Upgrades at the Rozhen Observatory

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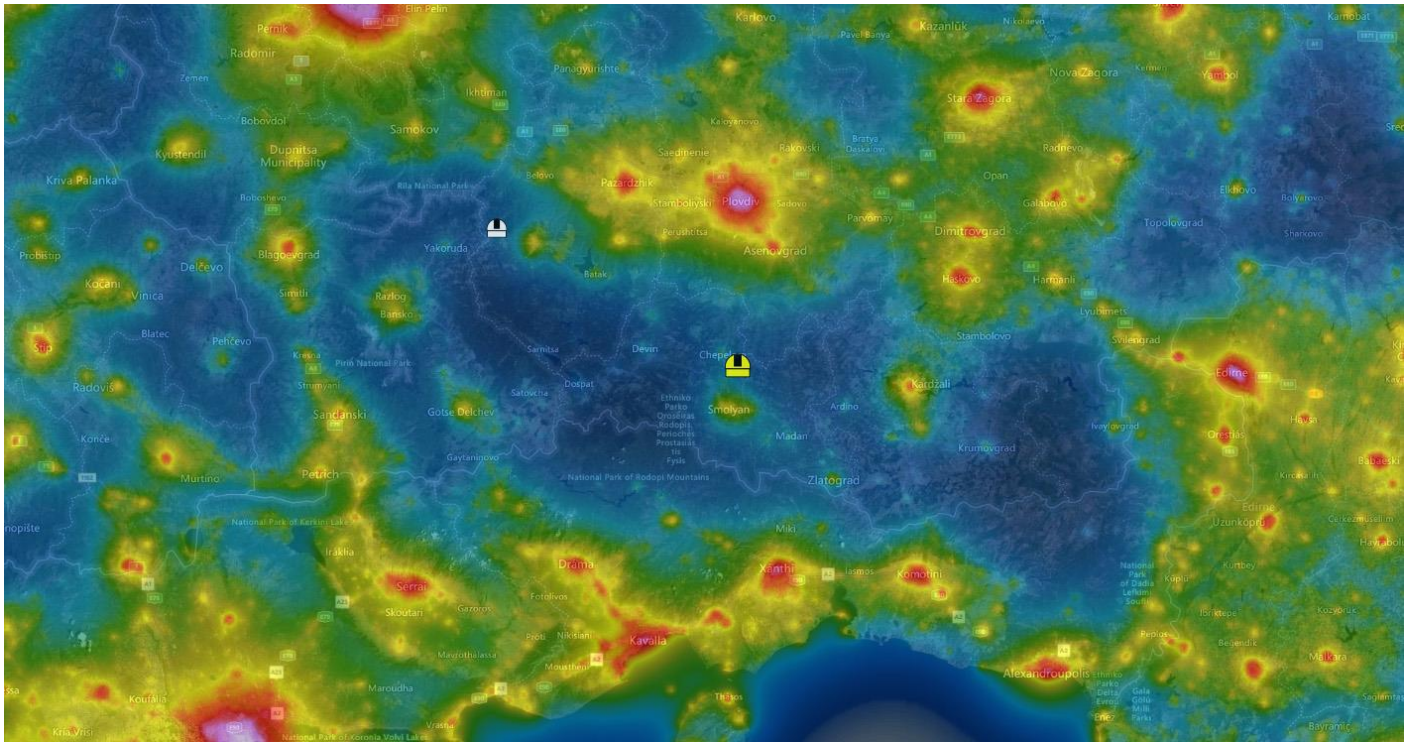
National Astronomical Observatory Rozhen



NAO Rozhen is situated in the Rhodope Mountains at 1750 m altitude and coordinates: longitude: $1^h\ 38^m\ 58^s$ and latitude: 41° 41’ 48”. The astronomical observatory is the biggest one-time Bulgarian investment in scientific infrastructure and a leading astronomical center in the South-East Europe.

