

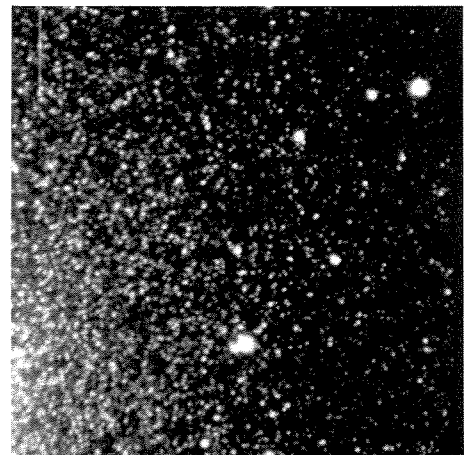
Figure 13 Observation de la Croix d'Einstein avec le TIGRE. Les deux images du haut montrent le champ tel qu'il est observé en imagerie. On remarque la galaxie (image de gauche) et dans la partie centrale les quatre images du quasar (images de droite). Les trois images du bas proviennent du mode spectrographique. Pour chaque spectre, l'intégrale du signal sur 400 Å, centré en 5010 Å, a été calculée. Par interpolation de l'ensemble de ces valeurs avec la localisation des spectres, nous avons fabriqué l'image de gauche. L'image du centre représente les quatre images du quasar. Elle a été obtenue en intégrant la raie [CIII] 1090 Å, continu soustrait. Par cette opération, nous enlevons la contribution de la galaxie qui contribue fortement au continuum. L'image de droite représente le noyau de la galaxie et son environnement. Elle a été obtenue en calculant l'intégrale de la raie d'absorption MgI 5173 Å, continu soustrait. Ceci élimine complètement les images du quasar, pour ne laisser que la galaxie.

The Colour-Magnitude Diagram of M32

M32 is the nearest of the so-called 'compact' elliptical galaxies. The evolutionary status of these objects and their relationship to more massive systems, has remained a matter of controversy. Wirth and Gallagher (1984, Ap. J., 282, 85) have argued that M32-like galaxies are the low-mass equivalents of larger ellipticals. Indeed, the structural properties of M32 and other compacts appear to be related to those of larger systems (Kormendy 1985, Ap. J., 295, 73). Nevertheless, many (all?) of the 'compact' ellipticals are companions of larger galaxies and it has been suggested that their morphological properties could be the result of tidal interactions (eg. Faber 1973, Ap. J., 179, 423 but see also Nieto and Prugniel 1987, Astron. Astroph., 186, 30). Photometric measurements of individual stars in M32 could provide important insight into the evolution of this galaxy. The Canada-France-Hawaii Telescope is an ideal site for obtaining the observations required for such an investigation because of its consistently good seeing, a quality which is essential for resolving stars in a compact galaxy such as M32.

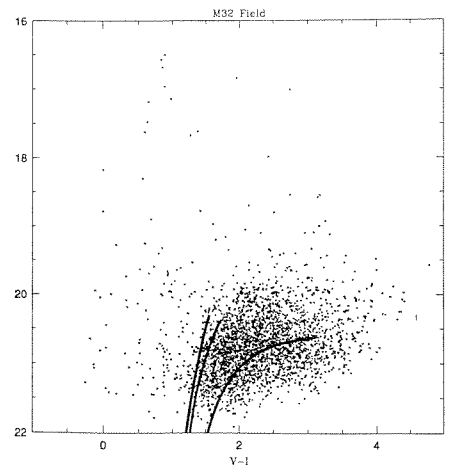
Using the RCA2 CCD mounted at the Prime Focus of the Canada-France-Hawaii Telescope, we have obtained images of a single field in M32, centered at RA \approx 0^h 40^m 12^s and $\delta \approx$ 40° 34' 12" (epoch 1950). The observations were made during the night of August 5/6, 1988 in B, V and I. The final I image, which has mean seeing 0.8 arc second, is shown in Figure 14. A comparison field in M31 was also observed.

We plan to perform photometry on the M32 and M31 fields with the point-spread-function fitting procedure in DAOPHOT. So far, we have constructed a preliminary (V, V-I) colour-magnitude diagram based on aperture measurements and the result is shown in Figure 15. Superimposed on the CMD are the loci of red giant branches from the globular clusters M92 ([Fe/H] \approx -2.2), NGC 6752 ([Fe/H] \approx -1.5) and 47 Tuc ([Fe/H] \approx -0.8) from Mould et al. (1983, Ap. J., 270, 471). The giant branch loci shown in Figure 15 has been 'reddened' to match the line-of-sight extinction to M32 (Burstein and Heiles 1984, Ap. J. Suppl., 54, 33). M32 was assumed to be equidistant with M31 and a distance modulus of 24.3 (Pritchett and van den Bergh 1987, Ap. J., 316, 517) was adopted. The mean metallicity of the M32 field appears to be intermediate between that of NGC 6752 and 47 Tuc. Moreover, a large number of stars fall above the tip of the giant branch. We suspect that these may be intermediate-age stars evolving on the asymptotic giant branch. The presence of such stars has been predicted spectroscopically (eg. Boulade et al., 1988, A. J., 96, 1319; Rose, 1985, A. J., 90, 1927; and O'Connell, 1980, Ap. J., 236, 430).



↑ Figure 14

↓ Figure 15



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