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Multi-messenger particle astrophysics with the Cherenkov Telescope Array JUSTIN VANDENBROUCKE, University of Wisconsin, CHERENKOV TELESCOPE ARRAY COLLABORATION — The Cherenkov Telescope Array (CTA) is a next-generation array of imaging atmospheric Cherenkov telescopes. Building on the success of H.E.S.S., MAGIC, and VERITAS, in an energy range complementary to that of the Fermi Large Area Telescope (LAT), CTA will investigate the particle physics of the cosmos through observations of gamma rays between tens of GeV and several hundred TeV. The observatory is especially well suited for follow-up of transient events detected in other wavelengths and messengers including neutrinos and gravitational waves. CTA will feature one array in each hemisphere for full sky coverage. The largest telescopes will have a 20 GeV energy threshold and will be able to quickly (in less than 50 seconds) slew to transient targets. The excellent effective area of CTA (thousands of times greater than that of the Fermi LAT at 20 GeV) will enable it to provide powerful and unique contributions to multi-messenger particle astrophysics.

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