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New cameras for the H.E.S.S. experiment

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The High Energy Stereoscopic System (H.E.S.S.) is an array of imaging atmospheric Cherenkov telescopes (IACTs) located in the Khomas highland in Namibia. It was built to detect Very High Energy (VHE, >100 GeV) cosmic gamma rays. Since 2003, H.E.S.S. has discovered the majority of the known astrophysical VHE gamma-ray sources, opening a new observational window on the extreme non-thermal processes at work in our universe. H.E.S.S. consists of four 12-m diameter Cherenkov telescopes (CT1-4), built in 2003, and a larger 28-m telescope (CT5), built in 2012, which lowers the energy threshold of the array to 30 GeV. The cameras of CT1-4 are currently undergoing an extensive upgrade, with the goals of reducing their failure rate, reducing their readout dead time and improving the overall performance of the array. The entire camera electronics has been renewed from ground-up, as well as the power, ventilation and pneumatics systems, and the control and data acquisition software. The CT1 camera has been upgraded in July 2015 and is currently taking data; CT2-4 will be upgraded in Fall 2016. Together they will assure continuous operation of H.E.S.S. at its full sensitivity until and possibly beyond the advent of CTA. This contribution describes the design, the testing and the in-lab and on-site performance of all components of the newly upgraded H.E.S.S. camera.

Registered

Yes

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