NAO Rozhen

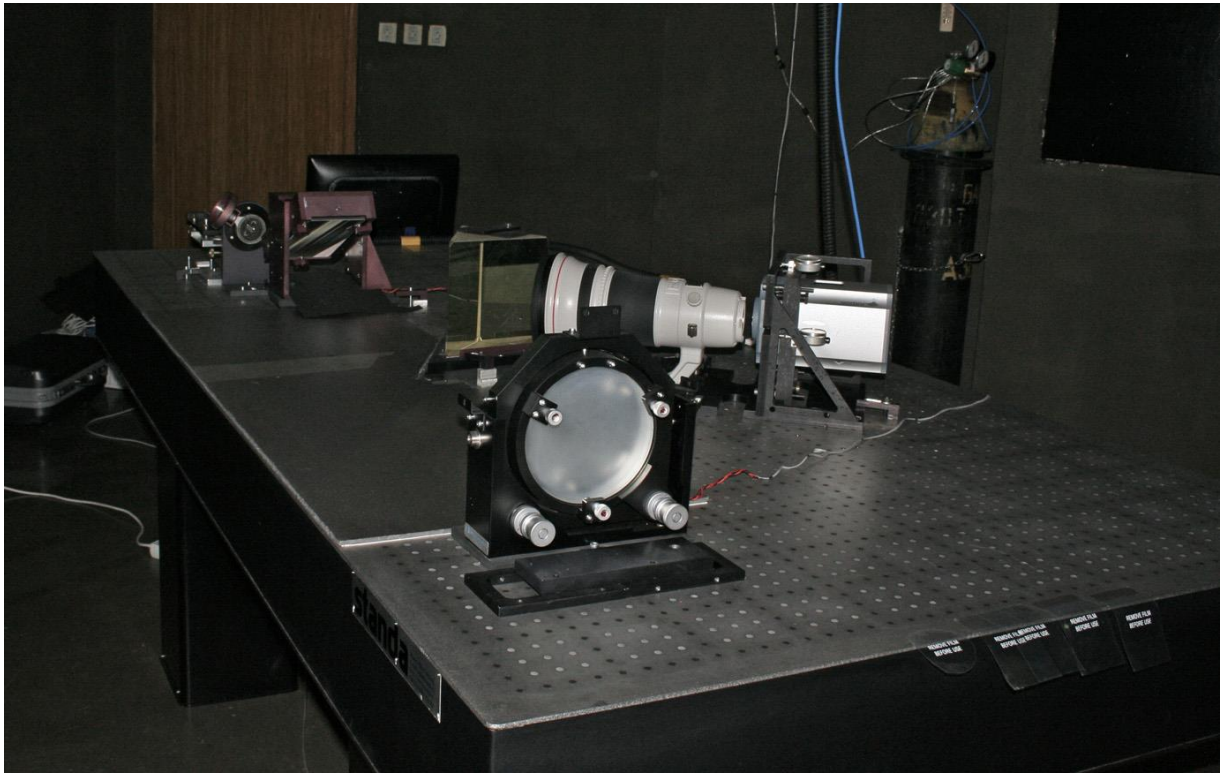
Rozhen Observatory is an astronomical complex with four optical telescopes located in the Mountain Rodopi

The 2-m telescope of Rozhen observatory is equipped with a Coudé and Eshelle spectrographs, new CCD cameras and two-channel focal reducer.

