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DC-DC Powering for the CMS Pixel Upgrade

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The CMS experiment plans to replace the silicon pixel detector by a new one with improved rate capability and an additional detection layer at the end of 2016. In order to cope with the increased number of detector modules the new pixel detector will be powered via DC-DC converters close to the sensitive detector volume. This talk will review the DC-DC powering scheme and report on the ongoing RD program to develop converters for the pixel upgrade. Design choices will be discussed and results from the electrical and thermal characterisation of converter prototypes will be shown. An emphasis will be put on system tests with up to 24 converters. The performance of pixel modules powered by DC-DC converters is compared to conventional powering. The integration of the DC-DC powering scheme into the pixel detector will be described and system design issues will be reviewed.

quote your primary experiment

CMS

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