



Thermal Performance of a Multi-Axis Smoothing Cell

By Charalambos Georgiou

LAP Lambert Academic Publishing Jun 2016, 2016. Taschenbuch. Condition: Neu. Neuware - The following material includes a review of thermal and distance metrology equipment, a description of shaping and preparing an aspherical mirror for the ELT ground based telescope involving the use of a robotic smoothing cell. The text covers the calibration of the volumetric workspace of the multi-axis smoothing cell using ISO standard tests with the aim of studying the effects of thermal influences. Plane axis motions errors were measured with a laser interferometer and multi-axis volumetric measurements were carried out with a 6 axis laser tracker. The thermal variation is assessed during operation at high heat load for this type of operation. A Matlab based thermal error model is developed and validated to simulate thermal errors over a range of operating parameters. Using the model and experimental data, direction was given to optimise the robotic cell performance and is due to be implemented for further use 120 pp. Englisch.

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