Byurakan Observatory

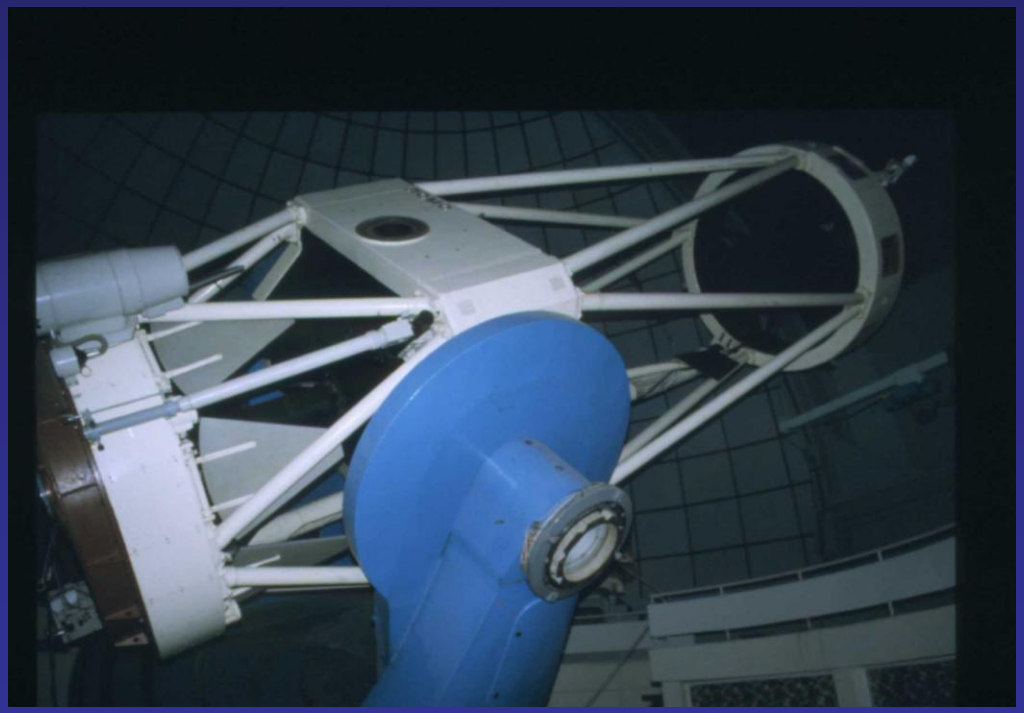
Byurakan Astrophysical Observatory was founded in 1946 on the initiative of academician Viktor Ambartsumyan who became the first director of the observatory, and main directions of astrophysical investigations were determined by him. First studies at the Byurakan Observatory related with the instability phenomena taking place in the Universe, and this trend became the main characteristic of the science activity in Byurakan.

Telescopes

2.6m reflector
1m Shmidt
0.5m Shmidt
0.5m Cassegren
0.4m Cassegren

2.6 m Telescope of Byurakan Observatory

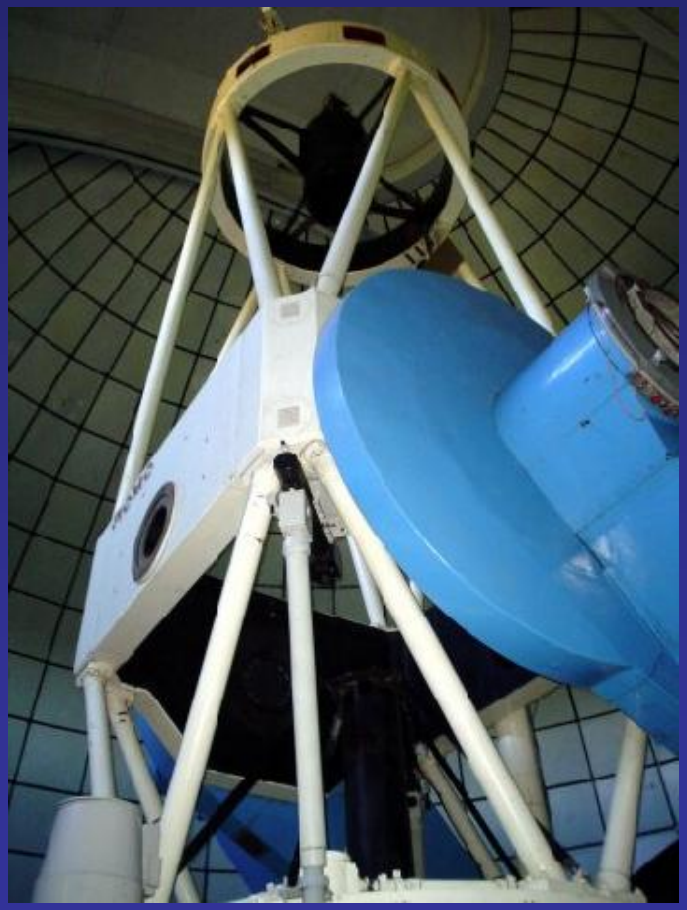
2.6m telescope



- In operation: since 1976, at the altitude of 1406 m.
- Constructed by LOMO (St. Petersburg)
- Mounting is equatorial with a fork mounting type.
- Aperture 260 cm and an aperture ratio of 1: 3.8
- Mirror material: sitall