The 2-m RCC telescope

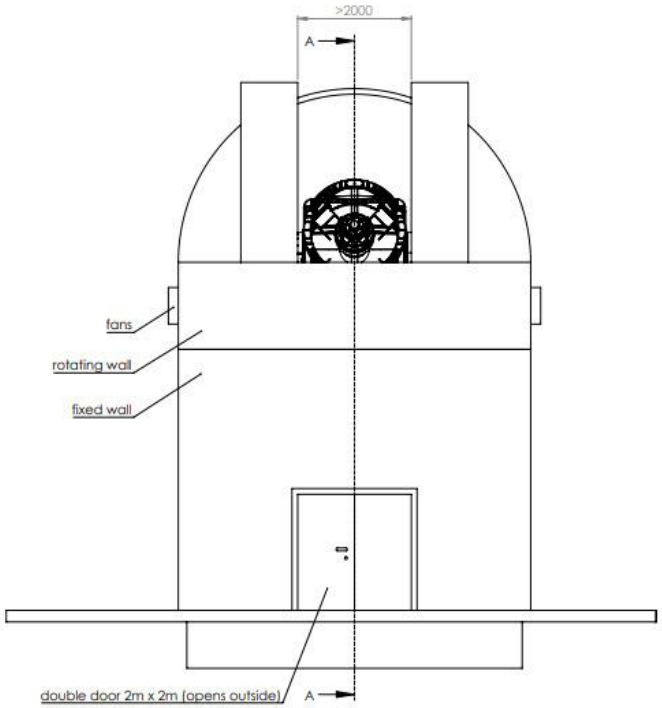
Observations with the focal reducer and in direct RC focus are carried out with ANDOR iKon-L BEX2-DD and ANDOR iKon-L E2V 42-40 CCD cameras (2048×2048 pixels, 13.5×13.5 μm size).

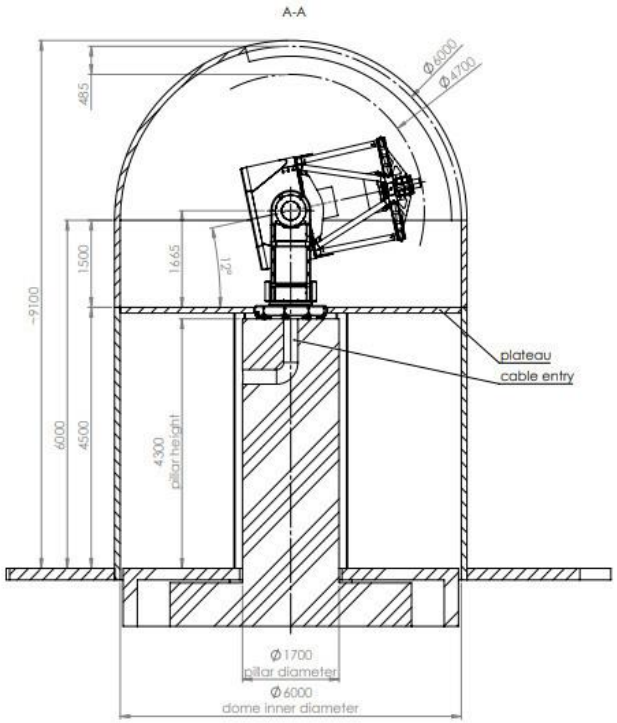
Echelle SPEctrograph ROzhen - ESPERO



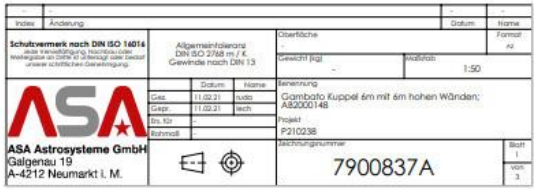
The éshelle-spectrograph is a cross-dispersed, bench-mounted, fiber-fed instrument giving a resolution from ~30000 to ~45000.
The spectral range obtained in one single image is from 3900 to 9000 Å.
The spectrograph is equipped with ANDOR iKon-L BEX2-DD CCD camera (2048×2048 pixels, 13.5×13.5 μm size).

New 1.5 m robotic telescope at Rozhen Obserwatory





- System Type: Ritchey Chretien
- Clear Aperture ≥1500 mm
- Main mirror focal ratio f/2 (R=6000 mm)
- System focal ratio f/6 (f=9000 mm)
- Field of View ≥ 200mm (>1.25 degree)
- Material M1, M2, M3 Fused Silica

