e-mail dated 6/5
presented 12 June 06

DECAM Status:

Goal is to build a new prime focus camera for the Blanco telescope in Chile and measure the effects of dark energy in a 5 year survey from 2009 – 2014.
This will be the largest digital camera on a telescope – 520 Mpix, 0.5m diameter focal plane.
This work overlaps in large part with work needed for SNAP (brings a little money from LBNL!) and other future telescope projects. Everyone wants the LBNL CCDs but LBNL only will deliver bare silicon. Building CCD modules from the silicon is similar to and requires the same infrastructure as building the silicon vertex detectors.

Stage 1 approval from FNAL July 2004
CD-0 received in Oct. 05
International partners ready to invest ~2M from UK and ~1M Spain if DOE decides to proceed.
P5 presentation April 06, expect to hear something at July 6,7 '06 meeting of HEPAP
May 06 Dark Energy Task Force recommends proceeding with a Stage III project that sounds exactly like DES (they were not allowed to comment on specific projects)

CD1 review now scheduled for July 25th 2006, with expectation for CD2 in March 07, and CD3 in Sept. 07. Plan is to be ready for construction start in FY08 (~Oct. 07) and be on the telescope by Dec. 2009.
Total Project cost fy06-fy10 ~ $20M, of that ~$13 M is in FY08 and FY09.

Critical paths are funding and the optical elements and the CCD production.

Electrical Engineering: CCD readout electronics – main challenge is < 10 e noise.
Terri Shaw leading a group – doing well, good drafting and technical support, recently added expertise in hardware programming (FPGAs etc). Supplemented by groups in Spain.
Also need to control heat generation at the prime focus – UIUC designed crates.
Big question remains to be answered: what happens when we try to readout multiple CCDs, in the planned grouping. This may or may not indicate a complete change of the readout plans.

Mechanical engineering:

6 months ago it looked like DES was on track for building up the necessary team and a good match for the resources available. Chuck Grimm was finishing up CMS and starting to work almost full time on DES, Youri Orlov was starting to get involved, Del Allspach and Ken Schultz were moving towards getting the LN2 autofill system going. U.Chicago started getting involved with construction of the multi CCD test vessel.

Now, with a CD-1 Director's review looming (July 25th) it looks like we do not have the mechanical resources to do the job. In the last 6 months we lost Chuck, Youri and Del (for at least 6 months).

1st Priority – we need a replacement for Chuck Grimm:
- a) takes ownership of models, can make modifications, works with designers and drafters making drawings. If Chuck is not replace, Andy and Herman end up doing this.
- b) needs to know the whole system, backup for Andy and Herman
- c) kept track of space – where everything is "Space Czar", all mechanical interfaces

2nd Priority – another 1 FTE Mechanical engineering (2 at 50%)

MSProject file (based on input from the engineers) says we need 5 FTEs to complete the design and construction (FY06-FY09). We are falling behind.

Tasks and current coverage:

1) Mechanical Integration Coordinator: ~ 20% FTE Andy Stefanik: interfaces with collaborators, provides sane experienced input, not experienced with telescopes, but learning.

1) large stuff (need 2 x 50% FTE) – Stefanik is covering at about the 50% FTE level, many tasks waiting, and inefficient without a lead designer

a) 3.5m-1.5m steel cage
b) support and alignment of ~ 2.5 ton camera – probably a hexapod
c) shipping containers, and plan for the project (FNAL -> London -> Chile....)
d) telescope simulator to shake up and flip entire cage
e) installation fixtures and plans for the Blanco
f) reinstallation and alignment for F8 Mirror
g) analysis of telescope structure, deflections, plans for alignment
h) barrel for the optical corrector

2) a cooling system, hardware and controls (50% FTE) – Was Allspach, now a combination of Cease and Schmitt for the immediate crisis: the multi- CCD test vessel. Chicago built the vessel, it will be delivered in a couple weeks and the cooling system is current in drafting!

a) Immediate need -> the cryogenic system and controls for prototype camera/ multi-CCD test vessel
b) future need: cryo system and controls for the prime focus cage
c) water/alchohol cooling system for electronics
d) routing process lines on the telescope

3) a large vacuum vessel for the CCDs and very flat focal plane (<25 microns, 0.5m diameter) ~ 30% FTE (Cease) now. Was ~ 90% for the last 9 months. Will need to ramp back up as we learn what should be different from the prototype.

4) interfaces to the existing infrastructure at the telescope 20% FTE (Stefanik + Grimm!)

5) packaging of the CCDs as they are delivered on wafers from LBNL ~ 50% FTE (Derylo)

6) support of the building up of the CCD testing area (Schultz, Grimm) Need 50% of Ken and ~25% of Chuck + drafting to keep this moving. The Autofill system was supposed to be finished in Nov. 05. Signoffs are expected this week for one out of three systems.

7) FEA – Bob Wands group, detailed analysis support