

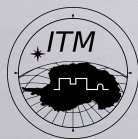
The release of a faster ITM

PNRA - Una visione del futuro. Verso una programmazione pluriennale del PNRA"

JM Christille, ITM PI

Fondazione C. Fillietroz-ONLUS

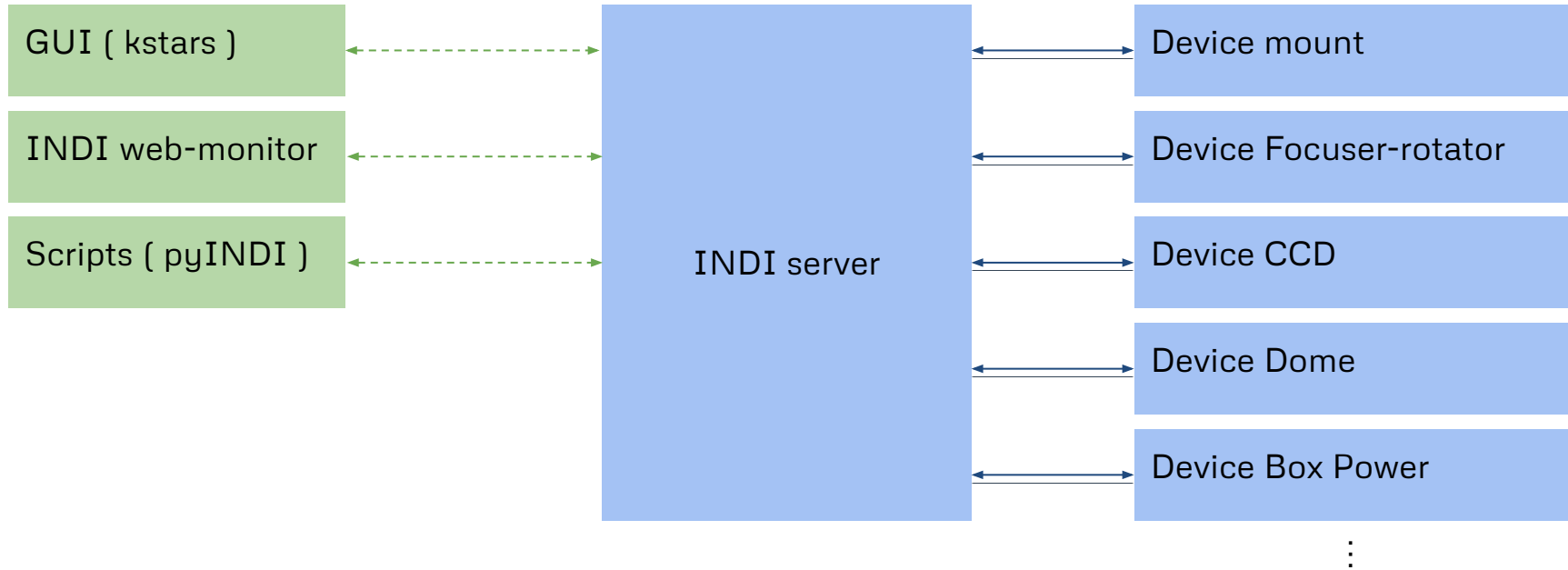
Astronomical Observatory of the Autonomous Region of the Aosta Valley (OAVdA), Italy



Partially supported by



SW upgrades: INDI architecture



XML over TCP-IP

XML over IPC (Inter Process Communication)

INDI White Paper: <http://www.clearskuinstitute.com/INDI/INDI.pdf>



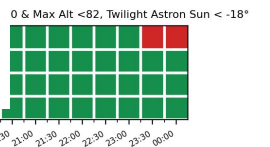
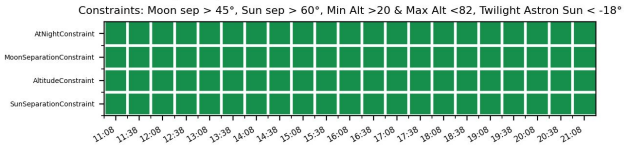
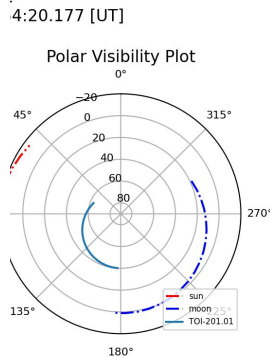
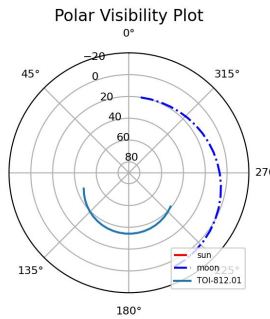
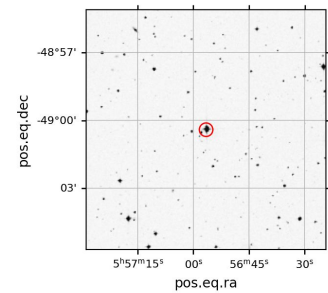
Partially supported by

