



Minutes of the Fermilab UEC Meeting March 8, 2013

Attending:

Mary Anne Cummings, Craig Group (remote), Daniel Kaplan, Sergo Jindariani, Breese Quinn (remote), Lee Roberts, Mandy Rominsky, Gregory Snow (remote), Nikos Varelas, Bob Zwaska (*Not Present: Ryan Patterson, Greg Pawloski*)

FSPA: Vladimir Khalatyan, Carrie McGivern

Guests: Bob Bernstein, Pier Oddone, Katie Yurkewicz

Presentations

<https://indico.fnal.gov/conferenceDisplay.py?confId=6550>

News from the Chair – Nikos Varelas

The new brochure for the DC trip was discussed. A QR code was inserted into our new HEP brochure pointing to the Accelerators for America's Future webpage.

Computing Division will be working on articles for Computing Bits (<http://computing.fnal.gov/news/>) or Fermilab Today to highlight the computing contributions of university groups profiled in 2012.

Global entry program went very well. A second event is being prepared. Sergo will talk about a few other Quality of Life programs.

An information slide was shown with future meetings, and other resources on how to stay informed.

News from Washington – Carole McGuire (Lewis-Burke)

The House recently passed a year-long CR at the FY12 enacted level with only minor changes. This CR does not directly address the sequester. The Senate is starting to work on this, and is widely expected to follow the same lead. The implication for High Energy Physics is unclear because the FY12 level is higher than the FY13 President's budget request (PBR); however, the Office of Science will receive a top-line budget and then have flexibility within.

The sequester went into effect on Friday, March 1 and translates into a 5% cut (off the above levels) for non-defense discretionary and 8% off defense. Technically, the sequester does not allow flexibility on how it is applied, but the underlying CR does. Therefore, there is flexibility within the agencies for the FY13 budget. There was discussion of how the administration will implement the sequester. There was some planning in advance to cushion the impact for this year, but details are only starting to be discussed.

The FY14 budget is in preparation, and is expected in early April. The baseline for this

next budget is not clear, but it will not be the FY13 enacted budget (because that is not yet done). A letter is being prepared for distribution among members of Congress to point out that HEP has been funded at an artificially low level and ask that they compensate for that when making appropriations. The letter should be ready in draft form later today (March 8). We will distribute this letter to offices next week, if we can have good copies by the time we start our visits.

Outreach Subcommittee – Mandy Rominsky

Mandy has been working on a program to include student profiles in Fermilab Today. It will cover recent graduates and occur every two weeks.

Government Relations & Local Government Subcommittee – Breese Quinn

About 188 meetings have been scheduled so far. About 100 are still pending, only a small fraction will work out at this late date. Those visitors with few primaries are taking some of the remaining unassigned members of Congress. We will likely end up with about 230 appointments which is about 25% higher than last year's visit. We also have several meetings with staff of Appropriations subcommittees. Secondary assignments are coming soon. The OMB canceled our meeting due to being busy dealing with sequestration.

The UEC wiki is being updated with additional reference information before the visit. Greg Snow is working on logistics for the meeting, including evening meals. A guide for the one-page brochure would be convenient to have – it would have expanded information for people to know before walking staff at an office through the brochure. Time is short to get this guide out. Breese will send out assignments.

Quality of Life & Non-US Users Subcommittee – Sergo Jindariani

The Users Office has been making a number of useful presentations for Non-US Users, including the tax seminar, global entry, visa, and green card issues. Amanda Thompson has been organizing this. Several of these occur over the next few months – dates are tentative.

Preparations are being made to have a set of presentations on obtaining industry jobs. We will invite a number of people including ex-HEP. We're also considering coordinating with the New Perspectives meeting. A lunch meeting might be the best way to achieve this during the meeting.

There have been a number of users and employees having difficulty with medical reimbursements from CIGNA. This will be communicated to Jack Anderson.

Status of the Mu2e Experiment – Bob Bernstein

Bob Bernstein, co-spokesperson of the Mu2e Collaboration, gave a presentation on the status of the Mu2e experiment and project. Mu2e will search for the direct conversion of negative muons to electrons captured on nuclei. The interaction maintains the proton and neutron numbers of the nucleus and does not emit neutrinos, so it is a direct manifestation of lepton flavor violation. The standard model version of this process (with neutrino

mixing) is vanishingly rare. However, numerous theories of new physics would imply a vastly greater rate of conversion which could be measured through this experiment.

The measurements of Mu2e are complementary to other Intensity-Frontier searches, such as MEG and g-2. Combining the limits of the various experiments can strongly rule out many models. Conversely, a combination of signal and discovery between the experiments can strongly discriminate between models.

As a search for rare decays, the experiment hinges upon being able to reduce backgrounds as far as possible. The signal is mono-energetic electrons of almost exactly the mass difference between the muon and electron. There are two main backgrounds: muon decay in orbit of a nucleus, where recoil off the nucleus allows a very small portion of the decay electrons to approach the signal's energy. The second is pion capture on the nucleus where the photon converts into a high-energy electron.

The Mu2e experiment is well progressed into its design, making several major choices within the experiment, including the configuration of the magnets, the tracker, and calorimeter for the decay electrons. Straw-tubes were the choice for the tracker technology.

The experiment has to consider shielding in several different ways. The superconducting target solenoid must deal with 8 kW of deposited beam power. Various detector components and electronics must be shielded from the radiation. Cosmic muons are a background. Radiation shielding to the surface must be considered.

The experiment anticipates starting physics runs in 2020, though calibration and field mapping work starts earlier. The critical path for the project is the production of the solenoids. The project has CD-1 through DOE, and DOE has been supportive in tailoring the funding and approval profile optimally.

News from the Directorate – Pier Oddone

The FY13 budget is starting to clear up some. The Lab will suffer a ~ \$10M cut (beyond previous cuts - \$25M between FY12 & 13) due to sequester. The Lab has been preparing for this to a certain degree, but more drastic actions such as staff furloughs and delayed beam operations are still on the table. The Lab preparations involved significant cuts into various initiatives around the Lab, which will translate into delays and reductions in reliability.

The FY14 budget is not anticipated to be particularly good. We suffer from not being highest on the list of administration priorities, and from having a suppressed baseline. On the other hand, there is substantial congressional support for Fermilab and its mission. The new science & lab caucus is gaining members and appears strongly bipartisan.

DOE has recognized (through Brinkman's office) that they have squeezed too hard on HEP and related fields (nuclear, fusion).

LBNE is courting international participation. European collaborators are attempting to coalesce around a proposal to build a large underground detector, as was previously proposed for LAGUNA. Of course, they are keenly aware that the US needs to build its part – the majority of the project. It has become apparent that it is vastly less expensive for the Europeans to pursue participation in LBNE rather than build an entirely new long-baseline program at CERN. Negotiations of this type, however, will take persistence and time. Cooperation of this type can be viewed in the larger context of participation in CERN and other major projects.

Users Meeting Subcommittee – Katie Yurkewicz / Greg Snow

Greg has put together a skeleton schedule of the meeting. Once all of the various committed talks are accounted for (ILC, agencies, URA, Director's farewell) there remain 8 hours and 20 minutes for physics talks, UEC, FSPA, Snowmass, Project X, Town Hall Meeting. A prototype poster design by Mary Anne was presented and discussed.

Katie and Greg are preparing an invitation list for the Users Meeting. Invitations will be sent out, most likely via email.

Next UEC meeting: April 19, 8:30am - noon

Scribe: Mandy Rominsky, Bob Zwaska