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The Cherenkov Telescope Array

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The Cherenkov Telescope Array (CTA) is planned to be the next generation ground based observatory for very high energy (VHE) gamma-ray astronomy. It will provide a full sky-coverage by featuring an array of imaging atmospheric Cherenkov telescopes both in the northern and southern hemispheres.

Sites close to Cerro Paranal (Chile) and on La Palma (Spain) have been recently chosen for final negotiations to host southern and northern array respectively. The southern array will be composed by telescopes of three different sizes to detect gamma rays with energies between 20 GeV and more than 100 TeV while the northern one will comprise only large and medium size telescopes with a significant sensitivity up to 50 TeV.

Such arrangement as well as many technical improvements will provide an order of magnitude enhanced flux sensitivity and a substantially better angular and energy resolution compared to current generation of Cherenkov telescope arrays. In this presentation I will provide an overview of the technical design and summarize the current

status of the project before discussing CTA prospects for some key science topics like the origin of relativistic cosmic particles and the acceleration mechanisms in extreme environments such as neutron stars and black holes.

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