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MC Simulation and Layout Studies for a future Cherenkov Telescope Array

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Abstract content

Detailed Monte Carlo simulations of possible configurations for a future large-scale installation of Imaging Atmospheric Cherenkov Telescopes, the CTA (Cherenkov Telescope Array), have been carried out. This includes a full treatment of shower fluctuations, night sky background, registration of the signal and reconstruction of the registered showers. Although not representing a detailed design study, they demonstrate that a sensitivity at the level of 1 mCrab can be achieved with existing technology and analysis methods. Spectra of somewhat stronger sources may be measured over more than three orders of magnitude in energy. Combining a large number of IACTs allows to achieve unprecedented levels of hadron rejection and angular resolution. Among the options studied are systems with a modest number of very large telescopes and/or larger numbers of smaller telescopes, of different spacings, pixel sizes, etc. Systems consisting of two or three different telescope sizes may achieve an energy coverage from a few 10 GeV to 100 TeV and more.

If this papers is presented for a collaboration, please specify the collaboration

CTA Working Group

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 3 (OG part 2), pages 1469-1472

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