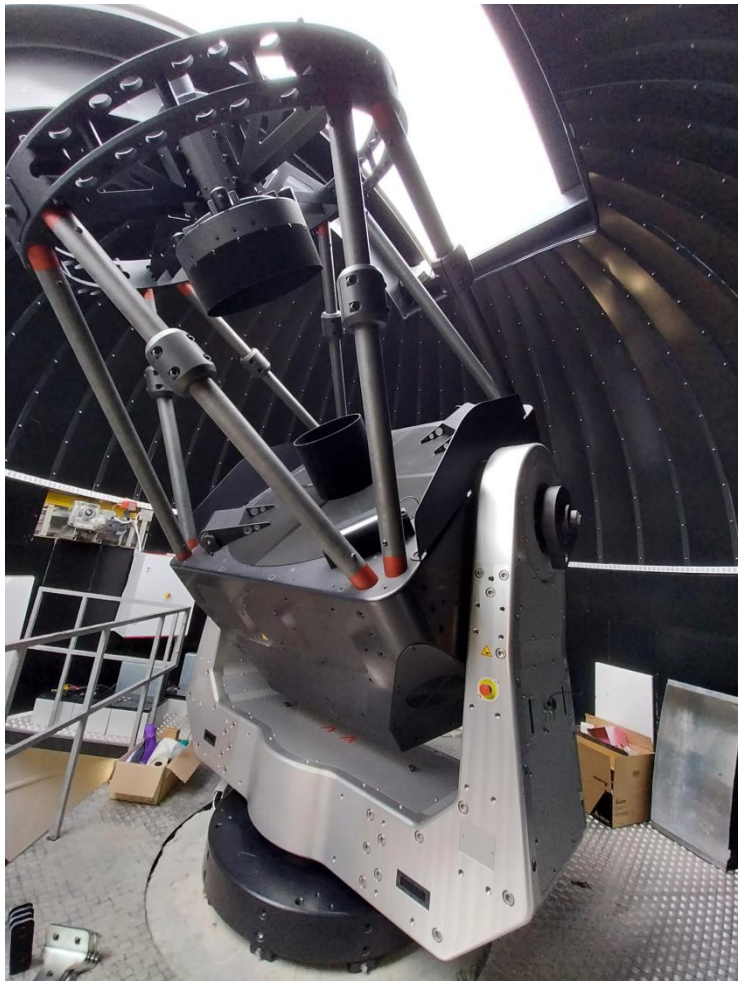


Preparation of the base of the new telescope

Installation of the dome…

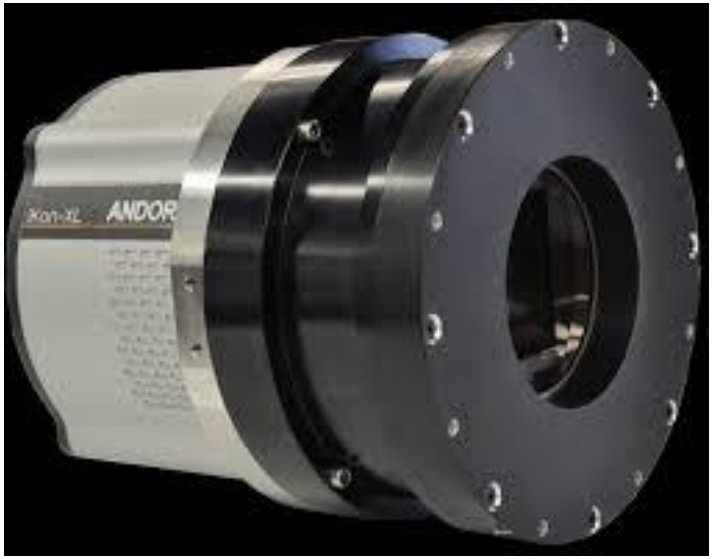
…and the telescope

The telescope in the dome



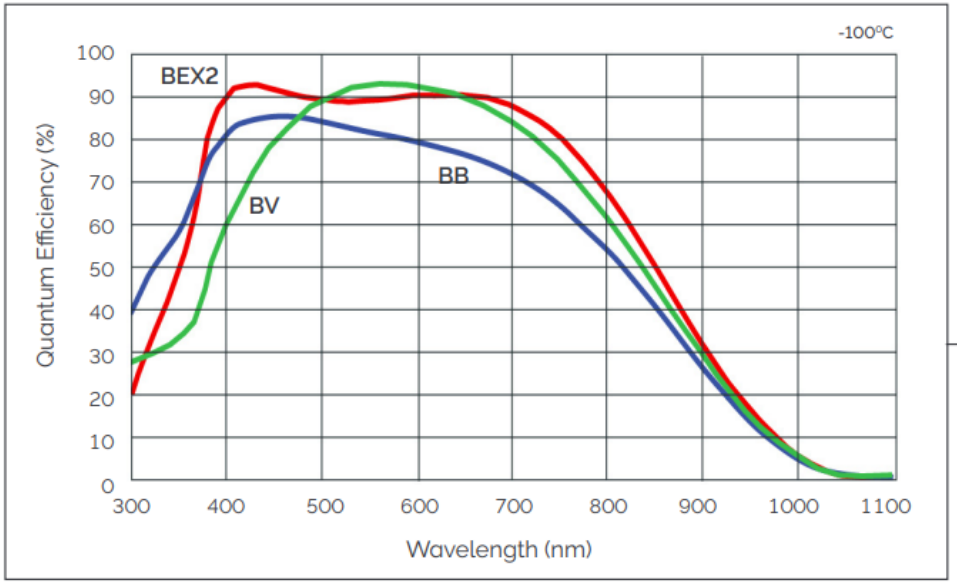
CCD cameras ant the 1.5-m telescope

C3-61000 PRO CMOS camera
Sensor: Sony IMX455
Resolution: 9576 × 6388 pixels
Pixel size: 3.76 × 3.76 µm
Image area: 36.01 × 24.02 mm



ANDOR XL-EA05-DS
