

Roberta Zanin: CTAO: a new view of the very-high energy sky

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Very-high-energy (VHE) gamma-ray astroparticle physics is a relatively young field, and observations over the past decade have surprisingly revealed almost 250 VHE emitters which appear to act as cosmic particle accelerators. However, the existing experiments have provided exciting glimpses, but often falling short of supplying the full answer. Fundamental questions such as the origin of the highest energy cosmic rays within our Galaxy remain still open. Answers to this kind of questions require an instrument with a factor 5 to 10 improvement in sensitivity, a sub-arcminute angular resolution and 10% energy resolution. The next generation gamma-ray observatory, the Cherenkov Telescope Array Observatory (CTAO), is the answer to this need.

In this talk I will briefly present the status of this upcoming observatory, and its scientific capabilities in terms of key performance parameters. I will also focus on “planned” surveys, the impact they will have on the understanding of the VHE sky, and the status of their preparation. I will then conclude talking about the key role of CTAO in the study of the most extreme transient phenomena.

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