

Upgrade II of the LHCb Calorimeter

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The LHCb Upgrade 2 will run at a luminosity of $(1..2) * 10^{34} cm^{-2} s^{-1}$ to collect $\sim 300 fb^{-1}$ of data. This will require a major revision of the LHCb Calorimeter. The increased luminosity will result in very high particle densities and radiation doses in the central area. The ECAL has to provide high quality energy and position measurement for electromagnetic showers. One option for the central part is a sampling scintillation ECAL with tungsten-based converter. Radiation hard crystal scintillators of garnet type can be used as active elements. Measuring the time of arrival of neutrals with an accuracy of few tens of picosecond is crucial to mitigate pile-up. The preferred option is to use the intrinsic time resolution of the ECAL modules. An R&D campaign started to optimize the ECAL. It includes studies of radiation hard scintillating materials, beam tests as well as simulation studies. We present the R&D results and the current status of the LHCb Calorimeter upgrade.

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