iKon XL 231 BEX2, Compact Shutter
Resolution: 4096 x 4096 pixels
Pixel size: 15 × 15 µm
16.8 Megapixel CCD231-84
Back Illuminated Sensor.
Deep Cooled model (max. cooling -100°C)

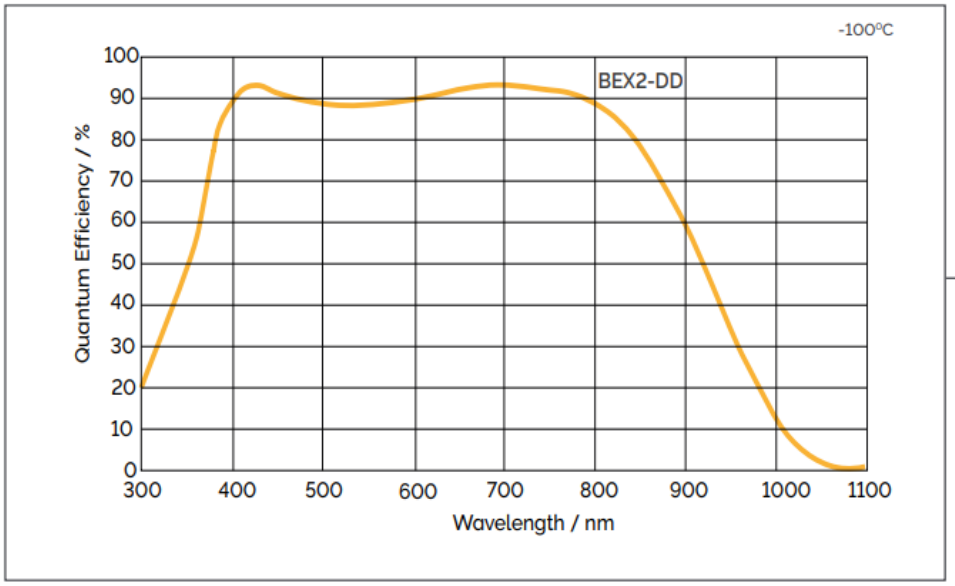
ANDOR iKon XL 231 BEX2



A range of sensor options are available for the iKon-XL 231 that provide high photon collection efficiency for maximizing the SNR. Deep depletion (-DD) sensor options provide extended NIR sensitivity.

