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# Laboratory Acceptance and Telescope Integration of the Gran Telescopio Canarias Adaptive Optics System

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## Abstract

The Adaptive Optics (AO) system of the 10-m class Gran Telescopio Canarias (GTC) has completed the acceptance tests in the laboratory of the Instituto de Astrofísica de Canarias (IAC), and has verified the procedures for the integration in GTC at Roque de Los Muchachos Observatory (ORM), together with critical optics maintenance previous to the shipment. The GTCAO system is based on a single deformable mirror (DM) with 373 actuators, conjugated to the telescope pupil, and a Shack-Hartmann wavefront sensor (WFS) with 312 subapertures, using an OCAM2 camera. The performance required is 65% Strehl Ratio in K-band under average atmospheric conditions and bright NGS. The instrument will be shipped to the ORM in June, to be installed on the Nasmyth platform B of GTC, to be aligned with the telescope, to be integrated with the telescope control system and to start the technical commissioning. When in operation, the AO system will work as a focal station of the telescope, in charge of providing the commands to M2 for fast guiding and tip tilt correction, and offloading global low order modes to M1 and its segments using the WFS telemetry. Testing these functionalities is part of the initial technical commissioning on telescope. In this paper we focus in the final results of the laboratory acceptance, the integration in telescope and the commissioning plans to get the system ready for science.

**Keywords:** AO system, Commissioning

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