Fondazione
CRT

Observations: Scheduling

TOI-812.01
transit 2023-06-27 16:23:34.276 [UT]

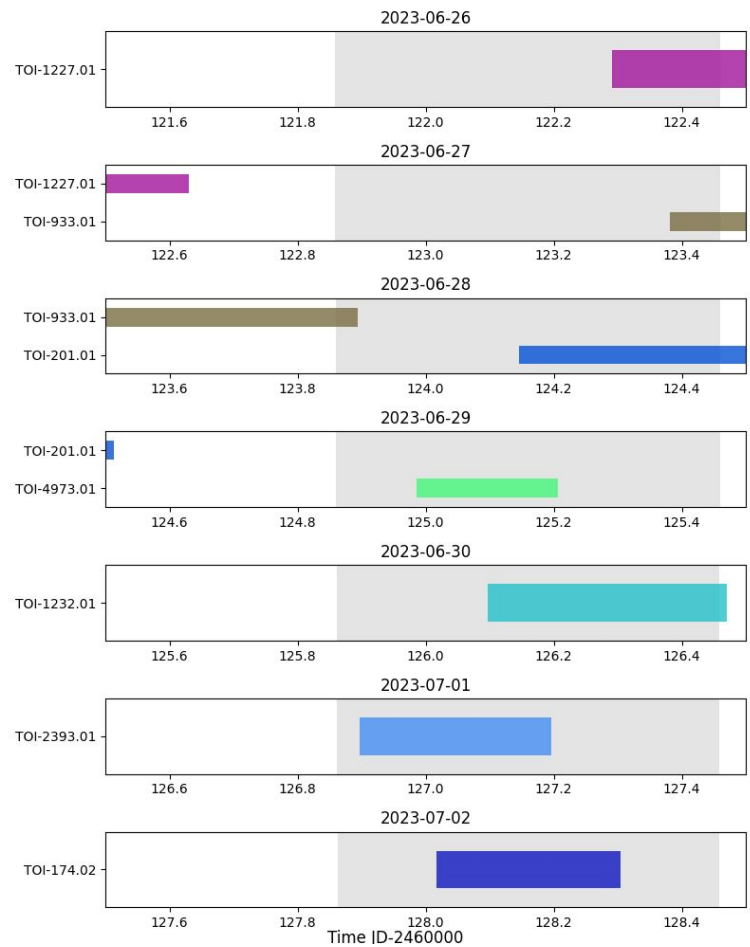
05h56m56.56s -49d00m25.02s



Constraints: Moon sep > 45°, Sun sep > 60°, Min Alt > 20 & Max Alt < 82, Twilight Astron Sun < -18°

Time on 2023-06-27 UTC TOI-812.01
 2023-06-27 11:08:50.476 [UT] JD2460122.96447 Observation start (2 hours pre transit ingress)
 2023-06-27 16:23:34.276 [UT] JD2460123.18304 Mid Transit
 2023-06-27 21:38:18.076 [UT] JD2460123.40160 Observation stop (2 hours post transit egress)
 6.49 [h] transit duration
 10.96 Mag Tess
 8.64 [mmag] Depth

