

Evidence of 100 TeV γ -ray emission from HESS J1702-420: A new PeVatron candidate

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In this talk we report on new H.E.S.S. observations of the PeVatron candidate HESS J1702-420, which bring evidence for the presence of γ -rays up to 100 TeV. Remarkably, the new deep observations and the 3D analysis technique allowed the discovery of a new γ -ray source component, called HESS J1702-420A, that was previously hidden under the bulk emission traditionally associated with HESS J1702-420. This new object has a power-law spectral slope < 2 and a γ -ray spectrum that, extending with no sign of curvature up to 100 TeV, makes it an excellent candidate site for the presence of PeV-energy cosmic rays. We adjusted physically-motivated non thermal radiative models to the H.E.S.S. data, testing simple one-zone hadronic and leptonic models, and determined that the available observations do not allow us to rule out either of the two scenarios. Remarkably, in a hadronic scenario, the cut-off energy of the particle distribution powering HESS J1702-420A is found to be higher than 0.5 PeV at a 95% confidence level.