Control room of 2.6m telescope

Current instrumentation of 2.6m telescope



- ByuFOSC2

Byurakan Faint Object Spectral Camera

- SCORPIO

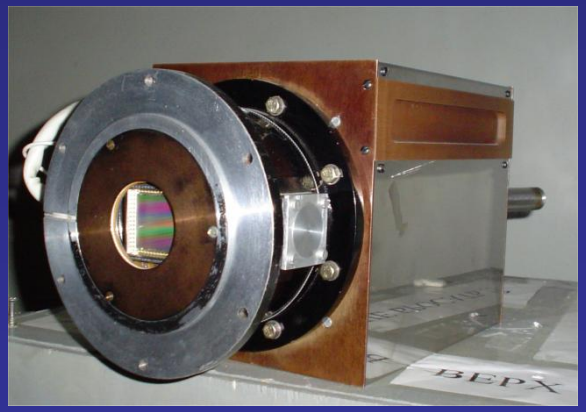
Spectral Camera with Optical Reducer for Photometrical and Interferometrical Observations

- VAGR

Multi-pupil spectrograph (TIGER)

Detectors

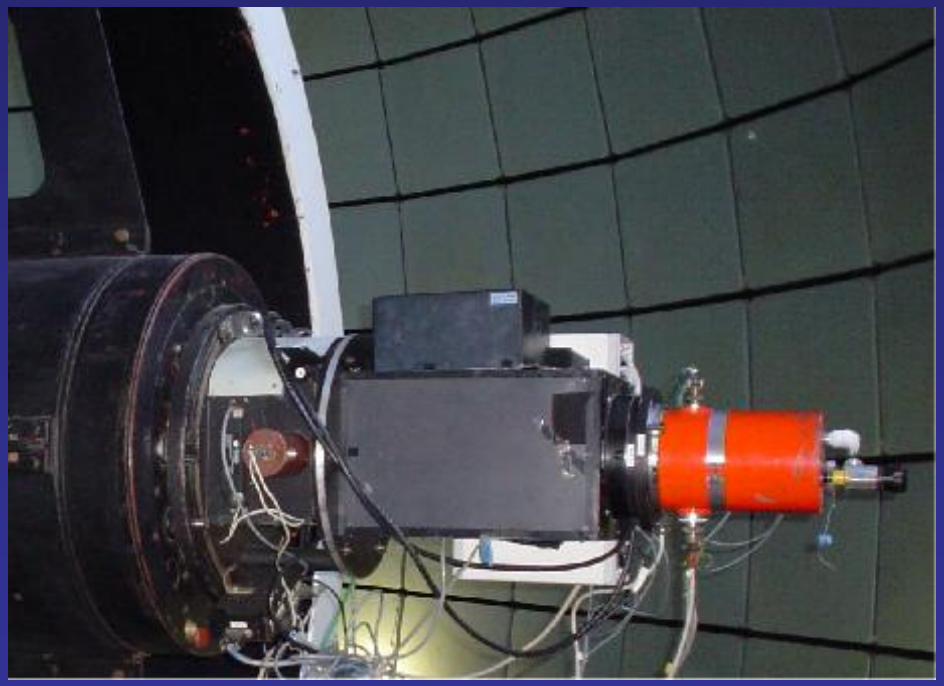
- TK 1Kx1K
- Loral 2Kx2K



	Loral 2Kx2K	**TK 1Kx1K**
size	2063x2058	1045x1045
Pix. size Max QE	15 40%	24 80%
R/O noise	5	3

