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# Commissioning Results of the CMS-HF Online Radiation Damage Monitoring System and Implications for Run III

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The CMS-HF calorimeter uses quartz fibers as active elements to measure the energy of the particles. Since the CMS-HF detector is in a high radiation area, radiation effects decrease the performance of the detector by gradually damaging the active elements. As a consequence, losing transparency in the fibers causes gradual change in the calibration of the detector. Hence, the change in the transparency has to be monitored during the collisions to make corrections in the energy calibration. The online radiation damage monitoring system does this by measuring the ratio of the direct and reflected light pulses in a long fiber in the detector. The existing system was upgraded and commissioned during the last months of the Run II period. In this presentation, the results of the commissioning will be shown and, using these results, the possible ways for the implementation of the system during Run III, especially the implications of the complex behavior of the quartz fibers, will be discussed.

## In-person participation

Yes

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