Department Heads Meeting
November 15, 2012

David B. MacFarlane
Visitors

- Charlotte Chang & Laurie Escudero
  » Conference approval process

- Comments
  » Interpretations being made at the Site Office level, leading to inconsistencies across the complex
  » Working on finding a way to exempt operational meetings within formal HEP collaborations
  » Attention level rising within DOE, e.g., NLDC call for data
Science program dates and news

- SPC meeting [Nov 1-2]
  » Talks available on SharePoint site
- US-China [Nov 5-6] in Daya Bay
- Status of LBNE effort
  » CD-1 review conducted Oct 30-Nov 1
  » Application for membership being prepared
- Status of investigation of second DM experiment
- Launching development of FY2013 PPA Research Plan
  » First draft input due by Dec 7 (3 weeks)
Options under consideration: LZ and Darkside

- Opportunity:
  » Migrate experienced core group from former SuperB effort
  » DOE/NSF G2 decision in late 2013

- LZ: Homestake, SD
  » 2-phase liquid Xe, 8 Tons
  » Partner with LBNL, DOE-led

- Darkside: Gran Sasso, Italy
  » 2-phase liquid Ar, 5 Tons
  » Partner with Fermilab, NSF-led

- SLAC role
  » Project management, cryogenic systems, DAQ, low background electronics & detector systems
FY2013 Research Plan: Content

- Overall PPA goals
- Energy Frontier
  » ATLAS
  » SiD
  » Particle Physics Theory
- Cosmic Frontier
  » CDMS Science
  » DES Science
  » Fermi ISOC
  » Fermi Science
  » KIPAC Theory
  » LSST Science
- Intensity Frontier
  » BABAR Science
  » EXO-200 Science & Operations
  » HPS Science
  » LBNE & MicrBooNE
- Professional Centers
  » Detector R&D
  » REGE
  » REGM
  » SCA
  » BABAR D&D
Example: Cryogenic Dark Matter Search

- Critical Outcomes
  - Enable next generation Ge dark matter search experiments with two orders of magnitude improvement in sensitivity to dark matter interactions

- Strategic goals
  - Initiate construction of SuperCDMS-SNOLAB, a second generation Ge dark matter search experiment
  - Begin planning for a third generation Ge dark matter search experiment
CDMS Accomplishments in FY11 [→FY12]

- Completed detector fabrication for SuperCDMS-Soudan
- Fabrication equipment modified for 100mm detectors
- 100mm detector housings designed and fabricated
- 100 mm ionization detector fabricated
- Successful cryogenic test of 100mm ionization detector
- Spiral masks completed for testing 100mm IZip charge collection
- Fabricated cryogenic tails and completed safety improvements at SUF to support STF dilution fridge mods
- Initial release of new background simulation framework
- Cryogenic charge and phonon transport implemented in GEANT4
CDMS Goals for FY12 [→FY13]

- Demonstrate fab throughput of 6 IZip detectors / month (Brink, Hasi, Tomada, Resch - done)
- Procure 100mm Ge crystals for vendor qualification (Partridge – April 2012)
- Characterize 100mm charge collection performance (Brandt, Brink – May 2012)
- Fabricate and test a 100mm IZip (phonon + ionization) (Brink, Hasi, Tomada, Resch – August 2012)
- Procure SQUID arrays for phonon readout (Partridge – June 2012)
CDMS Goals for FY12 [→FY13]

- Complete design of Ge tower engineering model, including detector housings, cold electronics for charge and phonon readout, and mechanical / thermal design (Brink, Craddock, Godfrey, Nelson, Partridge – September 2012)
- Commission SUF fridge + new tails & ship to FNAL (Brandt, Brink, Craddock, Racine – June 2012)
- Validate and release GEANT4-based detector MC (Asai, Brandt – May 2012)
- Apply the MC Framework for shielding design studies (Kelsey, Wright – March 2012)
Example: Cryogenic Dark Matter Search

- **Strengths**
  - Strong expertise in detector fabrication achieved through hiring
  - Expertise / resources in Research Electronics group is extremely valuable
  - Talented / experienced group in background and detector simulations
  - Close association with Stanford CDMS group, Nanofabrication Facility

- **Weaknesses**
  - Not sufficiently engaged in SuperCDMS-Soudan physics
  - SLAC has no experience designing sub-Kelvin experiment, relying on Caltech & Berkeley to provide expertise in cold mechanics
  - Need for project support (administrative, planning, system engineering)
Example: Cryogenic Dark Matter Search

- **Opportunities**
  - Discovery of a WIMP source for dark matter
  - Better understanding of cosmology through measuring detailed properties of dark matter in statistically meaningful samples
  - Precision and background discrimination that can be achieved in Ge detectors may prove to be superior to other technologies
  - Work on cryogenic electronics may aid other SLAC efforts such as EXO
  - Work on phonon transport in GEANT4 may be useful to other SLAC programs (e.g. PULSE, SIMES)

- **Risks**
  - Ge technology may not prove to be competitive
  - Timeliness of SuperCDMS-SNOLAB may be lost due to DOE inaction
Administrative news

- Review of FY2012 performance evaluations
- Timeline and input to merit and bonus recommendations
Performance evaluation timeline

- **August 15:**
  » Access given to supervisors to begin writing evaluations and seek employee and matrixed supervisor / functional lead input

- **September 28:**
  » Directorates complete their normalization process and communicate to supervisors

- **October 31:**
  » All performance evaluations are finalized including higher level review

- **November 12 [on hold until Nov 19 for PPA]:**
  » Evaluations are released to employees; supervisors begin meeting with employees
Grading scale

- 7 = Consistently exceeds all expectations
- 6 = Frequently exceeds expectations
- 5 = Sometimes exceeds expectations
- 4 = Consistently meets expectations
- 3 = Meets most expectations
- 2 = Needs improvement
- 1 = Does not meet expectations
- 0 = Not applicable
Comments

- In aggregate, noticeable differences in interpretation of grading scale
  - Between divisions, between departments, & between individual supervisors
- Undertook a review of all performance grades this week
  - Meetings at Division Head level
  - Nearly finished this review and providing feedback
  - Should be in a position to release performance reviews by next Monday (Nov 19)
Merit and bonus program timeline

- **November 26:**
  - Directorates finalize salary increase and bonus recommendations
  - Directorate level allocations passed down to Divisions, with 10% holdback for reserve
  - Need Division level inputs by COB Tuesday [Nov 20] at the latest
  - Bonus recommendations should be accompanied by a one paragraph justification

- **December 12:**
  - EC completes approval process for bonuses and salary increases

- **January 21, 2013:**
  - Supervisors complete meetings with employees

- **January 22, 2013:**
  - Salary increases in paycheck; FY bonuses paid out in paycheck