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Solving the CMS High Granularity Calorimeter's Data Processing Challenges with Heterogeneous Computing

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CMS is upgrading its endcap detectors for the High-Luminosity LHC runs with a first-ever silicon/scintillator tracking calorimeter: HGCAL. It will allow to handle increased collision pile-up, improve the precision of measurements, and also enable completely new ways to search for new physics thanks to its particle-pointing and timing capabilities. However, these wonderful improvements come at a price - with over 6 million readout channels, processing the HGCAL's data becomes a significant challenge from the computing point of view. In this talk, I will introduce this future calorimeter of CMS, explain related computing challenges, as well as present how we are addressing them using heterogeneous computing.

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