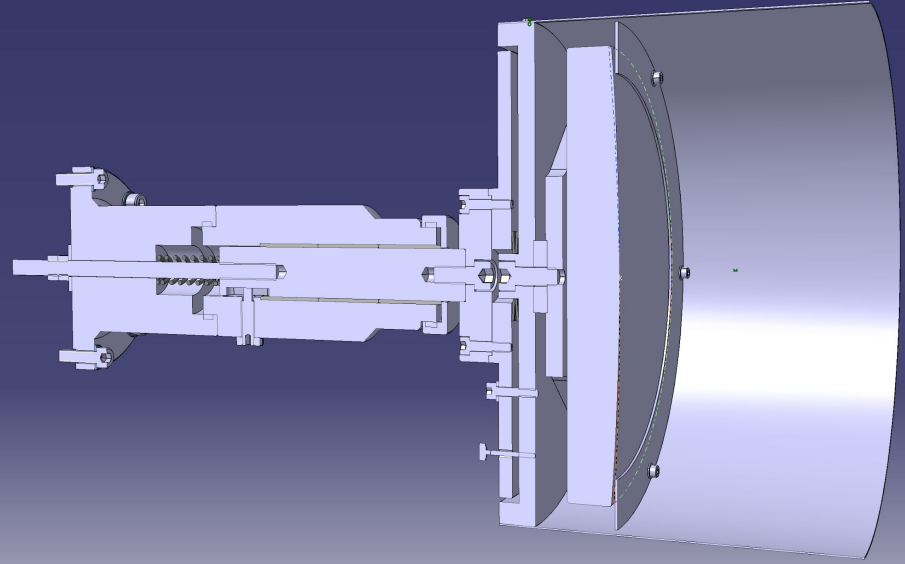
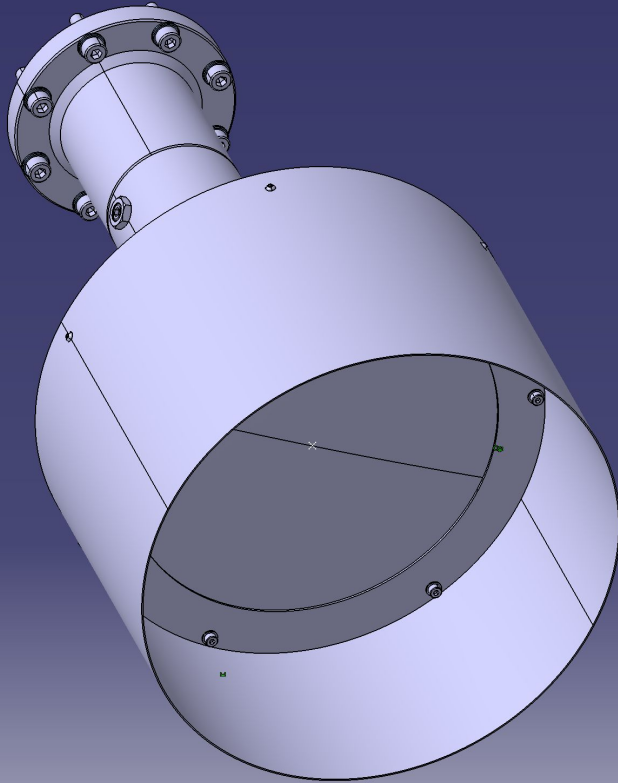
Time on 2023-06-28 UTC TOI-201.01
 2023-06-28 15:30:16.577 [UT] JD2460124.14603 Observation start (2 hours pre transit ingress)
 2023-06-28 19:54:20.177 [UT] JD2460124.32940 Mid Transit
 2023-06-29 00:18:23.777 [UT] JD2460124.51278 Observation stop (2 hours post transit egress)
 4.80 [h] transit duration
 8.58 Mag Tess
 7.35 [mmag] Depth



Partially supported by



New Optical Scheme: M2 mechanical support

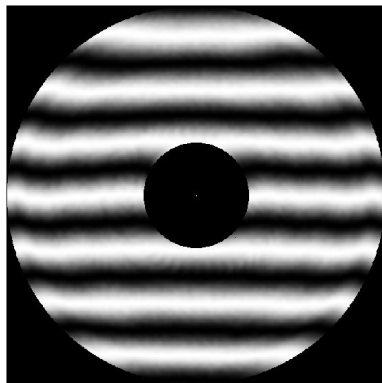
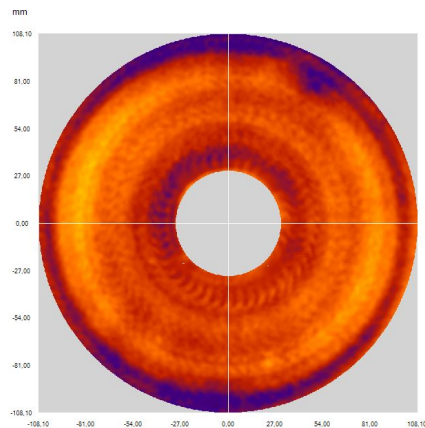
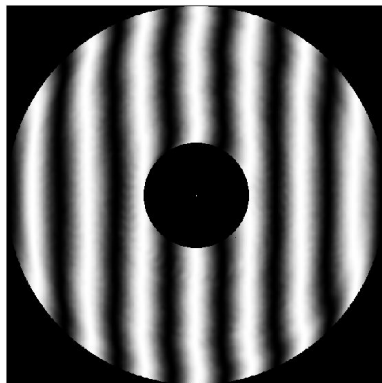


