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A pure CsI Calorimeter for the BelleII experiment at SuperKEKB

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The new facility SuperKEKB will be an upgrade of the existing KEKB electron-positron asymmetric collider, with a target luminosity of 8 x 10^35 cm^-2 s^-1, about 40 times greater than that of KEKB. The accelerator upgrade is based on the novel low-emittance “nanobeams” scheme.
The detector will also be upgraded to cope with the higher luminosity, pile-up and occupancy. We report here on the design and development of the new pure CsI calorimeter for the forward region. An intensive R&D has been carried on to study the performance of pure CsI crystals with APD’s (Avalanche Photodiodes) readout. Results about the signal to noise ratio of this detector for different front end electronics configurations will be presented. A matrix of 16 crystals has been put on electron beam at the BTF facility in Frascati. Results in terms of energy and timing resolution of this prototype of the detector will also be discussed.

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