

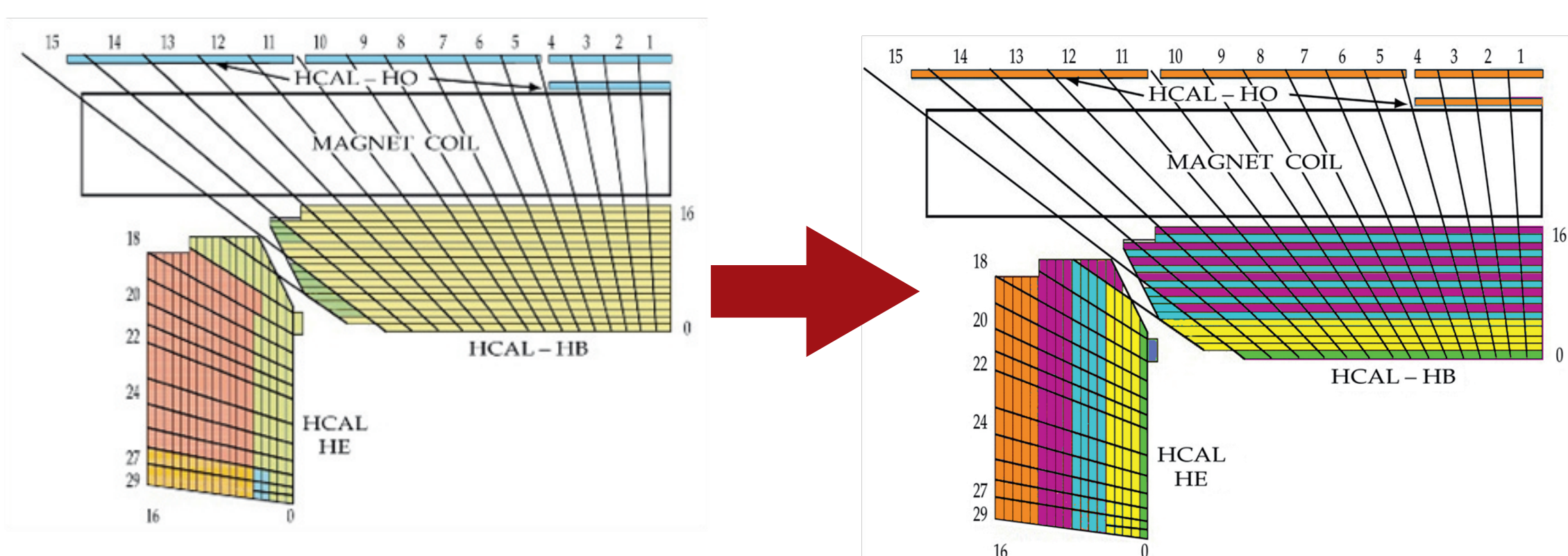
# SiPM SENSORS FOR USE IN THE UPGRADE OF THE CMS HADRON CALORIMETER



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Hcal takes advantage of its accessible photo sensors to update them with a SiPM

The SiPM advantages over the HPD:

- Smaller area
- Larger gain
- No magnetic field problems
- No HV power supplies
- No high vacuum

The new sensors allow Hcal to increase the longitudinal segmentation.

To best evaluate the performance of each SiPM device in the context of its suitability for the Hcal upgrade we consider:

- Number of micro-pixels on the sensor
- Micro-pixel recovery time
- Radiation hardness

We can couple an advanced SiPM simulation with the GEANT description of the detector and flexibly create longitudinal segmentation. We are able to simulate full events and compare them with the results from test beam.

The HPD's in the barrel and endcaps will be replaced during LS2. Prototype devices and electronics have been tested in the SPS north area.

