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The performance of the LHCf detectors

The LHCf is an early time physics experiment of the CERN Large Hadron Collider. The LHCf will provide an indispensable data on the energy and transverse momentum spectra of neutral particles in the very forward region at $1 \times 10^{17} \text{eV}$. The LHCf apparatus is composed of two independent detectors installed $\pm 140 \text{m}$ and at zero degree collision angle from the ATLAS interaction point. Each detector has two sampling calorimeters which are composed of 44 radiation lengths of tungsten plates, 16 layers of plastic scintillators and 4 layers of position sensitive detectors (scintillating fibers for Arm#1, silicon tracker for Arm#2). The calibrations for all components (all plastic scintillators, PMTs, scintillating fibers, and MAPMTs) have been finished. The Arm#1 detector was fully assembled in July 2006, while the Arm#2 detector was pre-assembled in September 2006 and will be finally assembled in April 2007. The beam test for overall calibration was carried out at a CERN SPS in August 2006. A final beam test will be made in September 2007. In this poster, we report the performances of the detectors.

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