ByuFOSC2

Byurakan Faint Object Spectral Camera



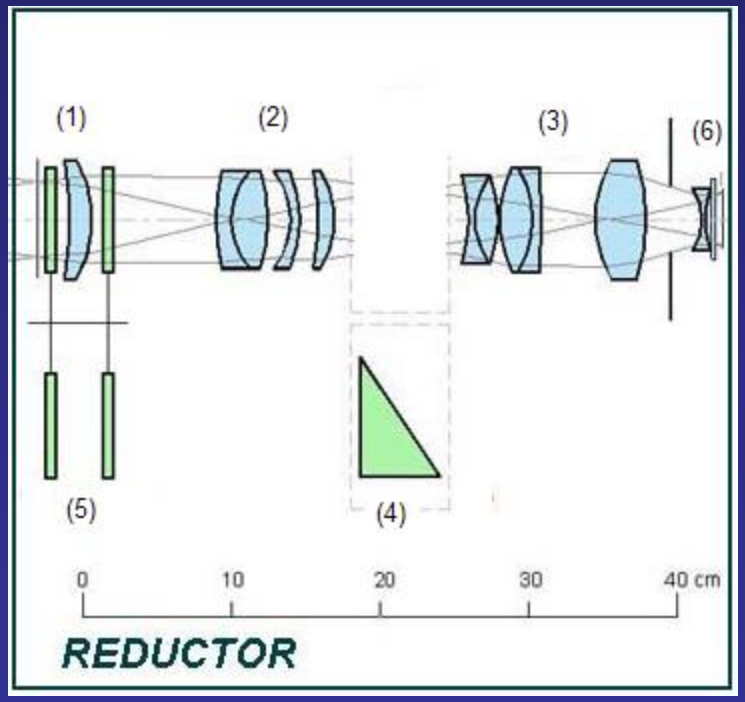
Collimator f.	150mm
Beam size	39.5mm
Camera f.	92mm
Field	5.5x11 arcmin
scale	0.63 arcsec/pix
slit width	2 arcsec
slit length	5 arcmin
Sp. range	4200-6900 AA
dispersion	2.7A/pix
Detector	Thomson 1060x1028 (half obscured)

SCORPIO

Spectral Camera with Optical Reducer for Photometrical and Interferometrical Observations

Collimator f.	146mm
Beam size	37.5mm
Camera f.	106mm
Field	14x14 arcmin
scale	0.42 arcsec/pix
slit width	2 arcsec
slit length	7 arcmin
Detector	Loral 2058x2063

SCORPIO optical design

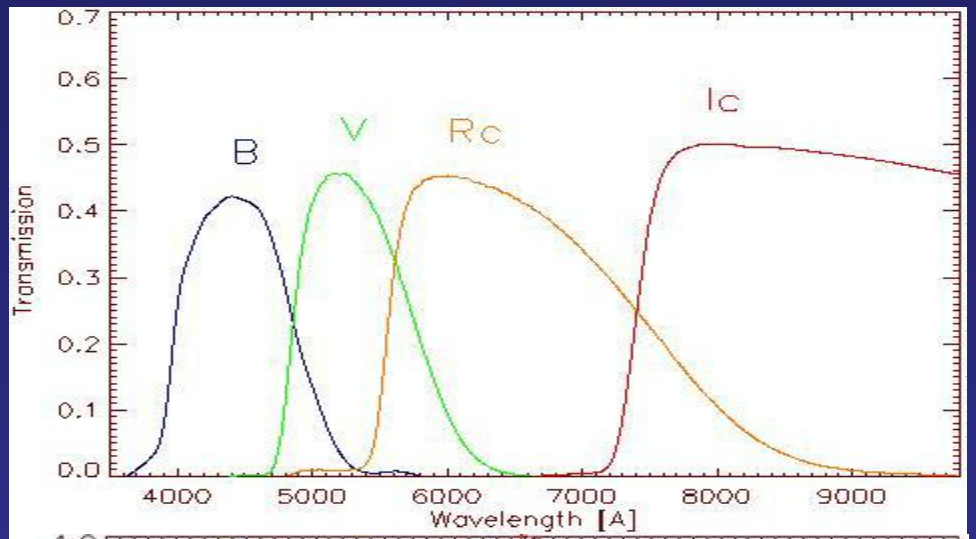


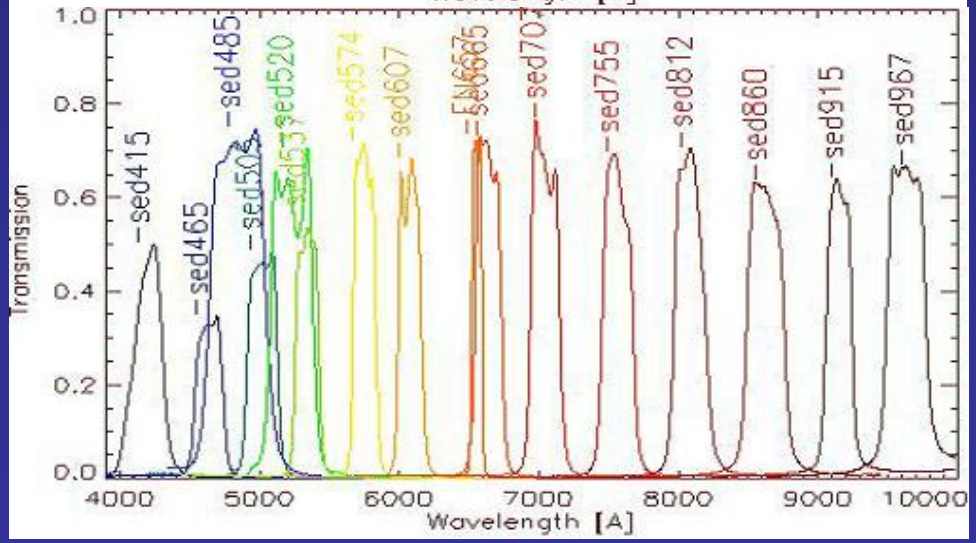
(1) - field lens
(2) - collimator
(3) - camera
(4) - grism
(5) - filter's wheels
(6) - CCD

