reduction of the digitized spectra was performed on the PDP11/34 computer at the same Institute. While the wavelength and intensity calibrations were easily performed on all spectra, the determination of the radial velocities proved to be very tricky because of the low dispersion and the high rotational broadening of the spectral lines. Therefore an 'ad hoc' data processing code is under development, and hence the analysis of the spectra has not yet been completed.

The result of this work will be published, when completed, in the *Astronomy and Astrophysics Supplements.*

List of Preprints Published at ESO Scientific Group

June–August 1983

253. P. A. Shaver and J. G. Robertson: Absorption-line Studies of QSO Pairs. *Memorie della Società Astronomica Italiana.* June 1983.
254. G. Contopoulos: Infinite Bifurcations, Gaps and Bubbles in Hamiltonian Systems. *Physica D.* June 1983.
255. O.-G. Richter and W. K. Huchtmeier: Is there a Unique Relation between Absolute (Blue) Luminosity and Total 21 cm Linewidth of Disk Galaxies? *Astronomy and Astrophysics.* June 1983.
256. E. A. Valentijn and W. Bijleveld: The Trivariate (Radio, Optical, X-ray) Luminosity Function of cD Galaxies II: The Fuelling of Radio Sources. *Astronomy and Astrophysics.* June 1983.
257. C. Kotanyi, J. H. van Gorkom and R. D. Ekers: Einstein Observations of NGC 4438: Dynamical Ablation of Gas in the Virgo Cluster. *Astrophysical Journal.* June 1983.
258. J. R. Dickel and S. D'Odorico: Radio Emission from Supernova Remnants in M31 at a Wavelength of 6 cm. *Monthly Notices of the Royal Astronomical Society.* June 1983.
259. P. Bouchet and P. S. Thé: Notes on the Open Cluster NGC 1252 with the Variable Carbon Star TW Hor as Probable Member. *Publications of the Astronomical Society of the Pacific.* June 1983.
260. C. Kotanyi, E. Hummel and J. van Gorkom: Are there Jets in Spiral Galaxies? "Astrophysical Jets", workshop held in Torino, Italy, 7–9 Oct. 1982. June 1983.
261. A. F. M. Moorwood and P. Salinari: Infrared Objects Near to H_2O Masers in Regions of Active Star Formation. III. Evolutionary Phases Deduced from IR Recombination Line and Other Data. *Astronomy and Astrophysics.* July 1983.
262. G. Contopoulos: Bifurcations, Gaps and Stochasticity in Barred Galaxies. *Astrophysical* Journal. July 1983.
263. J. Melnick, R. Terlevich and P. P. Eggleton: Studies of Violent Star Formation in Extragalactic Systems. I. Population Synthesis Model for the Ionizing Clusters of Giant H II Regions and H II Galaxies. *Monthly Notices of the Royal Astronomical Society.* July 1983.
264. R. Terlevich and J. Melnick: Studies of Violent Star Formation in Extragalactic Systems. II. The Relation Between the Initial Mass Function and Chemical Composition. *Monthly Notices of the Royal Astronomical Society.* July 1983.
265. P. Véron: Quasar Surveys and Cosmic Evolution. 24th Liège International Astrophysical Symposium "Quasars and Gravitational Lenses", June 21–24, 1983. July 1983.
266. J. Koornneef: Near-Infrared Photometry Paper II: Intrinsic Colours and the Absolute Calibration from One to Five Micron. *Astronomy and Astrophysics.* July 1983.
267. P. L. Schechter, M.-H. Ulrich and A. Boksenberg: NGC 4650A: The Rotation of the Diffuse Stellar Component. *Astrophysical Journal.* July 1983.
268. R. H. Miller: Numerical Experiments on Galaxy Clustering in Open Universes. *Astronomy and Astrophysics.* July 1983.
269. R. H. Miller: Numerical Experiments on the Self-consistent Responses of Galaxies. *Astronomy and Astrophysics.* July 1983.
270. A. Chelli, C. Perrier and P. Léna: The Sub Arc Second Structure of IRc2 at 5 Microns. *Astrophysical Journal.* July 1983.
271. D. Baade: There are More Absorption Line Profile-Variable Be Stars with Short Periods. *Astronomy and Astrophysics.* August 1983.
272. P. A. Shaver: Absolute Distance Determination for Objects of High Redshift. 24th Liège International Astrophysical Symposium "Quasars and Gravitational Lenses", June 21–24, 1983. August 1983.
273. M.-H. Ulrich: Line Variability in Active Nuclei and the Structure of the Broad Line Region. XI. Texas Symposium on Relativistic Astrophysics, Austin, December 12–17, 1982. August 1983.
274. G. Contopoulos: The Genealogy of Periodic Orbits in a Plane Rotating Galaxy. *Celestial Mechanics.* August 1983.
275. M. Salvati and R. Fanti: A Model for BL Lac-type Low Frequency Variables. *Astronomy and Astrophysics.* August 1983.

Fiber Optics at ESO

Part 2: Fiber Optics Multiple Object Spectroscopy at the 3.6 m Telescope

D. Enard, G. Lund and M. Tarenghi, ESO

During a 6-day test period late in November 1982, a prototype optical fiber device (nicknamed "Fiber Optopus") was tested at the 3.6 m telescope Cassegrain focus. The principle of this device, described in more detail in the following paragraphs, is such that the light from up to 50 randomly separated points on the sky (within the Cassegrain focus field of view) can be simultaneously guided via separate flexible optical fibers to the entrance slit of the B&C spectrograph. By making use of a two-dimensional detector such as a CCD the individual spectra, corresponding to each sampled point on the field, can be recorded simultaneously. When fully operational, the Fiber Optopus should enable a very strong reduction in telescope time to be achieved in observing programmes involving low resolution spectral mapping of extended fields. This feature will be of great interest to astronomers wishing to observe clusters of faint objects requiring long integration periods.

Technical Description

The prototype system, represented schematically in fig. 1, depends on the following essential components:

- the Fiber Optopus containing 50 free optical fibers, appropriately terminated in magnetic connectors,
- a starplate for the particular field to be viewed,
- three coherent fiber bundles and a TV camera for guiding,
- the Boller and Chivens spectrograph,
- a two-dimensional detector (CCD).

In addition, auxiliary calibration lamps, power supplies and a handset for the remote control of these functions and of the TV camera are provided. A description of the instrumental components developed specially for multiple object spectroscopy is given below.