**Chicago 3.4.6 Detector Systems Consolidation & Refurbishment**

Until the end of February, the CIS techs continued to repair Tile Calorimeter (TileCal) electronics and investigate cooling leaks in the modules to prepare for the resumption of data-taking. Main electronics interventions included replacing Harting connections to the Low-Voltage Power Supplies, rejoining severed HV or trigger wires, and replacing 3-in-1 cards for individual PMTs. To address cooling problems, they replaced degraded hose connectors and unbent hoses near the module inlet; if access was limited, parts of the module were excluded from the cooling loop. Overall, about 14% of the total 256 TileCal modules received some maintenance intervention during the Year-End Technical Stop (YETS). There were less than 0.01% channels unable to be reached and require further work during the next stop.

Additionally, they have produced scripts to help monitor LVPS trips, this confirms that the number of trips increase as luminosity increases.

**Chicago 3.4.7 Front End Maintenance**

**Chicago 3.4.8 Calibration Systems and Testing Facility**

The CIS techs have continued monthly validation of CIS runs to calculate the CIS constant for each TileCal channel. They verified the stability of the constant over time, checked the quality of the calibration runs, and updated the online database. After the maintenance period, they prepared new calibration constants for each of roughly 20000 TileCal channels in advance of data-taking. Additionally, they have verified lists of masked and affected channels in discussion with other calibration systems. They have continued to update the offline calibration software (TUCS) to help validate the constants and investigate problems. In particular, they have added tools to investigate the quality of CIS fit (charge v. ADC counts) for the upgrade demonstrator module (LBA14). They are also investigating features such as fitting range and measured analog pulse-shape.

In order to improve the quality of TileCal inputs to L1Calo, they have begun understanding and editing the scripts which perform PMT scans. The first step is to remove bad PMTs from each tower. The goal is to provide inputs to the trigger system proportional to constant energy not necessarily to constant charge seen in the PMT.

Lastly, they are updating documentation to include a detailed explanation for the new and old scripts in TUCS. They are also making presentation slides for the preparation of the new CIS techs.