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Extreme Astrophysics with the Cherenkov Telescope Array Observatory

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The Cherenkov Telescope Array is the next-generation observatory (CTAO) for ground-based gamma- ray astronomy. With more than 100 telescopes equipped with state-of-the-art technologies, it will provide a new view of the sky at energies from 20 GeV to 300 TeV at unprecedented sensitivity and angular resolution. CTAO will be a key contributor to multi-wavelength and multi-messenger astronomy, and its unique capabilities will allow us to explore the most extreme phenomena in the Universe. For example, the telescopes' very large collection area and rapid slewing are crucial to capture and probe transient phenomena, such as gamma-ray bursts and last radio bursts.
In this contribution, I will present the status of the observatory, introduce its key science projects, and highlight synergies between CTO and Australian facilities and research interests. In particular, I will discuss the importance of combining gamma-ray and radio observations, motivating the partnership to the Square Kilometre Array Observatory - the world's largest radio telescopes in the near future.

Author: EINECKE, Sabrina (University of Adelaide)

Presenter: EINECKE, Sabrina (University of Adelaide)

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