Secondary mirror
Vertex radius: 1697.697 mm
Conic constant: -2.78
Diameter: 250 mm
Substrate: Fused Quartz
Coating: near-infrared optimized Silver



Partially supported by
 **Fondazione
CRT**

New Optical Scheme: M2 interferogram



PV: 0.168 wv @ 632.8 nm

RMS: 0.028 wv @ 632.8 nm

Strehl ratio: 0.969

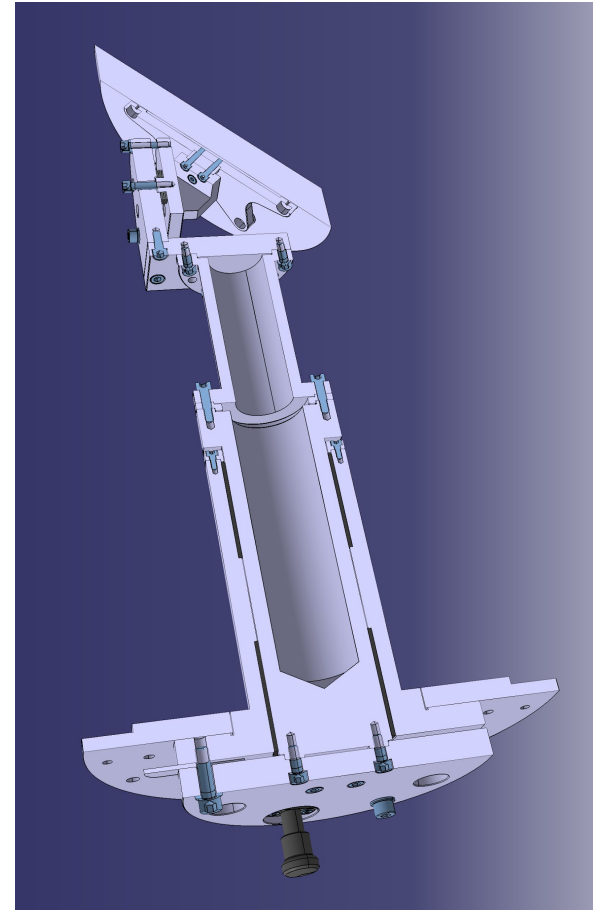
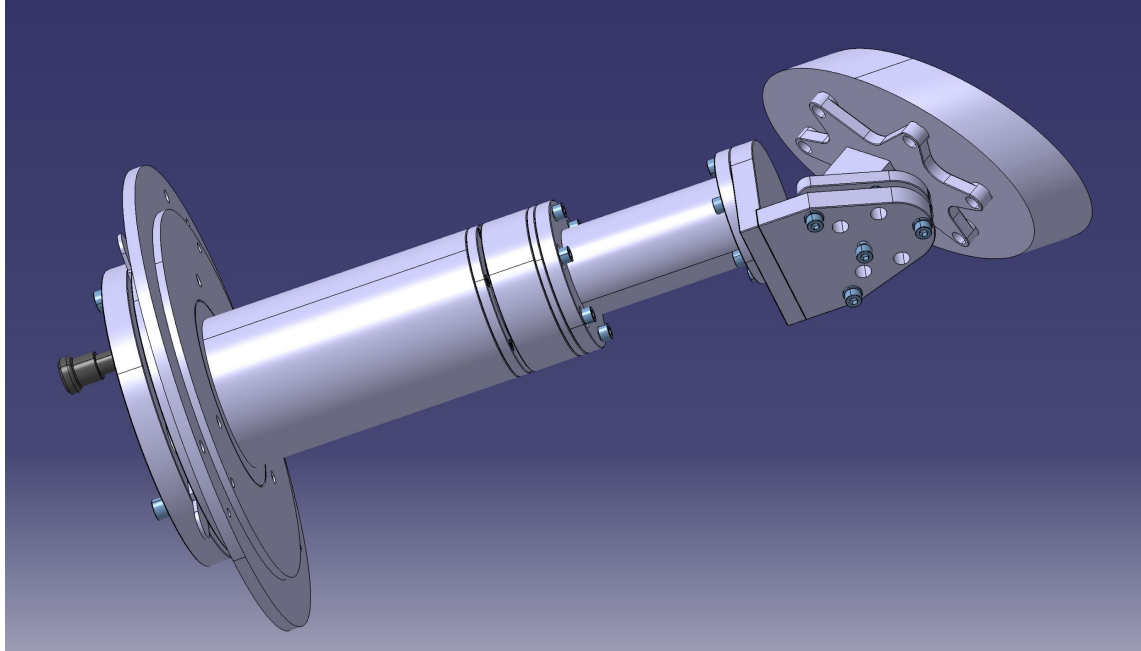
Excellent work ASA!



