

Highlights of the LST Project

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The array of four Large-Sized Telescopes is under construction at La Palma, Spain, under the framework of the Cherenkov Telescope Array Observatory. It will be completed by the end of 2025. The LST consists of a 23m diameter primary reflector with 198 high precision segmented mirrors, a high-resolution camera comprising 1855 channel high Q.E. PMTs and GHz sampling fast readout electronics, and covering 4.5 degrees of FoV. The LST, weighing 110 tons, can fast re-positioning within 20 seconds between any two points in the sky through a high-power flywheel. This allows LST to perform follow-up observations on transient sources such as GRBs. LST can obtain an energy threshold of 20GeV and 50GeV in the zenith and 45-degree observations, respectively, and the distant AGNs can be observed up to the redshift $z = 2$. The Arrays of LSTs in the North and South will survey the all-sky with unprecedented sensitivity and extend the energy range as low as 20GeV. The first Large-Sized Telescope, LST-1, has been in mono-mode operation for scientific observation since 2020 and has accumulated more than 2000 hours of scientific data. We report highlights of the LST instrumentation and early science results with a mono-mode observation from LST-1.

Primary author: Prof. TESHIMA, Masahiro (Max Planck Institute for Physics, Institute for Cosmic Ray Research, The University of Tokyo)

Presenter: Prof. TESHIMA, Masahiro (Max Planck Institute for Physics, Institute for Cosmic Ray Research, The University of Tokyo)

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