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Phase I Upgrade of the CMS Hadron Calorimeter

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In preparation for Run 2 (2015) and Run 3 of the LHC (2019), the CMS hadron calorimeter has begun a series of ambitious upgrades. These include new photodetectors in addition to improved front-end and back-end readout electronics. In the hadron forward calorimeter, the existing photomultiplier tubes are being replaced with thinner window, multi-anode readout models, while in the central region, the hybrid photodiodes will be replaced with silicon photomultipliers. The front-end electronics will include high precision timing readout, and the backend electronics will handle the increased data bandwidth. The barrel and endcap longitudinal segmentation will also be increased. This report will describe the motivation for the upgrade, its major components, and its current status.

Summary

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