

## 平成 28 年度共同利用研究・研究成果報告書

研究課題名 和文：CTA 大口径望遠鏡一号機設置運用

英文：Installation and commissioning of the first Large Size Telescope of  
CTA in La Palma, Canary Islands, Spain

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### 研究成果概要

The main purpose of the project was to install the first Large Size Telescope (LST1) of the Cherenkov Telescope Array (CTA) in La Palma, Canary Island, Spain. The final 3-D model of LST1 is shown in Figure 1.

The construction of the foundations started in August 2016 by the Spanish company Dragados. The start of the works was delayed by about 3 months in respect of the original schedule due to complications in the Spanish regulations. The works on the foundations proceeded very well (see Figure 2) and by the end of December 2016, despite several weeks of bad weather, the foundation was ready. In January 2017, the ready foundation was officially accepted (see Figure 3).

The construction of the telescope itself, however, could not start as planned yet. The reason is the missing last permission of the local authorities. Therefore, while waiting for the final green light to start the construction of the telescope itself in La Palma, we focused on the camera testing campaign in the laboratory.

For the purpose of the camera testing we built a test setup at the Institute of Astrophysics of the Canaries (IAC), in Tenerife, Spain, Figure 4.

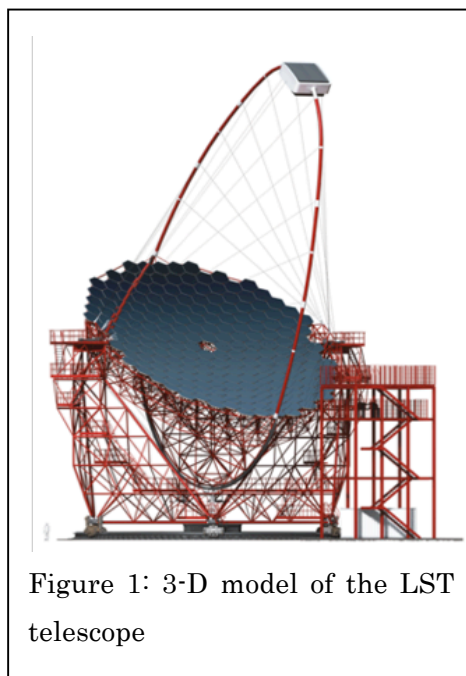


Figure 1: 3-D model of the LST telescope



Figure 2: Building LST1 foundation

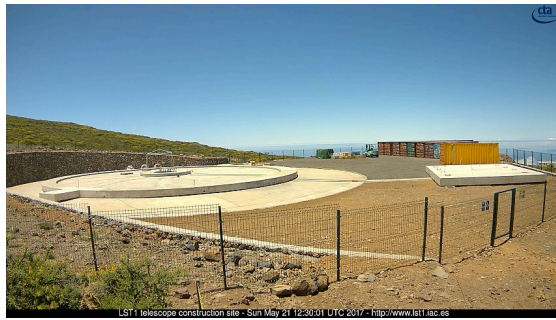


Figure 3: Foundation of LST1 is ready

- Mini Camera

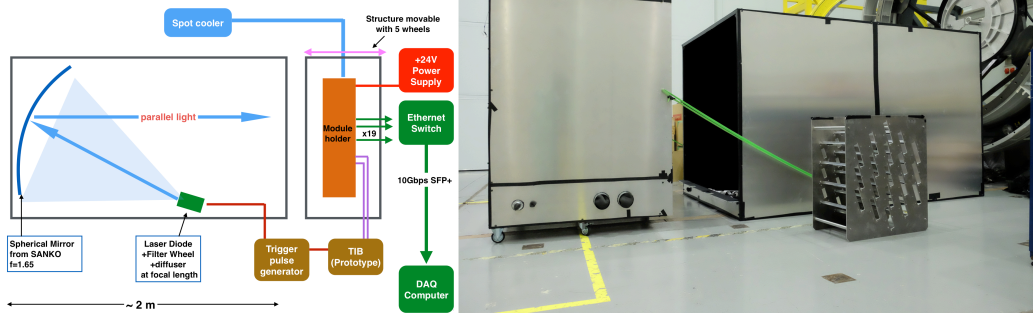


Figure 4: Test setup for the camera tests at IAC, Tenerife, Spain

The camera tests in Tenerife proceeded very successful and by the end of FY2016 all camera modules have been assembled and half of them was successfully tested. In parallel, we succeeded to test 35 modules in the final mechanical structure of the camera in Madrid, which was necessary to validate the mechanics. Concerning the optics of the telescope, by the end of FY2016, all 200 mirrors were shipped from ICRR to La Palma and stored in an especially for this purpose rented hangar at the sea level. The mirrors received no degradation or damage during a two-month shipping procedure from Japan to Spain thanks to the especially designed mirror racks at the ICRR. All in all, everything is ready for the installation of the LST1 in La Palma and once the permission is received, the telescope can be erected within 8 months. We are positive that LST1 can take first light by the end of FY2017.