DETECTION OF COSMIC γ-RAYS USING A HELIOSTAT FIELD

F. Arqueros (1), J. Ballestrin (2), D.M. Borque (1), M. Diaz Trigo (3), R. Enriquez (1), H.-J. Gebauer (3) and R. Plaga (3)
(1) Facultad de Ciencias Fisicas, Universidad Complutense, E-28040 Madrid, Spain, (2) CIEMAT-Departamento Energias Renovables, Plataforma Solar de Almeria, E-04080 Almeria, Spain, (3) Max-Planck-Institut für Physik, D-80805 München, Germany.

In this work it will be discussed on the capabilities of a solar power plant for the detection of airshowes and the reconstruction of primary parameters. The results are based on a Monte Carlo simulation which includes a detailed description of the GRAAL experiment (see contributed abstract). Some difficulties with the use of heliostat fields for γ-ray astronomy are pointed out. In particular the effect of the restricted field-of-view on the lateral distribution and timing properties of Cherenkov light are discussed. Upon restriction the spread of the timing front of proton induced showers sharply decreases and the reconstructed direction becomes biased towards the pointing direction. This is shown to make efficient γ-hadron separation difficult.