

## Detection of $\gamma$ -ray emission from CTA1 by LHAASO

We report the VHE-to-UHE gamma-ray source (LHAASO J0007+7303) detected by the LHAASO-WCDA and LHAASO-KM2A detector, located at the center of shell-type radio supernova remnant CTA 1. Above 25 TeV emission of LHAASO J0007+7303, detected by LHAASO KM2A detector, shows an extended morphology approximated by a 2D-Gaussian with a 39% containment radius  $\approx 0.16^\circ$ . The photon spectrum of LHAASO J0007+7303 is well described by logparabola ( $[dN/dE = N_0 (E/20 \text{ TeV})^{-(\alpha+\beta \ln(E/20 \text{ TeV}))}]$ ), with a differential spectral index  $\alpha \approx 1.74$  and  $\beta \approx 1.23$ , and normalization  $N_0 \approx 2.54 \times 10^{-15} \text{ cm}^{-2} \text{ s}^{-1} \text{ TeV}^{-1}$ . The size and spectrum are coincident with the known TeV-PWN VER J0006+729 discovered by VERITAS gamma-ray observatory. We argue that the VHE-to-UHE gamma-ray emission of LHAASO J0007+7303 are originated from the leptonic emission of the relativistic particles within the PWN around PSR J0007+7303. The sizes are plausible to be evolution with photon energies, which favors that the convection transport of relativistic particles is dominant in this PWN.

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