PROCEEDINGS OF SCIENCE

Resolving the kpc jet of Centaurus A in TeV gamma-rays

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The point-spread function (PSF) of existing Imaging Atmospheric Cherenkov Telescopes is limited to scales of a few arcminutes. Measuring source sizes at or below the PSF level is generally restricted by statistics as well as the systematic uncertainties of the PSF characterisation. Employing new simulation and analysis techniques, the understanding of the PSF of the H.E.S.S. array has considerably increased, allowing to measure extensions of very high energy (VHE; E > 100 GeV) gamma-ray sources down to below one arcminute. Here we present the first detection of extended VHE emission from an extragalactic source, the kpc jet of the nearby radio galaxy Centaurus A. The physical extension of the VHE jet of Centaurus A exceeds 1.8 kpc, meaning that a large part of the emission originates far away from the central black hole. Our results as well as physical implications are going to be discussed.

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