Partially supported by



New Optical Scheme: M3



New Optical Scheme: Spot Diagram

Configuration: RC

Telescope focal length: 9600 mm (F/12)

Unvignetted FOV: 22 arcmin diameter

Wavelength: UV-Visible-Infrared (300 nm - 10 μm)

Scale plate: 21.5 arcsec/mm

Configuration: RC + 0.75X focal reducer

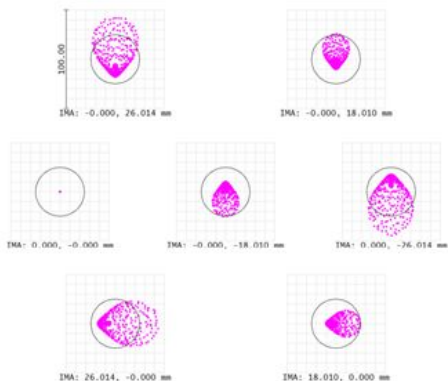
Telescope focal length: 7613 mm (F/9.5)

Unvignetted FOV: 18 arcmin diameter

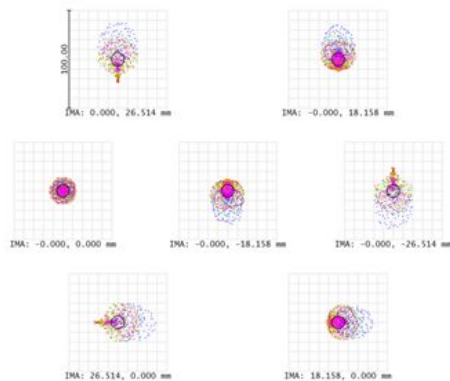
Wavelength: Visible (435 - 750 nm)

Scale plate: 27.1 arcsec/mm

1.7



0.435
0.486
0.546
0.656
0.75



Surface: IMA

Spot Diagram

08-Sep-23
Units are μm . Airy Radius: 24.89 μm . Legend items refer to Wavelengths
Field : 1 2 3 4 5 6 7
RMS radius : 18.486 10.006 0.127 10.093 18.372 18.456 9.997
CEO radius : 42.514 25.882 0.259 25.142 44.577 44.025 24.881
Scale bar : 100 Reference : Centroid

Paolo Spanò
p.spano@optical-design.it
Ansys Zemax OpticStudio 2023

IRAIT_F12_70mm-longer-BFL.zos
Configuration 1 of 3

Surface: IMA

Spot Diagram

08-Sep-23
Units are μm . Airy Radius: 6.344 μm . Legend items refer to Wavelengths
Field : 1 2 3 4 5 6 7
RMS radius : 15.041 9.695 6.588 9.529 15.010 15.012 9.725
CEO radius : 37.573 34.943 14.271 34.154 38.946 38.881 35.133
Scale bar : 100 Reference : Centroid

