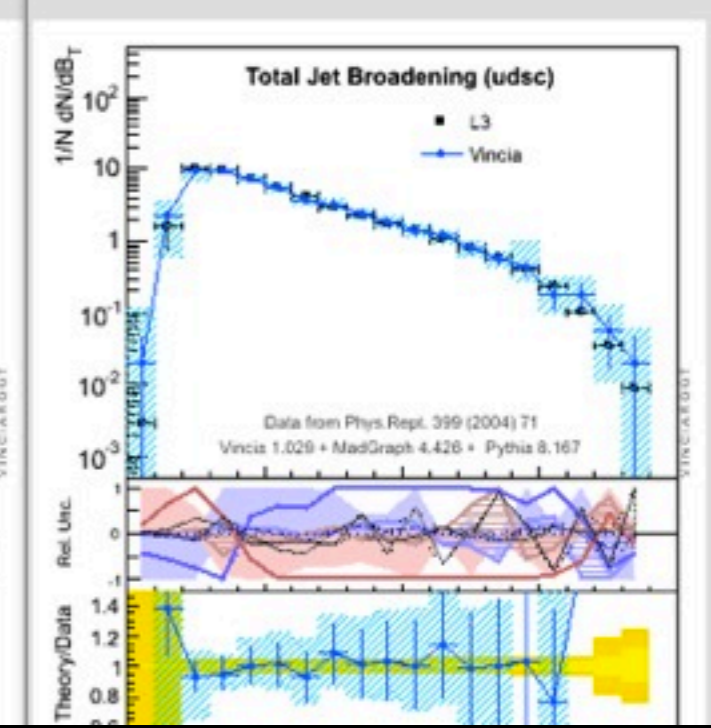
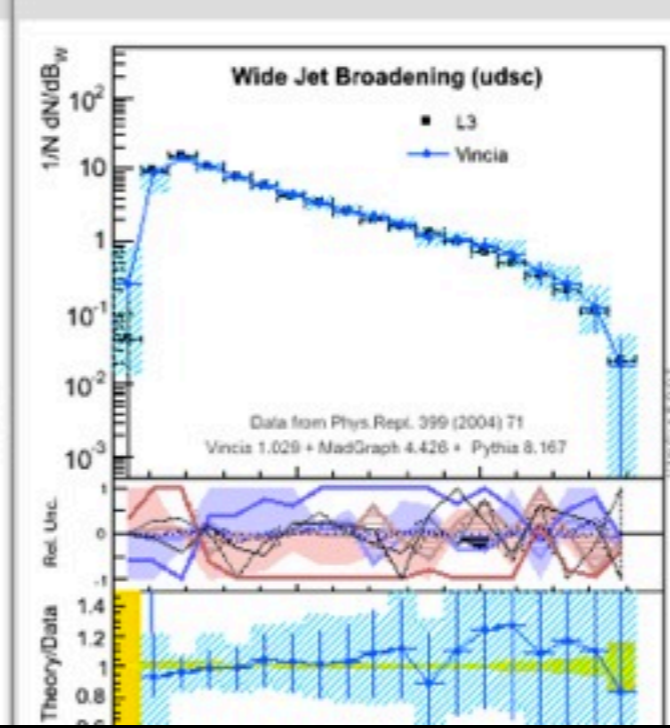
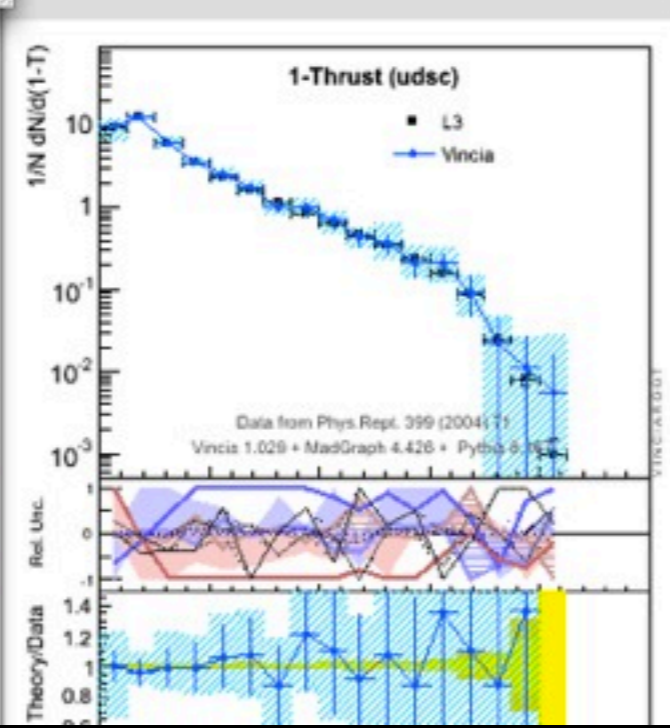
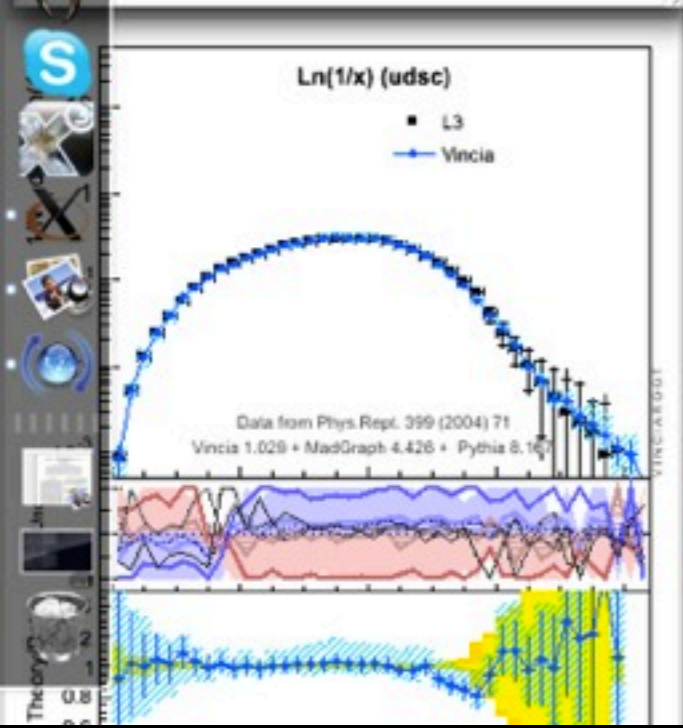
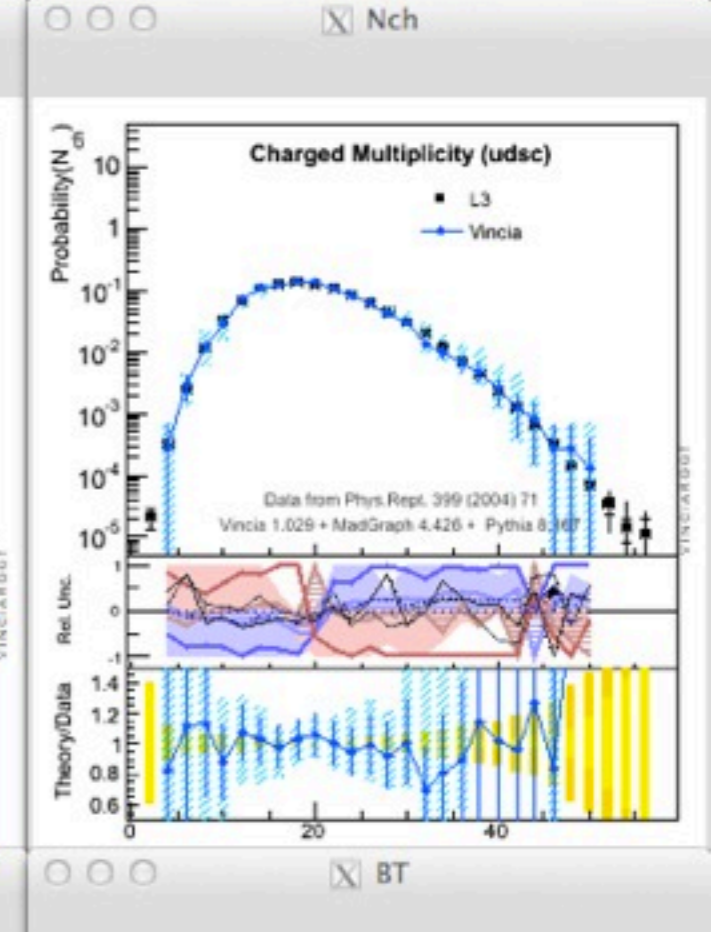
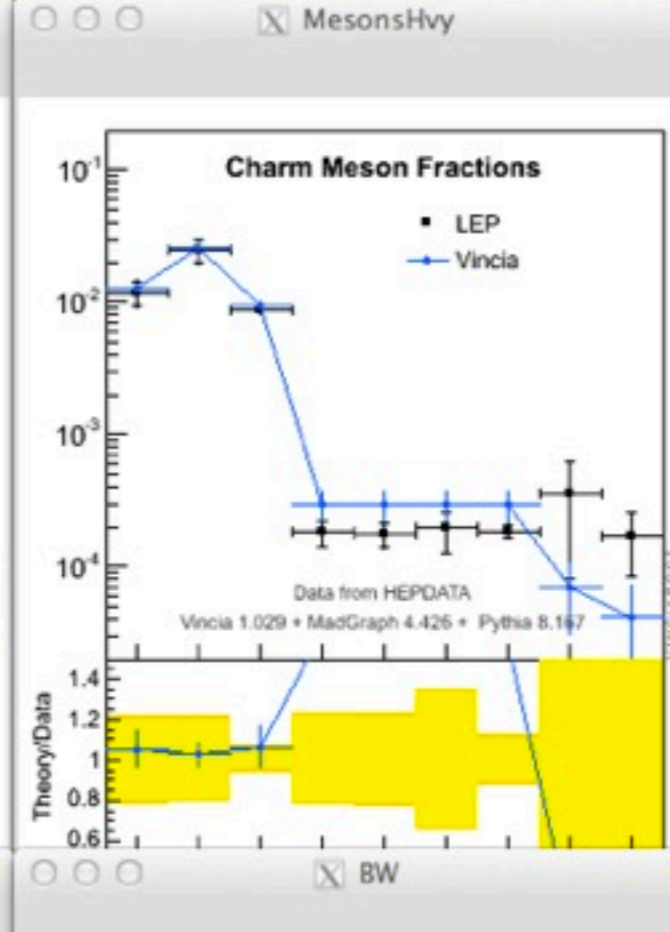
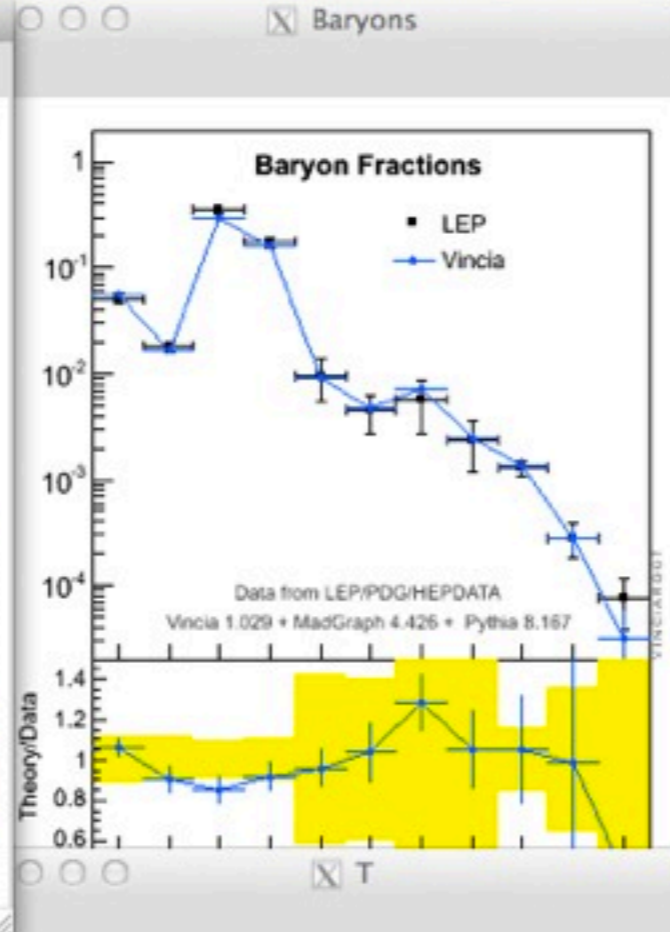
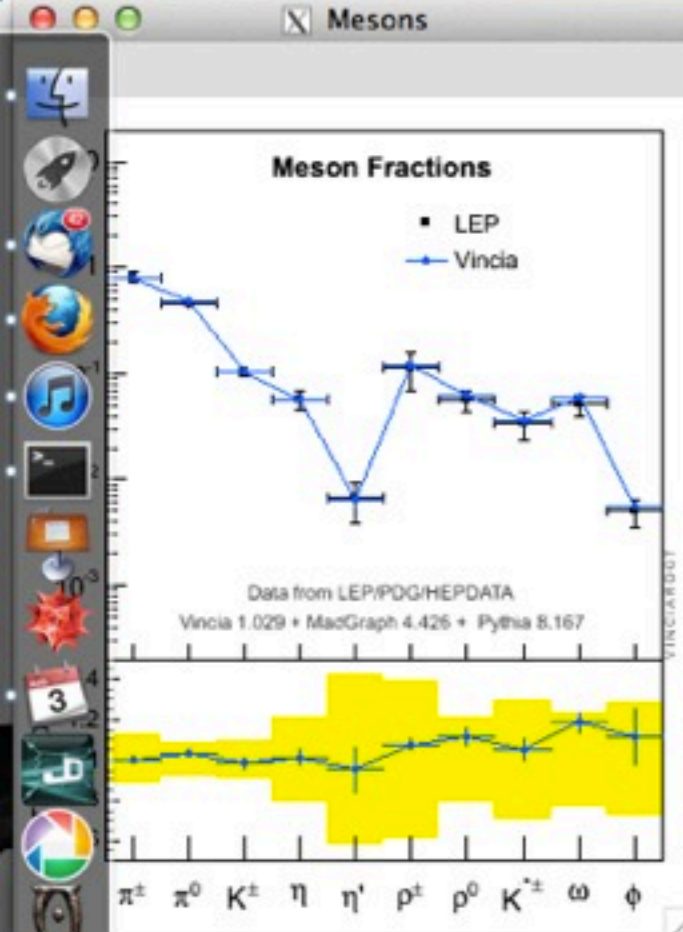
Controls



Controls

Controls

Controls



Controls

Controls

Controls

Architecture

Code Structure and Aims

Use of the Professor Interpolation Tool

- Results from each run on a user computer is entered into a database (similar to mcplots). Note: only if at least minimally useful statistics. This database is then used as a basis for interpolation by the “professor” tool.
- Need to make sure this interpolation can be done using arbitrary points. Need to adopt procedure for handling runs with different statistics. Need procedure to determine statistical uncertainty of interpolation + interpolation error.
- When a user selects a setting, the starting picture(s) is/are the result of professor’s interpolation(s). Requires request to central database and download of results or local copy of database, periodically updated. His/her computer then begins further refinement for the particular point chosen, reducing statistical and interpolation errors.
- Need to determine procedure for updating old points in the grid and/or replacing them once better-stat ones become available. Procedure for adding to existing point (similar to mcplots)?
- Need to determine procedure for what to do for extrapolations; adding points to the grid.
- Sliders should be incremental, in steps to be determined parameter by parameter → avoid infinitely many possibilities.