

THE SIZE OF THE EMISSION REGION OF VHE GAMMA RAYS IN THE CRAB NEBULA

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The HEGRA system of imaging atmospheric Cherenkov telescopes was used to study the emission region of VHE gamma rays. The medium angular resolution of all events is 0.1 degrees, but for specially selected classes of events the system provides an angular resolution of better than 3'. Given the systematic pointing accuracy of 25", one is therefore sensitive to angular source extensions on the arcminute scale. By comparing the measured angular distribution of TeV gamma rays from the Crab Nebula with the distributions expected on the basis of Monte Carlo simulations, and with measurements of gamma rays from the point source Mrk 501, we conclude that the rms size of the VHE gamma ray emission region in the Crab Nebula is less than 1.5'.