Standard Silicon Sensor Options

- BV: Mid-band AR coating
- BB: Broadband AR coating (blue optimized)
- BEX2: dual AR coating (sensitivity extends to both the blue and NIR wavelength regions)



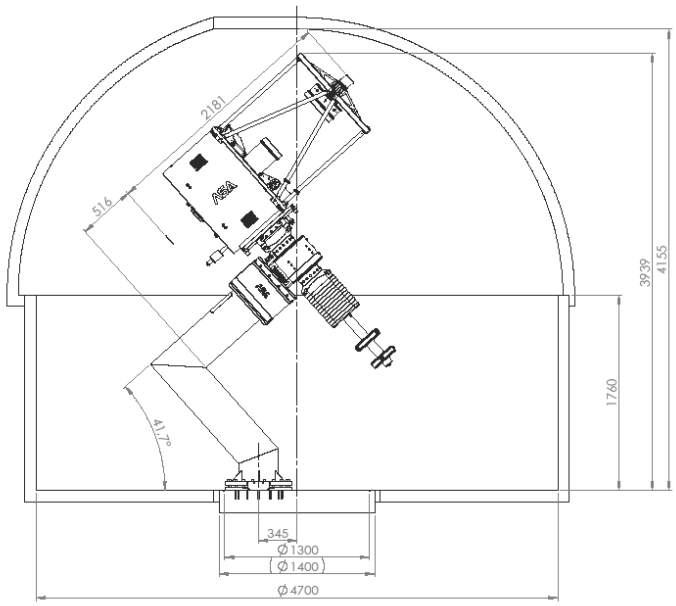
Deep Depletion Sensor Option

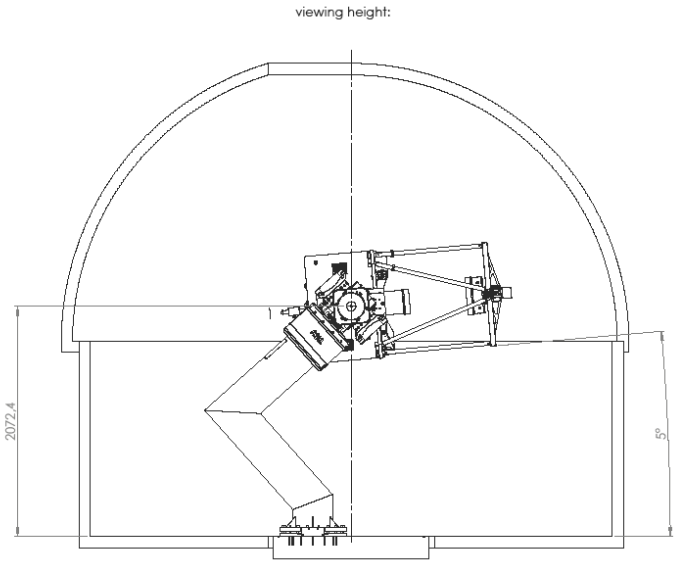
- BEX2-DD: deep depletion with fringe suppression and dual AR coating (sensitivity extends to both the blue and NIR wavelength regions)

The 60-cm Cassegrain telescope

The 60-cm Cassegrain telescope of NAO Rozhen is equipped with FLI PL 9000 CCD camera (3056x3056 pixels, 12x12 μm).

Project for a new 80-cm telescope





Gebäude / ***dome:***	customer dome
Montierung / ***mount:***	ASA DDM500
Teleskop(e) / ***telescope(s):***	ASA800 f/7 f/2,5
Aufstellungsort / ***location:***	Bulgaria - site 41,7°
Kunde / ***customer:***	
Maßstab / **scale**	1:25
Version - Datum / ***version - date***	V1 - 02.10.2023
Auftragsnummer / ***order number:***	

ASA Astrosysteme GmbH
Galgenau 19
A-4212 Neumarkt i. M.

New LOFAR station at Rozhen Observatory

The purchase of land and the provision of electricity and internet have been completed. Installation of the equipment will take place in August-September 2025 according to the schedule.

Thank you for your attention!