GRISMS

GR 600	2.7A/pix	3900-7200
VPHG 1200	0.9A/pix	5800-7600
VPHG 1800	0.5A/pix	6000-7200

FILTERS





Wide band

UBVR$_c$I$_c$ (Jounson-Cousins)

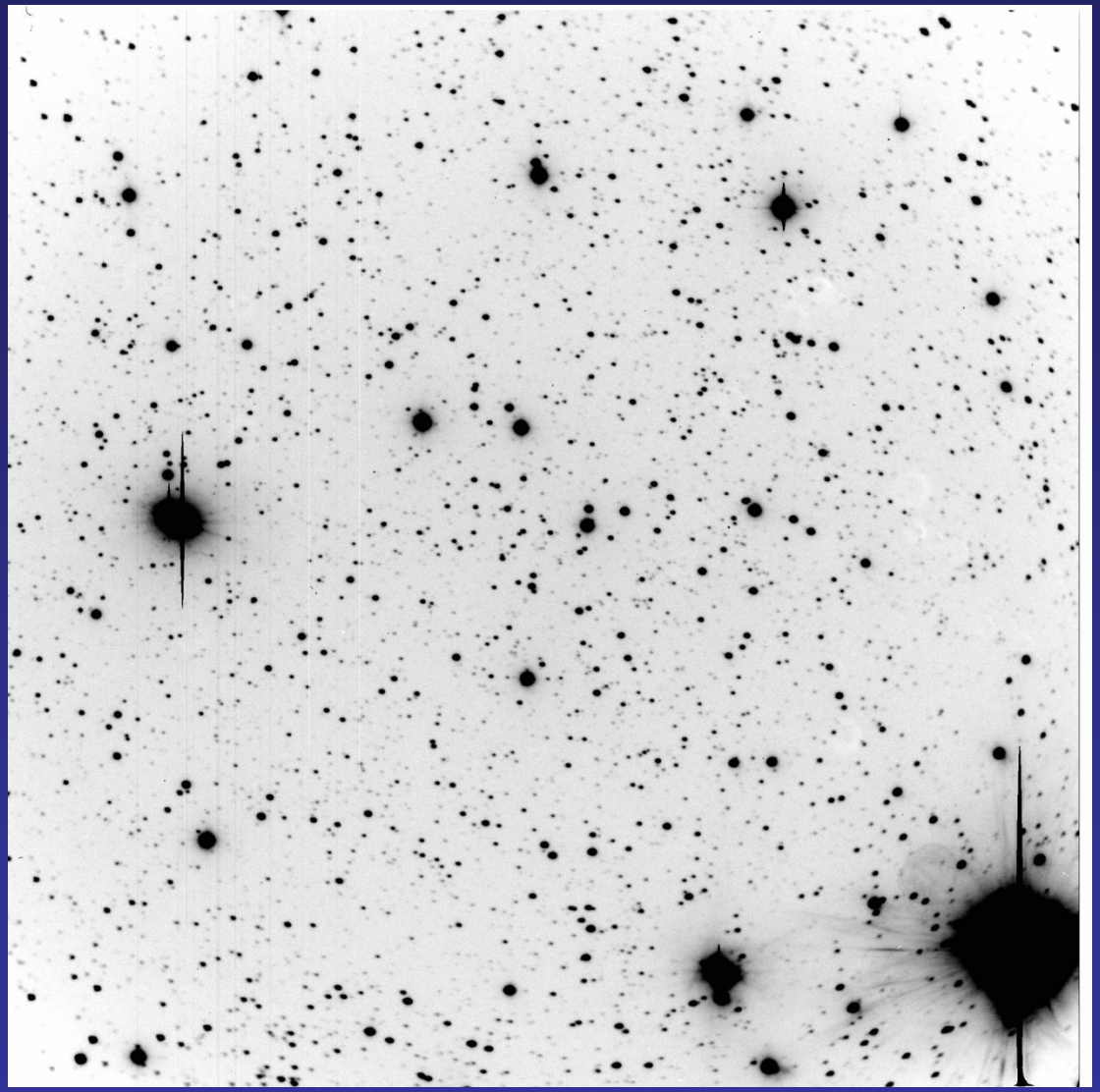
Mid band

FWHM= 160-400 Å:

