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CaloCube: a novel calorimeter for high-energy cosmic rays in space

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The direct observation of high-energy cosmic rays, up to the PeV region needs highly performing calorimeters. Space operation requires great effort in optimizing size and mass. Calocube is a homogeneous calorimeter whose basic geometry is cubic and isotropic, so as to detect particles from every direction, maximizing the acceptance. High ranularity is obtained by filling the volume with small
cubic scintillating crystals. Extensive optimization of the cosrutoin parameters has been studied.
The problematic of calibration and monitoring during space operation is being addressed combining software and hardware approaches. A prototype, instrumented with CsI(Tl) cubic crystals, has been constructed and tested with particle beams. An overview
of the obtained results will be presented and the perspectives for future space experiments will be discussed.

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