

Turbulence parameter estimation with Paranal Observatory wavefront sensors

Wednesday 30 October 2019 10:00 (20 minutes)

The ubiquity of Shack-Hartmann wavefront sensors in current observatories makes them interesting tools for atmospheric turbulence parameter estimation. We showed in Andrade et al. 2019 how to derive the Fried parameter and outer scale in a robust way, correcting for cross-coupling (when a Zernike basis is used). In this poster we apply the method to the telemetry of several wavefront sensors at Paranal Observatory: SAXO (SPHERE), NAOMI (VLTI) and CIAO (VLTI). Both open loop and closed loop data are addressed. We find that our results are compatible with simultaneous DIMM measurements. The main difficulties in implementation are highlighted and recommendations for telemetry data curation are made.

Author: Mr GARCIA, Paulo (CENTRA and Universidade do Porto – Faculdade de Engenharia)

Co-authors: CORREIA, Carlos (W. M. Keck Observatory, 65-1120 Mamalahoa Hwy, Waimea, HI 96743, United States); KOLB, J. (European Southern Observatory, Alonso de Córdova 3107, Vitacura, Región Metropolitana, Chile); MILLI, J. (European Southern Observatory, Alonso de Córdova 3107, Vitacura, Región Metropolitana, Chile); CARVALHO, M. I. (FEUP & INESC TEC, Rua Dr. Roberto Frias, P-4200-465 Porto, Portugal); ANDRADE, P. P. (CENTRA and Universidade do Porto – Faculdade de Engenharia)

Presenter: Mr GARCIA, Paulo (CENTRA and Universidade do Porto – Faculdade de Engenharia)