GLAST LAT Project Weekly Report for the Week Ending Sept. 7, 2001

==========

*** WBS 4.1.5 CALORIMETER (N. Johnson)

4.1.5.1 CAL Management & Performance Assurance

Cal activities in France and US were associated with the CAL Interim Design Review in Paris on 4 - 6 Sept. Issues addressed included
- Programmatics: status of schedules and near term plans, discussion of memorandum of agreement and CAL implementation plan.
- Programmatics: discussed the development program for CAL and the requirements for various test models - particularly the fidelity of the EM for CAL.
- Technical progress: recent results of PIN bonding tests and bond material selections. Silicone with primer is showing the best results; testing with a new softer epoxy are about to begin.
- Technical progress: testing of new wrapping materials and results of light yield and light tapering were discussed. 3M material gives best light yield but reduces light tapering.
- Mission assurance: meetings were held with Veritas, the support company that will provide French MA support. Discussed MA requirements on flex cable, PIN photodiode, LAT power supplies, and general materials and process controls.

4.1.5.5 Crystal Detector Elements

TV cycling of PIN bonding samples is continuing. Up to 62 cycles have been completed. TV pump has failed and testing is stopped until repair is complete. Expect testing to begin again next week.

Continued PIN bonding tests, thermal cycling of optical adhesives. (NRL)

Practiced bonding EM crystals and EM PINs. Measured light yield on the EM crystals with new EM dual PIN photodiode using tetratek wrap - > 6000 e/MeV (NRL)

4.1.5.7 CAL Analog Front End Electronics

Have evaluated two circuit board autorouter software programs, one of which will be needed to design the calorimeter side board electronics. Both the Mentor Pinacle and Cadence Spectra autorouters handle differential pair routing.

Came up with a solution for electrical connection of the Calorimeter to the TEM. The narrow crenulation design of the calorimeter baseplate prevents us from using a traditional wired connector between the Calorimeter and the TEM. The present solution is to have kapton flex cables built into the calorimeter side board, with a right angle board mount high density Dsubminature connector fastened to the flex cable. The right angle connector would be a special design to both mechanically fasten to the flex cable and have male jack screws for fasten to the mating TEM connector.

Have been looking into an alternative connection idea for the PIN diode flex cable connection to the Calorimeter circuit board. A special clip would secure the kapton cable to the circuit board. Sketches of the clip have been sent to manufactures for initial price bids.

4.1.5.4.5 CAL Software/Design Verification

Began coding BF energy calibration routines. (NRL)

Balloon flight

Searching for alternate data on low E electrons above Palestine and in LEO. (NRL)

Continuing basic checkout of balloon flight data. Studying pre-flight muon run to confirm that Y xtals in the BFEM give improperly low signal for events that follow within ~1 ms of the previous event. Effect is small for dt ~ 1 ms, and strong for dt ~ 0.1 ms. Creating methods to find these events in flight tlm stream: since we don't have successive events in tlm, we can't use the GPS time. Will summarize for next week's BF analysis meeting. (NRL)

==========