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Science with CTAO/LST: Current and Expected Results

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The Large-Sized Telescope prototype (LST-1) is the first and the larger of a new generation of instruments that will form the Cherenkov Telescope Array Observatory (CTAO) in the island of La Palma (CTAO-North). CTAO is designed to explore, with unprecedented sensitivity, angular resolution, field of view, and energy coverage, the Universe at very-high-energy gamma rays. Since beginning its observations, LST-1 has been studying the northern sky in an energy range between about a few tens of GeV up to a few TeV. Thanks to its high sensitivity and its ability to quickly point toward flaring targets, LST-1 is particularly well suited to detect and follow up on rapidly changing cosmic sources. In this Winter Meeting contribution, I will present the first scientific results obtained with LST-1 as well as the expectations for the full LST northern array (involving a total of 4 LST telescopes in La Palma), that will become the most sensitive instrument of its class along 2026 regarding new discoveries in the very-high-energy gamma-ray sky.

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