

§35. Development of Data Acquisition System in CHSNBI

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Automatic data acquisition and monitor systems have been developed in CHSNBI #1 and #2. So far, the operation data were read from window of digital oscilloscopes and were written down on an operation sheet. For stable operation of NBI, the new systems have some capabilities of (1) trigger mode data acquisition, (2) display of pulse duration length and averaged data during pulse, (3) display of historical trend graph of arc power and beam power, (4) monitor of beam profile at a calorimeter, (5) calculations of beam width, and (6) storage of such data. Each system is made up by a PC (windows), and an ADC module for PCI. The data acquisition is performed by ADM-686z/687z module (16/32ch, 16bit, 200kS/s) of Micro Science Co.. The ADC module and sequence of analysis, display, and storage of data are

controlled by LabVIEW. The display window of this system is shown in the figure; top: the wave form of voltage and current of filament, arc, and beam, left-hand side of middle: display of pulse duration, averaged data during pulse and so on, right-hand side: the historical trend graph of arc power (solid line) and beam power (open circles), bottom: beam profiles at the calorimeter in horizontal direction (left-hand side) and vertical direction (right-hand side). An operator can also see the arc efficiency to beam current and arc dependence of beam profiles, so an optimization of beam profile is easily done in beam conditioning.

Another data storage system built up by File Maker is also operating in CHSNBI. The system record the data of beam energy, injection power, pulse duration length and so on with CHS shot No.. So it plays an important role in CHS experiments.

The combination of these two systems and development of automatic data release in WEB page are planed and will be performed in near future.

