

SPECTRAL CAMERA FOR 2.6 M TELESCOPE OF THE BYURAKAN OBSERVATORY

T. Movsessian¹, J. Boulesteix², J.-L. Gach², S. Zaratsian¹,
S. Balayan¹ and M. Zakarian¹

¹ *Byurakan Astrophysical Observatory, Yerevan 375009, Armenia*

² *Observatoire de Marseille, 2, Place Le Verrier, Marseille 13248, France*

Received November 10, 2000.

Key words: instrumentation: spectrographs – methods: observational

Recently a large part of the world's largest telescopes have been equipped with multi-mode spectral cameras. The main part of these systems is a focal reducer, which increases the detectability of faint extended sources by decreasing the focal ratio of the telescope (Courtés 1952, 1960, Meinel 1956). The spectral cameras also improve the overall efficiency of the telescope by allowing it to work in imaging and spectroscopy with minimal time losses between changing of modes.

ByuFOSC2 (Byurakan Faint Object Spectral Camera) is a modification of the focal reducer which was designed and assembled in the Marseille Observatory for the prime focus of the 2.6 m telescope. The equipment is mounted on the universal prime focus adapter “Bonnette” which has the pointing-guiding system with $3' \times 2'$ field of view and allows automatic offset guiding.

ByuFOSC2 includes the focal reducer (bringing the original F/4 focal ratio of the prime focus to F/2.4) with a parallel beam which allows the installation of various dispersing elements, the wheel with the mounted slit and three holes for filters, and the CCD detector (Thomson 1028×1060 chip with $5e^-$ rms read-out noise and $19 \mu\text{m}$ pixel size). ByuFOSC2 is very similar to the EFOSC (LeFevre et al. 1994) and CIGALE (Boulesteix et al. 1983) instruments. In Table 1 the main parameters of the spectral camera are presented. The detector works in half-obscured mode, allowing a quick shift of an exposed image into the obscured part of the matrix and

the continuation of exposure of the next channel during readout. This makes the scanning observations more effective because it minimizes the "dead time" between two exposures.

The flexibility of the instrument arises from the possibility to put in slit in the focal plane or to work in imagery or slitless mode, and from the possibility of fast insertion and removal of the dispersing element in the parallel beam. All these functions and the universal prime focus adapter are under remote control. At the moment, available modes include direct imaging, long-slit spectroscopy, slitless spectroscopy and Fabry-Pérot scanning interferometry.

Table 1. Parameters of the ByuFOSC2 spectrograph.

| | |
|------------------------|--|
| Collimator foc. length | 150 mm |
| Beam size | 39.5 mm |
| Camera foc. length | 92 mm |
| Field | 5.5' × 11' |
| Scale | 0.63"/pix |
| Slit width | 2" |
| Slit length | 5' |
| Spectral range | 420–690 nm (grism 1); 540–720 nm (grism 2) |
| Dispersion | 2.7 Å/pix (grism 1), 2 Å/pix (grism 2) |
| Detector | Thomson CCD 1060 × 1028 |

REFERENCES

- Boulesteix J., Georgelin Y. P., Marcelin M., Monnet G. 1983, SPIE Conf. Astron. Instr. V, 445, 37
- Courtés G. 1952, C.R. Acad. Sciences, Paris, 234, 506
- Courtés G. 1960, Ann. d'Astrophys., 23, 115
- LeFèvre O., Crampton D., Felenbok P., Monnet G. 1994, A&A, 282, 325
- Meinel A. B. 1956, ApJ, 124, 652