Paolo Spanò
p.spano@optical-design.it
Ansys Zemax OpticStudio 2023

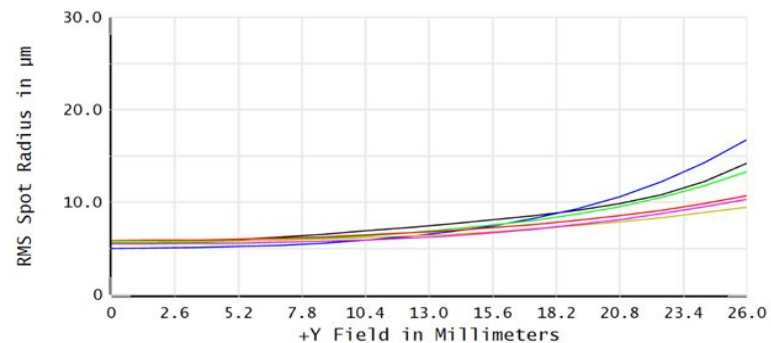
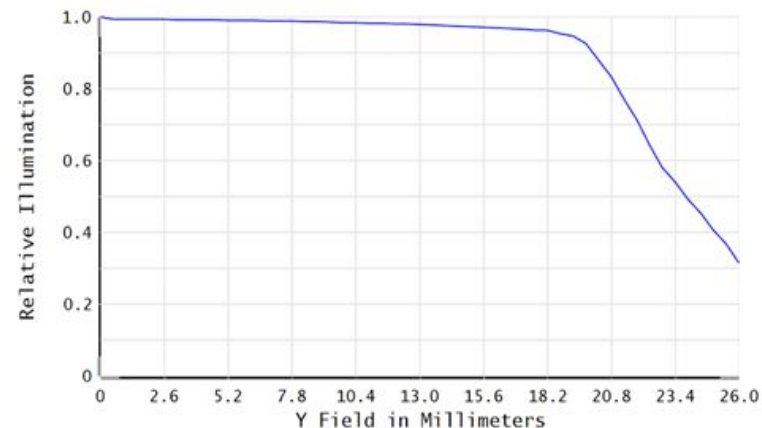
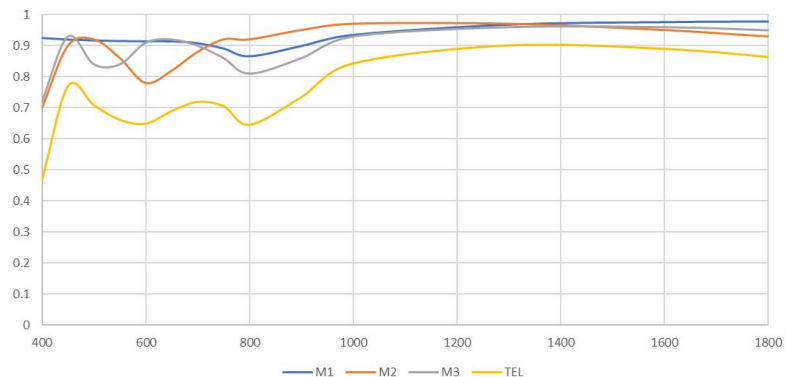
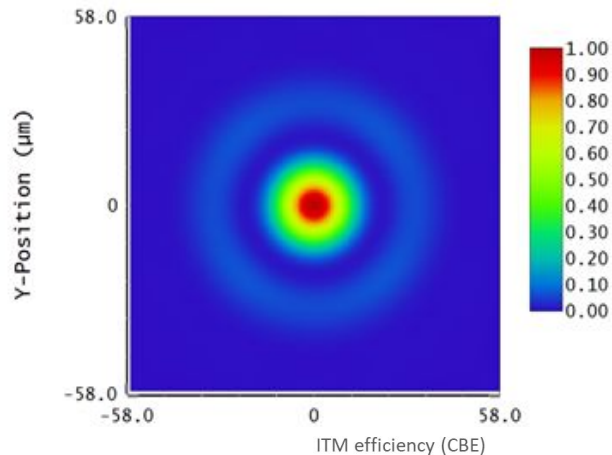
IRAIT_F12_70mm-longer-BFL.zos
Configuration 3 of 3

Partially supported by



New Optical Scheme: PSF and RMS spot radius

PSF on-axis RC at NIR (H-band)



Legend for RMS Spot Radius: Poly (blue), 0.4350 (green), 0.4860 (red), 0.5460 (orange), 0.6560 (purple), 0.7500 (yellow)



Fondazione CRT

New Optical Scheme: Focuser & Derotator



- Crayford style focuser with 40 ball bearings, specially designed for very high load capacity (up to 10 kgs) with no flexure
- Low profile design with only 65mm thickness (91mm with internal flange).
- 35mm focuser travel with an incredible resolution of 0.04 microns per step!

- Low profile rotator - 23mm of body thickness
- 1 arc second resolution per step
- 76.3mm of free aperture
- Specially designed full aluminum case, for rotating heavy cameras and accessories without any flexure
- M81 threaded



Thanks!