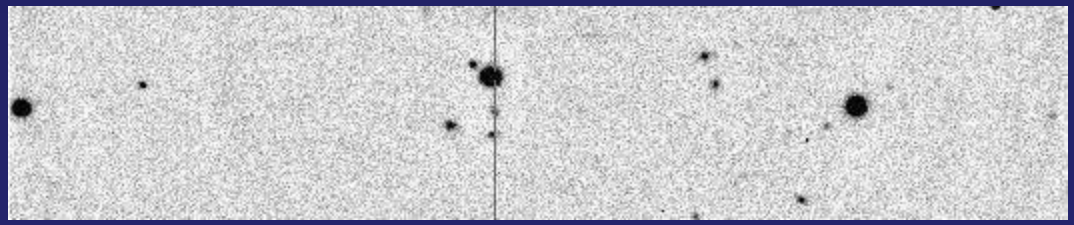
Hα Δλ=85A

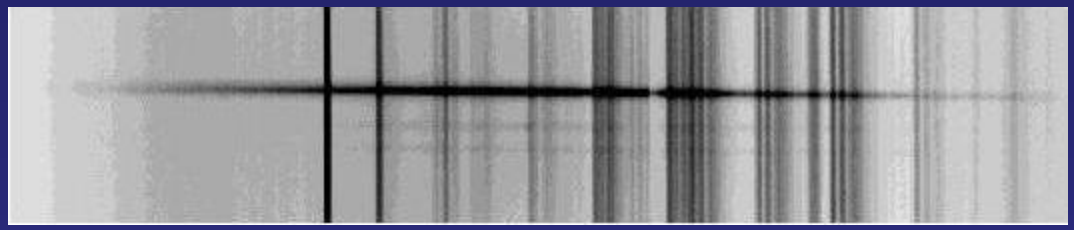
[SII] Δλ=85A

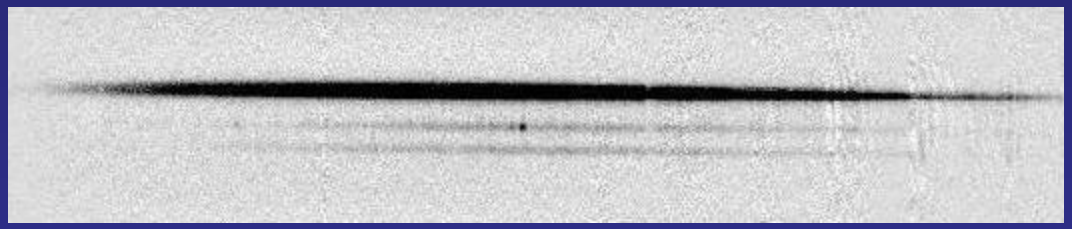
Trumpler 37

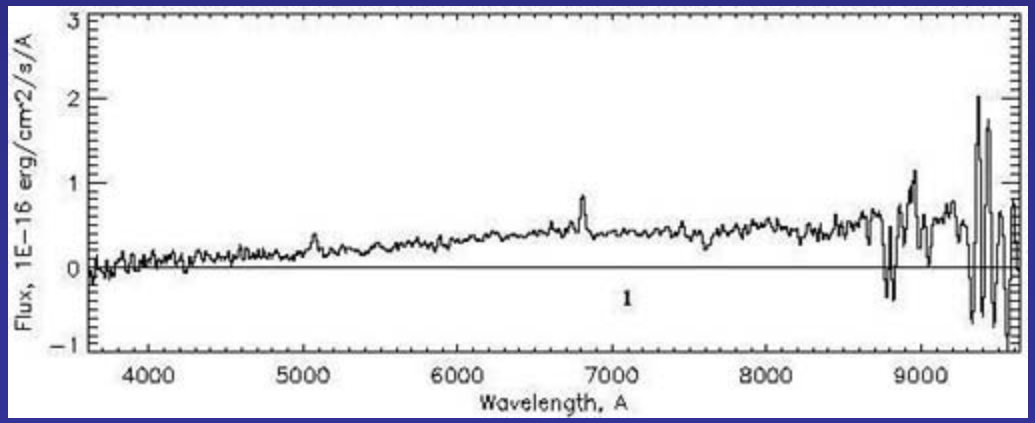


Long-slit mode



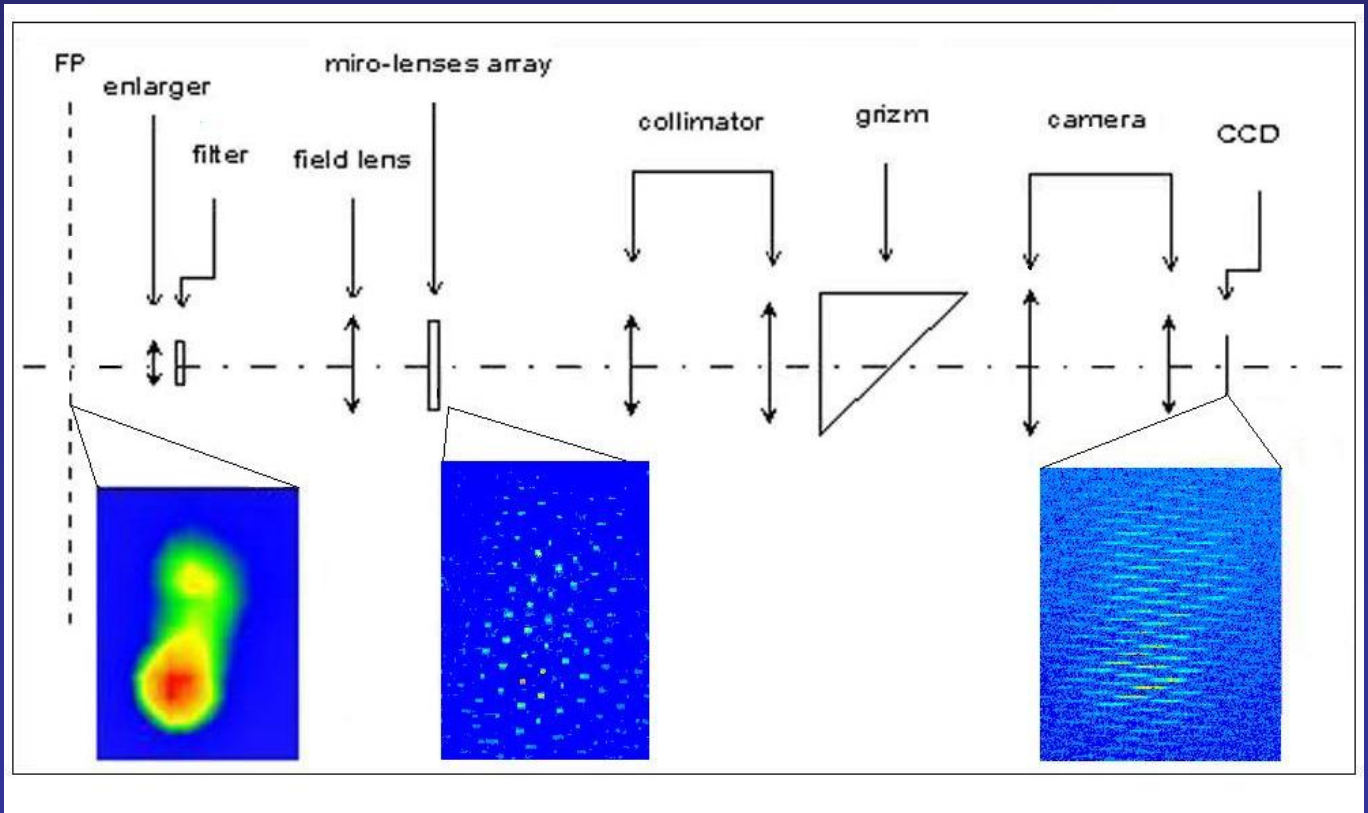






VAGR multi-pupil spectrograph

