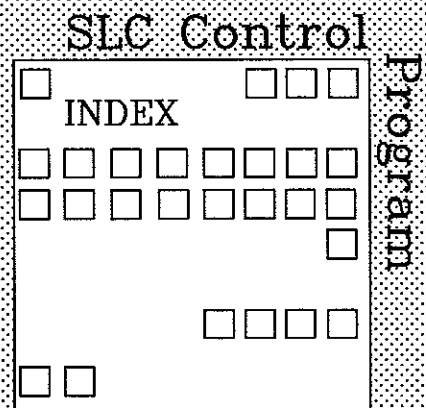


Index Panel

SLAC's Software Engineering Newsletter



June 1, 1990

All that Fits is News to Print

Vol. 4, No. 18

Schedule for SLC Database Installations

Author: *Terri Lahey*
Panel Changes: *None*

Subsystem: *Database*
Documents: *No*

May 17
User Impact: *Small*
Help File: *No*

The schedule for Database Installations on MCC is:

Database	Install	Data	Due
14 June,	Thursday	7 June,	Thursday
28 June,	Thursday	21 June,	Thursday
19 July,	Thursday	12 July,	Thursday
9 August,	Thursday	2 August,	Thursday
30 August,	Thursday	23 August,	Thursday
20 September,	Thursday	13 September,	Thursday
11 October,	Thursday	4 October,	Thursday
25 October,	Thursday*	18 October,	Thursday*

*The 25 October install is a tentative date at this time.

Please submit database changes via electronic mail to TEL@SLACSLC or in writing to BIN 55 by the "data due" date, or sooner if at all possible.

BSY Polarimeter Software

Author: *Ron Chestnut*
Panel Changes: *Few*

Subsystem: *Polarimeter*
Documents: *Yes*

May 29, 1990
User Impact: *Small*
Help File: *Yes*

New software has been written to support Polarization measurements with the BSY Moller Polarimeter. For a Polarimeter run, a polarized target is positioned in the SLC electron beam in the BSY and scattered electrons are detected in the PEP 42 line. During a run, the detector's 64 strips and 7 pads are read out on

each pulse and the average pulse height and variance calculated for the three polarization states from the gun (Plus, Minus and None.) At the end of a run, a fit to the Plus - Minus asymmetry for each channel yields a measurement of the beam polarization.

The polarimeter data acquisition is performed by the PL01 micro which controls the target and detector. The software is built upon the new BPM Micro acquisition package described by Tony Gromme in the March 15, 1990 Index Panel, and the Fast Feedback support package written by Forest Rouse for the IP Position feedback. An early version of the acquisition was written on a PC, but it has been moved onto the SLC control system to take advantage of the faster CAMAC access and added flexibility of the SLC infrastructure. The new software is capable of taking data at the full 120Hz beam rate in order to minimize the time needed for invasive polarization measurements.

From the main index panel select

POLARI ZATION INDEX

, then

PL01 DATA ACQ.

 to reach the touch panel controlling the

data acquisition. The 72 detector channels are read out continuously and the data stored in a ring buffer even when a run is not in progress. The ring buffering is identical to that used by the Fast feedback micros and the data is available for display at any time, even during a run. Four buttons in the lower right corner of the panel can be used to examine about 200 pulses of data from any channel. A buffer of data is fetched from the Micro with the Obtain Ring Buffer button. X and Y variables for display can be set in the usual manner on the lower left of the panel. The TIME option selects the time relative to the first pulse in the ring buffer, calculated from the pulse IDs.

Before starting a polarimeter run, the target must be positioned with the

SELECT TARGET CONFIG

 button. Since these

actions are potentially invasive, they are protected by an "Are you sure?" prompt. When a target position is selected, the target is moved into the beam. In addition, the detector is positioned, Helmholtz coils are trimmed to the correct operational values, and beam to the ARCs is suppressed by firing the Single Beam Dumpers. The user may then select the number of pulses to collect and push the Start Run button to begin a measurement. During the run, pulses with a bad Veto status or low Toroid pulse height are rejected, and the data is normalized to the beam current on each pulse. When the run reaches the desired number of pulses, a message is sent to the Console which started the run to remind the user to terminate the run and collect the data by pushing the End Run button. Note that the End Run may be initiated from any console.

For each run a data file is written with a name of the form SLCPOLAR:BSY\$MOLLER $nnnn$.DAT, where $nnnn$ is the run number. This data includes the run parameters, a list of database and Beam Position Monitor information specified in an input file, and the pulse height information from the End Run. The data are written to disk in a self-descriptive ASCII format.

At any time before, during or after a run the current status of the PL01 data acquisition can be obtained

from any Console via the

OBTAIN CURRENT STATUS

 button. The Current Status display shows the last run number,

current run status, the target and detector state, and other selected options. The values of the average pulse heights from each channel of the detector are also returned and may be displayed. The error bars are calculated from the averages and the averages of the squares of pulse heights. To display pulse heights, one may select the polarization states of interest with the Select Veto State button. Choices are the default "Plus + Minus", Plus, Minus, or None. Then the display is brought up with the Display Pulse Height button. The Asymmetry display selects (Plus - Minus)/(Plus + Minus.)