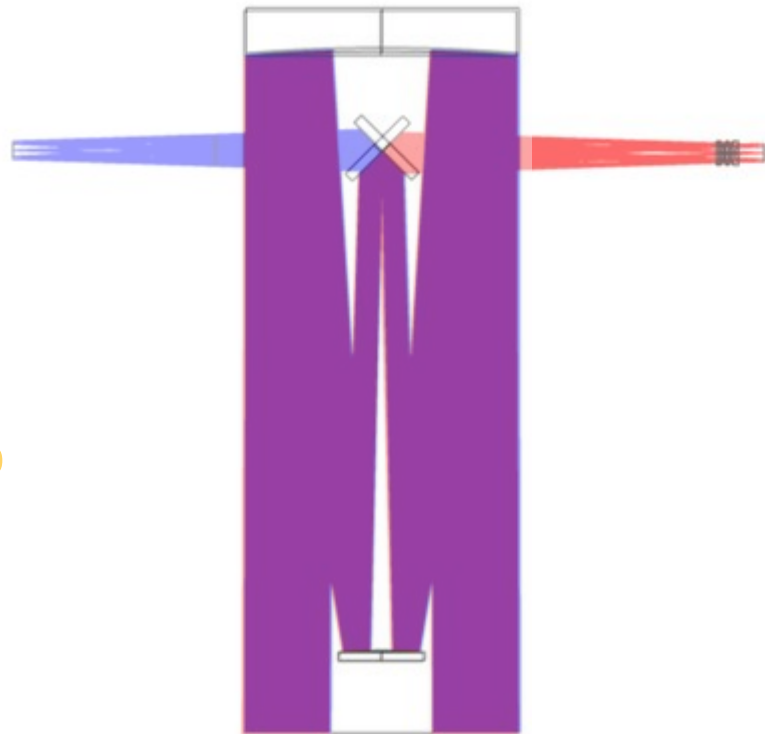
Any questions?

You can find me at:

