FIFE MiniBooNE Variance

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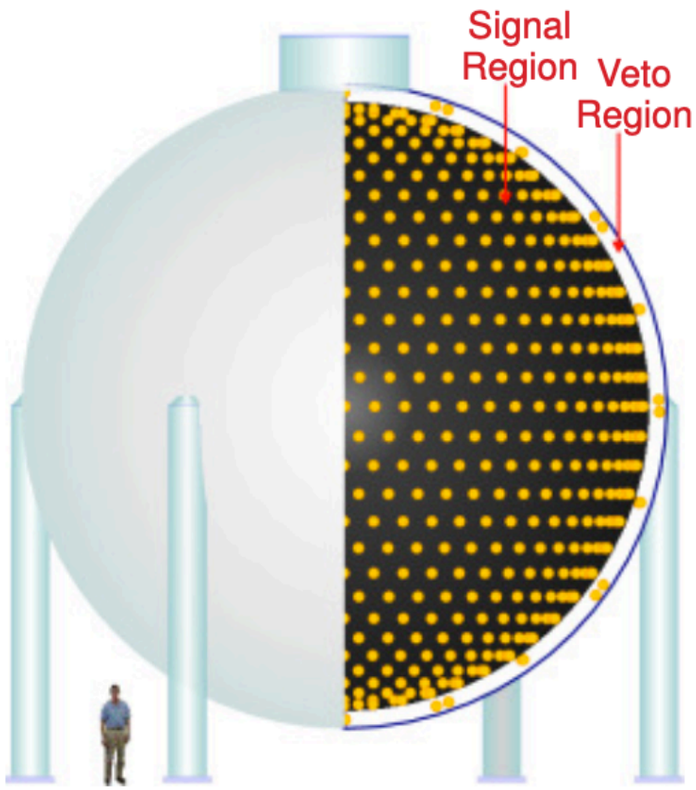
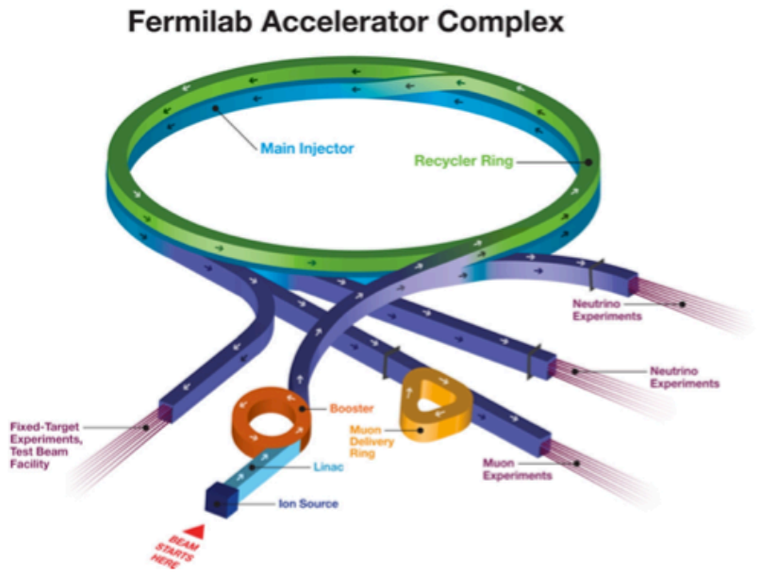
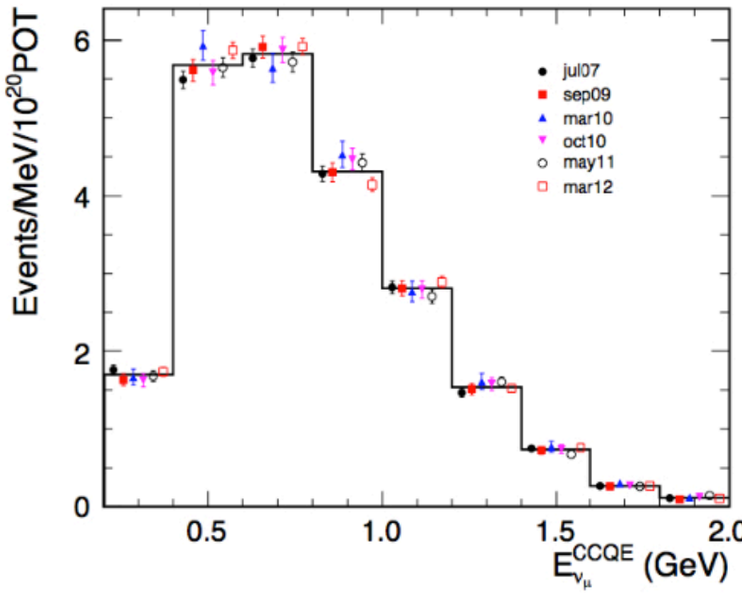
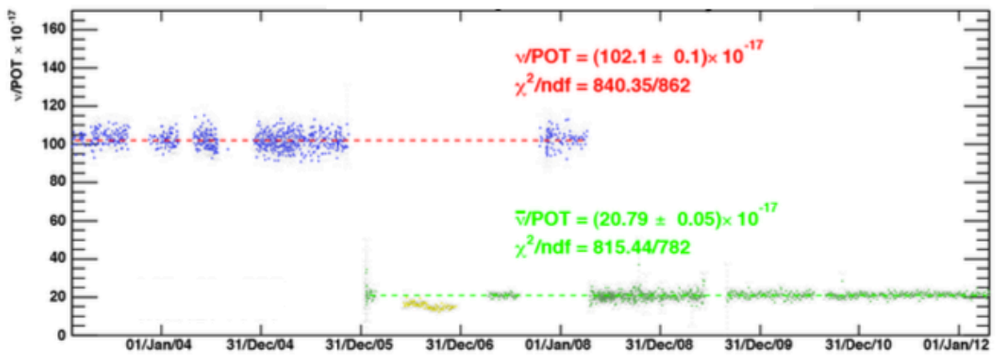
MiniBooNE Detector







