



Contribution ID: 252

Type: not specified

## Performance of the joint observations with LST-1 and MAGIC

*Monday, September 11, 2023 2:45 PM (15 minutes)*

The next generation ground-based instrument for very-high-energy gamma-ray observations will be the Cherenkov Telescope Array Observatory (CTAO). At one of the two planned sites, La Palma (Canary Islands, Spain), the first prototype of a Large-Sized Telescope, LST-1, is already operational and is currently under commissioning. The two MAGIC Cherenkov telescopes have been operating in stereoscopic mode since 2009 at the same site. The proximity of these three telescopes allows to observe the same gamma-ray events and to perform a joint analysis. This three-telescope system provides a better reconstruction of the events, both in terms of angular and energy resolution, as well as discrimination between showers initiated by gamma rays and cosmic rays. This results in an improvement of the sensitivity of over 60% and 40% compared to LST-1 or the two MAGIC telescopes operated separately, respectively. In this contribution, we will report on results from data taken on the Crab Nebula with the pipeline developed for the analysis of joint LST-1 and MAGIC observations, and show the improved performance evaluated using both real and simulated data.

**Primary authors:** BERTI, Alessio (Max Planck Institute for Physics); Ms VISENTIN, Elisa (University of Torino); Ms JOBST, Elli (Max Planck Institute for Physics); DI PIERRO, Federico (Istituto Nazionale di Fisica Nucleare); SITAREK, Julian (University of Lodz); OHTANI, Yoshiki (ICRR, University of Tokyo); SUDA, Yusuke (Hiroshima University)

**Presenter:** BERTI, Alessio (Max Planck Institute for Physics)

**Session Classification:** GRA: Gamma Ray Astronomy

**Track Classification:** Gamma Ray Astronomy