

# APPLICATION OF FRACTAL AND WAVELET ANALYSIS TO CERENKOV IMAGES MEASURED AT THE WHIPPLE TELESCOPE

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Multifractal and wavelet methods are mathematical tools used in pattern recognitions and image parameterisation. Their application to images of Cerenkov light of air showers in high resolution pixel cameras [1] as obtained from the Whipple telescope promises improved gamma/hadron separation in the whole energy range of interest. Using recent data of on/off-source measurements for the Crab nebula and Mrk421 the performance of the fractal and wavelet parameters are tested and compared with that of Hillas parameterisation. The obtained parameters are independent of the image orientation and depend only on the shape of the image and on the density distribution of the photo electrons. Hence the methods are of special interest for the search of faint, extended, or diffuse sources of TeV gamma emission. The benefit of fractal and wavelet analyses to Cerenkov images is discussed for the existing Whipple telescope as well as for an array of telescopes like VERITAS.

[1] A. Haungs et al., *Astroparticle Physics* 11 (1999) 145