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EAS radio detection at large impact parameter: the inverse problem and the design of a giant array

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Abstract content

Radio electric field strengths associated with extensive air shower can be evaluated at large impact parameter with analytical expressions. Such a theoretical tool is most valuable in the present stage of development of the radio detection technique when the capabilities of the latter for cosmic-ray physics are under investigations. It provides a manageable tool which can help in devising new ideas for the analysis of radio detection data. It can also be used to perform non trivial tests of much more detailed numerical approaches which are currently under development.

The approximation leading to such a formulation will be presented and two applications will be discussed: the inverse problem of how to go from a sampling of the radio electric field on a few antennas to the main characteristics of the extensive air shower, and the question of the antenna spacing of a giant array for ultra high energy cosmic rays.

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'Olive, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 5 (HE part 2), pages 925-928

Primary author(s) : GOUSSET, Thierry (Subatech)

Co-author(s) : LAMBLIN, Jacob (Subatech); VALCARES, Sandra (Subatech)

Presenter(s) : GOUSSET, Thierry (Subatech)

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