Deflections

Deflectometry Flexible Solutions

2023 Summary

MINI Grant 2022 RSN5

G. Sironi

Overview

Aim

Extend the deflectometry technique adopted for to characterize the aspheric primary mirror of the ASTRI dual mirror Cherenkov telescope to two challenging cases:

- ASTRI SST secondary mirror: A monolithic glass mirror of diameter 1.8 m, with a focal length of about 2.1 m and a requirement on shape error (excluded the spherical component) of abut 200 µm

- Collimators for X-ray calibration facilities developed for ATHENA. Quasi cylindrical optics with length in the range of 50-60 cm and radius of curvature of few centimetres and a requirement on shape error in the range of nanometers.

Project Status Updates 1

Schedule

WP1- System design

- ✓ Analysis of the set up for ASTRI SST secondary mirror
- • Simulation for X-ray collimator deflectometry configuration (TBC)
- ✓ Tolerancing of ASTRI SST M2 deflectometry system
- • Tolerancing of X-ray collimator deflectometry system (TBC)

WP2 - SW updates

- ✓ ASTRI SST M2 optimized light pattern development

WP3 – Procurement and set up

- ✓ Partial procurement of commercial components (2700 euro)

Deliverables

Production of large monolithic mirrors (1.8 m diameter) for dual-mirror Cherenkov telescopes via thermal slumping

G. Sironi, G. Pareschi, L. Proserpio, S. Scuderi, G. Tagliaferri, G. Valsecchi

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Expected required budget 4000 euro

Criticalities

1. *ASTRI-SST secondary mirror second production was slowed down by the procurement process of the slumping oven and mould development. First prototype is going to be manufactured within the end of 2023.*
2. *Vert-X mirror procurement was slowed down like all the ATHENA connected activities waiting for the NEW-ATHENA phase. Grinded mirror are now un polishing phase.*