- Beam: 8 GeV protons
- Target: Be
- Distance to MiniBooNE: 541 m
- Stable and "well-understood" beam



- Neutrino expt. on BNB.
- Collected 1E21 POT
- Interesting dataset for future analyses

Computing:

Two machines:
mbdata09.fnal.gov: has data links and AnalysisFramework
mbdb02.fnal.gov: has BooDB database (uses postgresql)

Both machines past end of life. We have backed up all information to cenns.fnal.gov

Data files safe on tape. This is for our analysis tools.

Now: Run container on cenns, make sure everything works w/o two machines above.

AnalysisFramework

- gcc v3.4.1
- Compiled against ancient version of root v4.00.08g1, boost 1.33.1, gsl 1.7
  - Can't easily move to newer compiler would need to upgrade external packages which breaks compilation (Tried anyway, however seen some issues with root output)
- Tried different versions of gcc/binutils that work on SLF5 and compile AF
- gcc v3.4.3, binutils 2.16 worked

Container solution in cenns.fnal.gov

AnalysisFramework works on mbdata09. We are trying to get a container working on cenns.fnal.gov before turning off mbdata09 and mbdb02.fnal.gov

Have been using a recipe from Vito to start with the container in cenns

```
To use podman edit:
~/.config/containers/storage.conf

replace:
graphroot = "/nashome/v/vito/.local/share/containers/storage"
with:
graphroot = "/data/user/vito/.local/share/containers/storage"
(make sure to use your user, instead of "vito")

There is a Dockerfile in:
/data/user/vito/docker/Dockerfile
this can be used to build a Docker/pod image.

To build the image run:
podman build --format docker --pull --tag miniboone_sl6 -f /data/user/vito/docker/Dockerfile /data/user/vito/docker/

This uses as base image docker.io/fermilab/fnal-wn-sl6:latest this is the FNAL SL6 image.
The Dockerfile also updates some repositories file,
new repo files update SL URL repos and disable OSG repo that is not available at the expected URL.
Finally it installs some 32 bit libraries.

Once the image has been built, to use it run:
podman run -it --rm -v /cvmfs:/cvmfs -v /etc/hosts:/etc/hosts -v /miniboone:/miniboone -v./:/srv -w /srv localhost/miniboone_sl6

The option "-v./:/srv" is used to mount bind the current dir to "/srv" inside the container,
then "-w /srv" set this directory as work directory.

Once the container is running to setup UPS run:
source /cvmfs/fermilab.opensciencegrid.org/products/common/etc/setups.sh
source /miniboone/app/app/BooNE_products/setups.sh
```

Container works nominally but I have been getting errors when I run the AF on a data file.
So far trying to yum add libraries to Dockerfile. But seems to have hit a wall with “libcrypto.so.10 not available”

Test file :/data/user/ranjan/container/data_00.rcp

To run: AnalysisFramework -srcp data_00.rcp

```
FROM docker.io/fermilab/fnal-wn-sl6:latest
LABEL description="SL6 for MiniBooNE"

# copy over updated repo files with correct repo URLs
COPY sl6x.repo /etc/yum.repos.d/sl6x.repo
COPY sl-other.repo /etc/yum.repos.d/sl-other.repo
COPY sl.repo /etc/yum.repos.d/sl.repo
COPY osg-el6.repo /etc/yum.repos.d/osg-el6.repo

RUN yum -y install zlib.i686 libstdc++.i686 libXpm.i686 libXt.i686 libXext.i686 libSM.i686 libICE.i686 libXmu.i686
compat-openssl10-1.0.2o-3.el8_6.i686 compat-libf2c-34-3.4.6-19.el6.i686 \
#RUN yum -y install zlib.i686 libstdc++.i686 libXpm.i686 compat-gcc-34-g77 openssl-libs libaio \
 && yum -y clean all

ENTRYPOINT ["/bin/bash"]
```