the threshold where the excesses are not very significant anymore. The continuum magnitudes of the WR stars are typically 20–21 mags and there are probably many more which are fainter. Although present day instrumentation clearly allows individual WR stars to be observed at distances beyond 1 Mpc, we find that we use it close to its limitations. In the longer term it will be necessary to use larger telescopes such as the VLT in order to complete the survey.

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NEW ESO PREPRINTS

(March–May 1993)

Scientific Preprints

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T.R. Bedding et al.: The VLT Interferometer.
Papers presented at IAU Symposium 158, "Very High Angular Resolution Imaging", Sydney, Australia, 11–15 January 1993.
910. G. Setti and L. Woltjer: The Gamma-Ray Background. *Astrophysical Journal Supplement*. Special issue of the Integral Workshop on "The Multi-Wavelength Approach to Gamma-Ray Astronomy", 2–5 February, 1993, Les Diablerets, Switzerland.
911. G. Meylan and C. Pryor: Observational Constraints on the Internal Dynamics of Globular Clusters.
P. Dubath et al.: Is There a Central Velocity Dispersion Cusp in M15?
To appear in the proceedings of a workshop in "Structure and Dynamics of Globular Clusters", held in Berkeley, California, July 15–17, 1992, to honour the 65th birthday of Ivan R. King. ASP Conference Series, in press (1993).
912. A. Sandage and G.A. Tammann: The Hubble Diagram in V for Supernovae of Type Ia and the Value of H_0 Therefrom.
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Mapping the Large-Scale Structure with the ESO Multi-Slit Spectrographs

V. DE LAPPARENT, C. BELLANGER, S. ARNOUTS, Institut d'Astrophysique de Paris, France
G. MATHEZ, and Y. MELLIER, Observatoire Midi-Pyrénées et de Toulouse, France
A. MAZURE, Université des Sciences et Techniques du Languedoc, France

Preliminary Remarks

During the past decade, our understanding of the large-scale galaxy distribution has evolved drastically through the steady acquisition of redshifts of galaxies. The major optical redshift surveys of the nearby distribution ($B \leq 14.5-15.5$) are being performed using partly-dedicated telescopes of small diameter (1.5 m) or significant fractions of observing time in general facilities (see for example references [1], [2]. In these surveys, the projected density of objects is of the order of one per square degree, requiring the acquisition of the spectra one by one.

Mapping the galaxy distribution out to larger distances – and thus to fainter limiting magnitudes – requires the use of intermediate and large-size telescopes. The decrease in flux is largely compensated by the increasing projected density of galaxies, yielding a high rate of data acquisition in terms of number of redshifts per night. Multi-fiber spectrographs on 2.5 to 3.5-m telescopes allow to obtain simultaneously spectra of tens of galaxies in fields of the order of the square degree out to limiting magnitudes in the range $B = 18-20$. In these configurations, more than 100 spectra can be obtained per observing night [3], [4].

Whereas optical fibers offer a convenient way to cover fields of the order of one square degree, multi-slit spectrographs guarantee both efficiency in transmission and quality of the sky-subtraction for spectra of galaxies with limiting magnitudes $B = 22$ or fainter. The ever increasing projected density of objects allows to still benefit from the multiplex gain over the small area of a typical CCD. However, the loss in flux implies longer exposure times, and acquisition of a significant sample of objects at these magnitudes requires a large amount of observing nights on a 4-m-class telescope.

The quest for samples of galaxies which continuously increase in number of objects and/or effective distance originates from the charateristics of the galaxy distribution. Until recently, each