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ATLAS CIS Tech Quarterly Report

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This report covers the activities of the Chicago CIS Techs from April 1 - July 12, 2022.

As the ATLAS cavern has closed in preparation for Run 3, there has been little work done in this quarter with the maintenance team. Instead, the Chicago techs’ work has been focused on the CIS updates and training the new techs for 2022-2023, Peter Camporeale and Jacky Li. They have also served a total of 10 shifts at the Calo-FWD desk in the ATLAS control room since the end of March.

The Chicago techs have performed two CIS constant updates during the last period using the TileCal Unified Calibration Software (TUCS) macros, and are currently in process of the third. The April CIS update contained 10 CIS runs from April 1 to May 1 and updated 55 channels. The May CIS update contained 13 CIS runs from May 1 to June 1 and updated 39 channels. The June CIS update, currently in progress with the new Chicago techs, will contain CIS runs from June 1 to July 1.

The procedure for running a CIS update has remained mostly unchanged since the last quarterly report. To first verify that a run is valid to include in the update, they mass produce timing and amplitude/charge plots for all CIS runs in the valid date region using a newly produced Root macro made by the current techs. After using this set of runs and producing plots of CIS constants vs time, they determine any necessary ADC flag changes and perform manual recalibrations to the constants for channels displaying constant shifts. Within the last month, the Chicago techs have developed a new script to streamline recalibration that will perform all recalibrations with a single command and automatically save the output to a text file, drastically simplifying the process. They also monitor channels with high deviation from the database CIS constant and those at half gain. Channels with unusual behavior which are not already masked are cross-referenced with the maintenance elogs and the data quality reports. The final results of the updates are presented to the data quality and maintenance teams and uploaded to on- and offline databases to be used in physics analysis.

Finally, the current Chicago techs are training the new techs for next year. They helped them get set up with their CERN IDs, dosimiters, and software environments for running CIS updates (and any other computing projects they might have this upcoming year). They have also worked on improving the documentation of the new scripts to assist with CIS updates so that the new techs can use them efficiently.