MINERvA Meets Neutrinos

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The University of Rochester
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MINERvA

- Low energy (few GeV) neutrino scattering experiment.
- Fine grained, fully active tracker region with downstream and side ("barrel-like") calorimeters.
- Will provide useful cross section data to oscillation experiments (MINOS, DUSEL, T2K) and study nuclear physics with pure Weak probe.
Tracking Prototype (TP)

- Full size modules, but only about 1/5 of the full detector complement.
- First built in Wideband Hall, now in the process of moving to NuMI.
- Fairly large scale prototype: The TP has ~6.7k channels, about 2/3 the number of the MINOS Near Detector (a.k.a. our muon spectrometer)!

TP contains 4 HCAL (1” Steel), 10 ECAL, & 10 Tracker Modules
Started our move on March 16th...

From Wideband... …to the NuMI Near Hall!

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Now have 14 modules mounted and 12 instrumented and reading out!

We are on schedule to finish the move by April 14th! 25 tons of detector in less than a month!

Note: FEBs sit on top of the detector.
“You know you are a real experiment when you are spending time thinking about cable routing...”

Our readout (well, & the FEBs...)!
Our tracking and detector map software is a bit confused during the move... but we have rock muons!

Interleave U and V planes (rotated 60°)
Our cluster of advanced (coffee-drinking) neural nets has even identified some probable neutrino interactions!

This is MINERvA's *first* neutrino interaction!
We can even see bunch structure in the beam!
Some challenges remain...

The weather inside is frightful!

Pedestals vs. time...

Our working hypothesis is...

Drip! ...& Dry.

~2.5 minutes

MINOS drip shield does not protect MINERvA...
Thank You!

- On behalf of the MINERvA collaboration, I’d really like to thank the lab for all the help and support we’ve received for this difficult project.

- Watch construction and more in real time at http://minervacam.fnal.gov