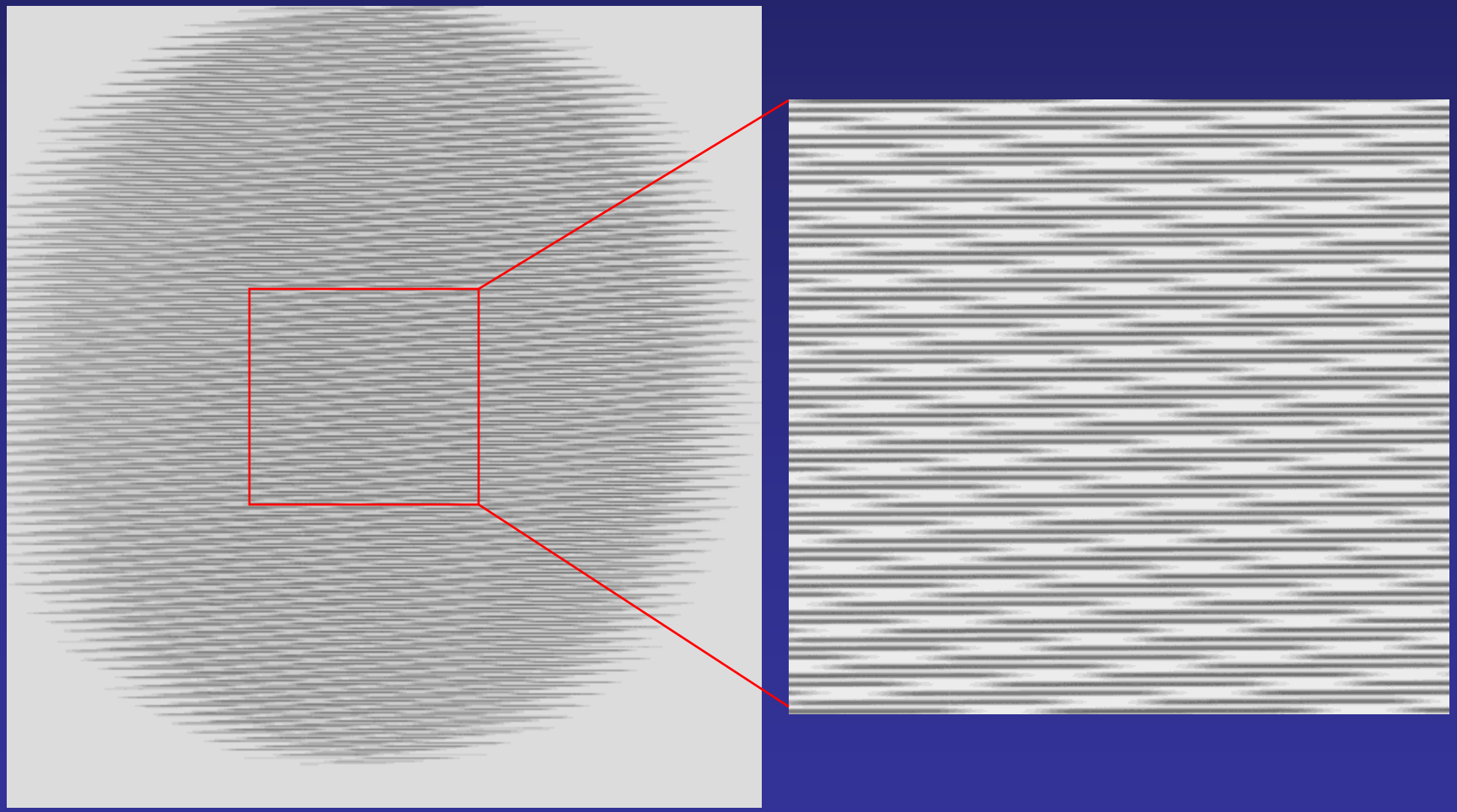
Optical layout of spectrograph



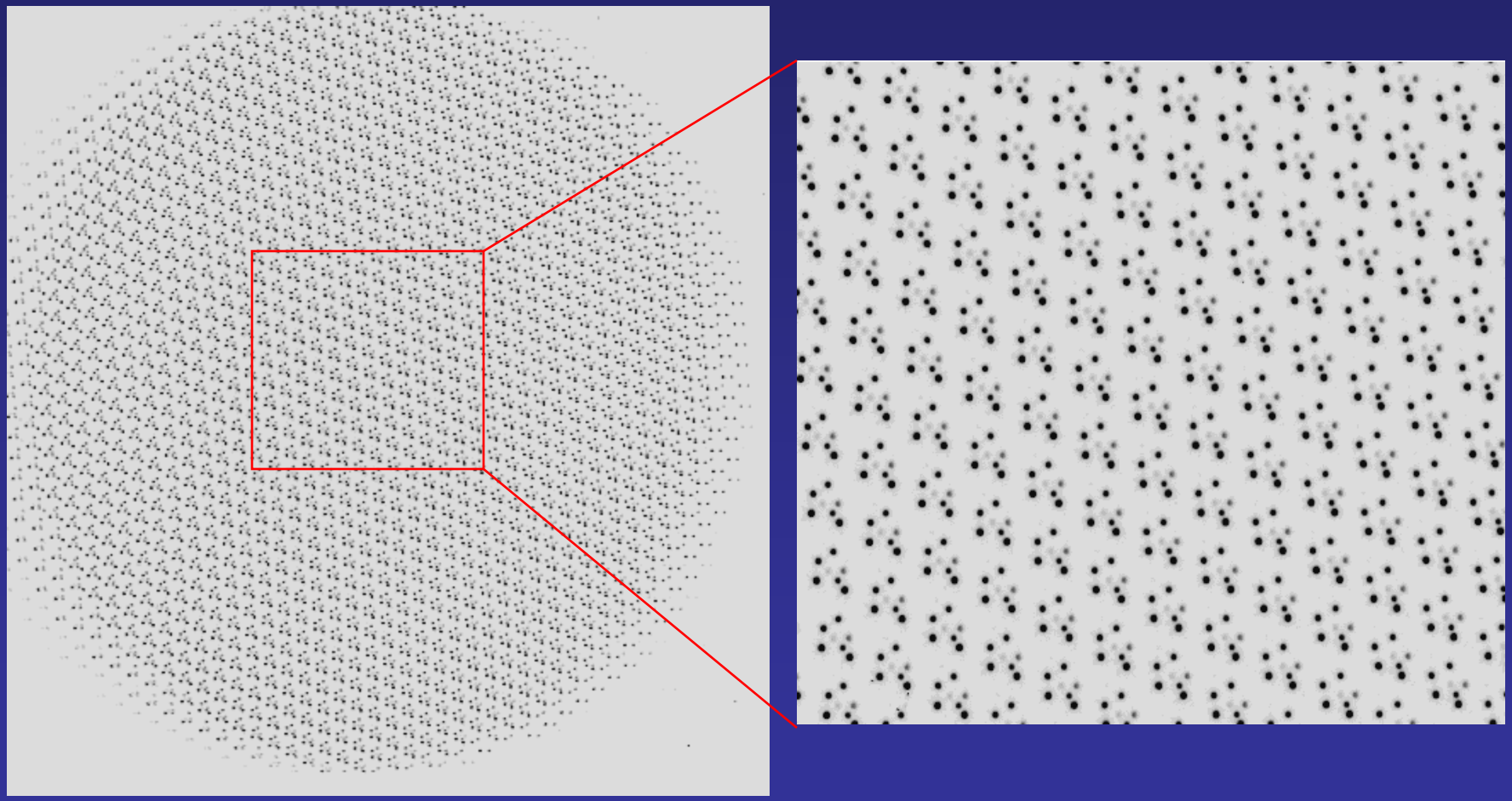
Main parameters of spectrograph

Enlarger focal length	10mm
Micro-lenses array	40x40 lenses
Micro-lenses diameter	1.19 mm
Micro-lenses focal length	8.9 mm
Collimator focal length	250 mm