direttore@oavda.it

www.oavda.it

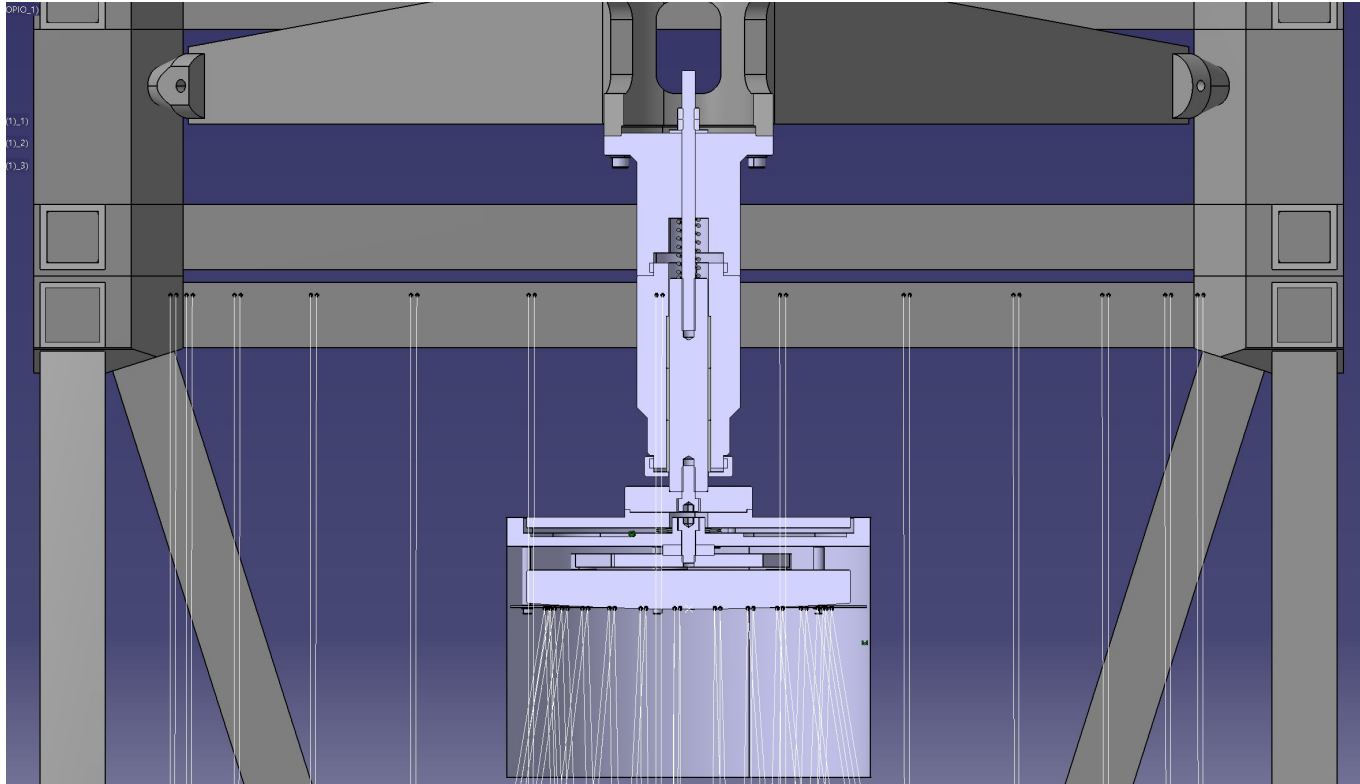
+39(0)165-770050



Partially supported by

**Fondazione
CRT**

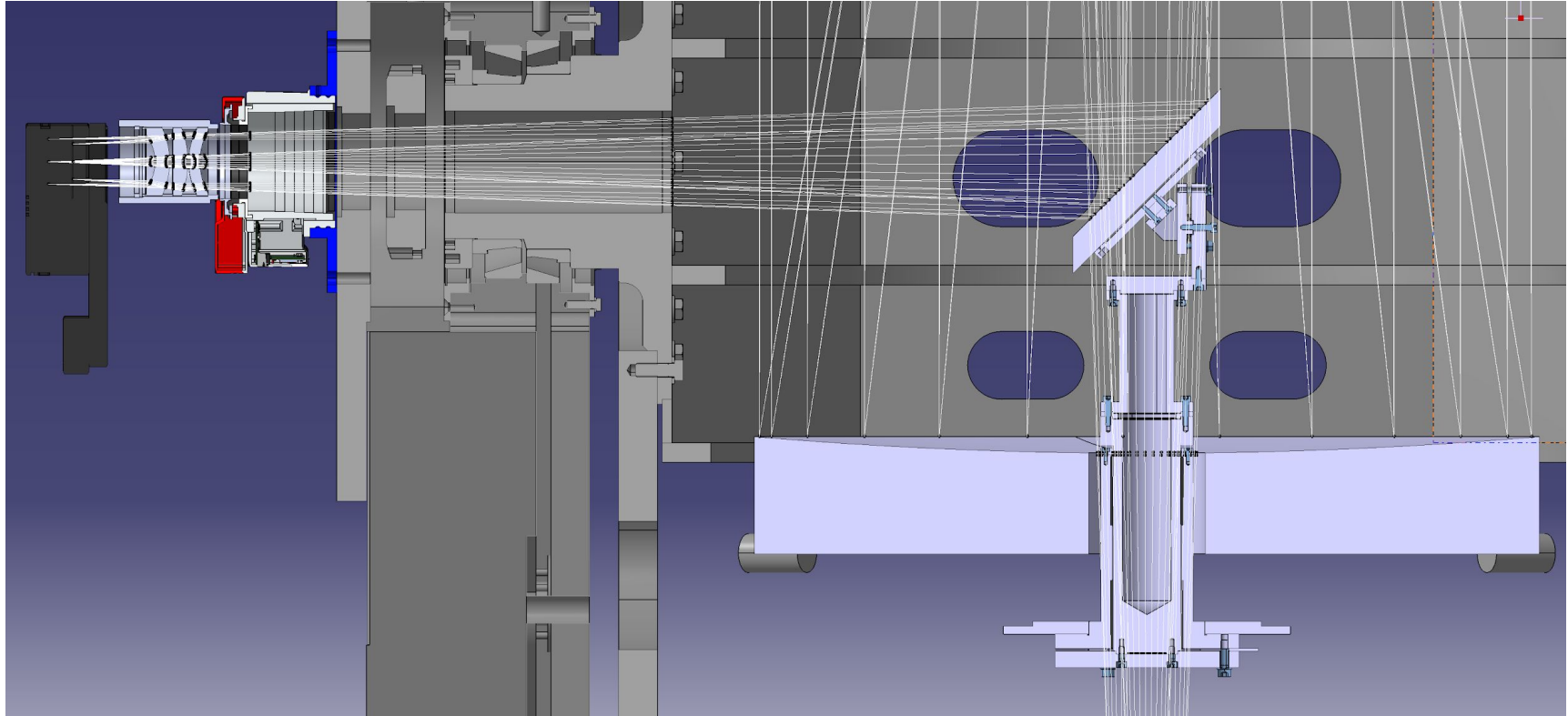
New Optical Scheme: M2 mechanical support



Partially supported by



New Optical Scheme: M3



Partially supported by

