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Photocathode-uniformity tests of the Hamamatsu R5912 Photomultiplier tubes used in the Milagro experiment

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Abstract content

The Milagro experiment observes the extensive air showers produced by very high energy gamma-rays impacting the Earth's atmosphere. Milagro uses 898 Hamamatsu R5912 Photomultiplier Tubes. To complete our Monte Carlo simulations, we tested the photocathode uniformity of our PMTs. The main finding was that the PMT gain and detection efficiency are a function of the distance from the center of the photocathode. Both quantities become considerably smaller as the illumination position nears the edge of the photocathode. Inclusion of the measured quantities in our MC simulations greatly increased the agreement between the simulations and the experiment.

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

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. 4 (HE part 1), pages 813-816

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