Collimator aperture ratio	f/2
Collimated beam	30 mm
Camera focal length	110 mm
Camera aperture ratio	f/2
Grism	600 groves
CCD	Loral 2058x2063 pix
Field	40x40 arcsec
Scale	1 arcsec/micro-lens
Wavelength range	400A
Spectral resolution	1800
Recorded data cube	40x40x250

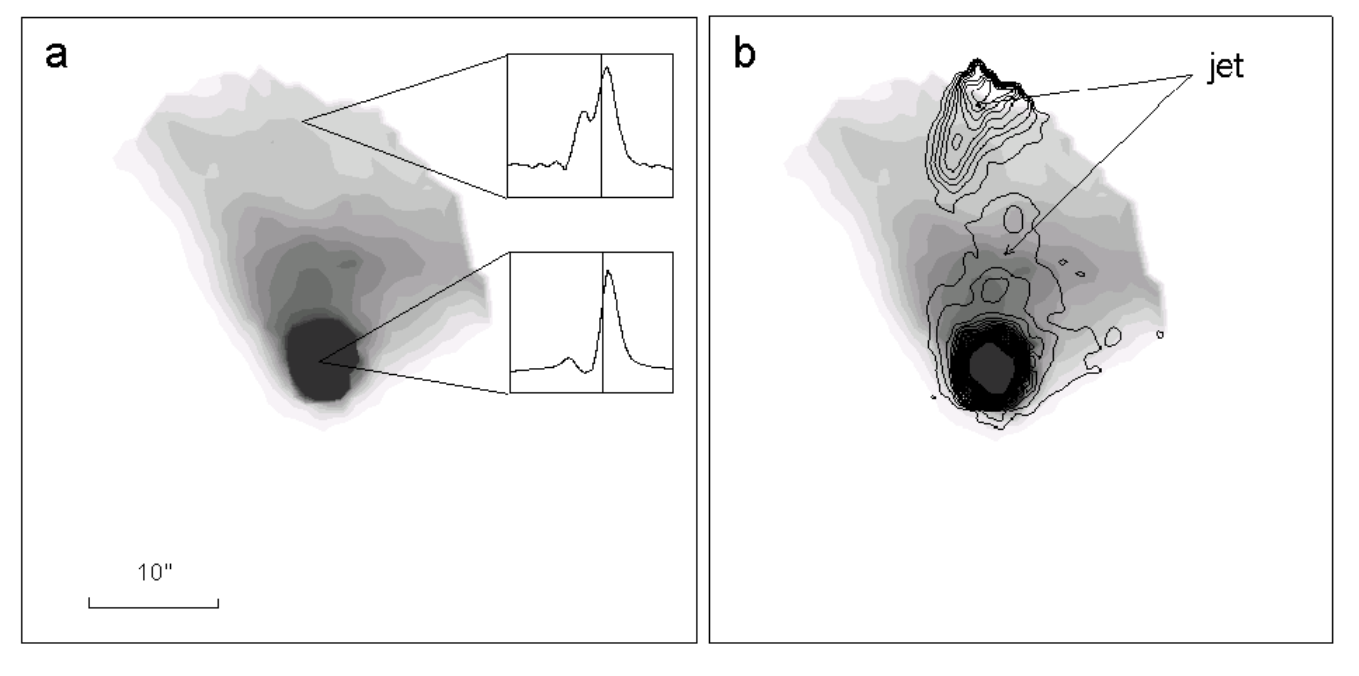
Spectral image of continual lamp for subtraction of spectra from each pupil



Spectral image of neon lamp for wavelength calibration



Restored image of PV Cep and associated reflection nebula (right) with profiles in Hα, and restored image of the outflow superposed on the nebula (right).



Thank you