to the galaxy spectra. For the central parts the match was essentially perfect. Each row of galaxy spectra was then autocorrelated with a template formed from its own central row. The final major and minor axis rotation curves for NGC 1574 and NGC 4477 are shown in Figures 2a and 2b.

The velocity dispersions were determined by a method similar to that of Tonry and Davis (1979) but with some important modifications discussed in detail by Bottema (1988). The galaxy's spectra were first cross-correlated with the star template created earlier. A standard set of CC peaks (about 20, spaced 20 km s^{-1} apart) were then produced by cross-correlating the star template with itself artificially broadened by Gaussian functions of known width. These peaks were then sequentially fitted in a least-squares sense to the galaxy CC function, calculating a goodness of fit parameter in each case. This is where this method differed from that of Tonry and Davis. They fitted only second-order polynomial functions to the CC peaks whereas we fit "real" CC functions which generally resulted in a better fit. The final adopted velocity dispersion was then taken to be the (interpolated) value at the minimum of a plot of the dispersions versus their least-square goodness-of-fit parameter. The error estimation was fairly straightforward since a plot of the best fitting CC function was overplotted on the original data together with the CC functions having dispersions typically 20 km s^{-1} smaller and larger than the adopted value. This method worked very well for our data and had several advantages over the more commonly used Fourier quotient technique (Sargent et al., 1977). One important feature is that the CC method used here works well with low S/N data since a CC peak will almost always appear. Nevertheles, we performed additional tests to see if this method produced consistent velocity dispersion profiles on galaxies with well established velocity and dispersion profiles. See Jarvis and Dubath (1988) for a comparison and detailed discussion between our velocity dispersion results and those of Kormendy and Illingworth (1982) for NGC 4594 using this method. For the purposes of this paper we note that general agreement was very good for both the dispersions and the velocities. Encouraged by this good agreement we proceeded to reduce our programme galaxy data in the same manner.

4. Discussion and Conclusions

The resultant rotation curves show that most of the galaxies have significant amounts of rotation on both axes inspite of all but one of our galaxies being close to face-on. For NGC 1574, the maximum minor axis velocity reaches almost 100 km s^{-1}. The rotation curves are also asymmetric in some cases. This feature has also been reported in other SB0 galaxies (e.g. NGC 936, Kormendy, 1983). The velocity dispersion profiles also show a variety of forms from almost flat in the case of NGC 4477 to sharply decreasing with radius on both the major and minor axes of NGC 1574. The other galaxies are intermediate cases. It is for this reason that we illustrate our results here for only NGC's 1574 and 4477 since these galaxies showed the two extremes in kinematical behaviour with respect to the slope of their velocity dispersion profiles. NGC 4477 has an almost flat velocity dispersion profile on both the major and minor axis similar to what has been observed in other SB0 galaxies (e.g. NGC 6684, Bettoni and Galletta, 1988). However, in contrast, NGC 1574 shows a rapid decrease in velocity dispersion on both axes, and especially on the major axis. Why the bar of NGC 1574 appears more uniformly hot than that of NGC 4477 is not known. However, careful deconvolution and comparison of the bars in these and other galaxies may provide some clues. These will be discussed in more detail in subsequent papers.

In conclusion, we have performed two-dimensional surface photometry in the Gunn-Thuan photometric system of the five face-on southern SB0 galaxies, NGC's 1291, 1543, 1574, 4477 and 4754. We have also obtained the rotation velocity and velocity dispersion profiles along the principal axes of these galaxies. We make the following observations concerning the large-scale features of the V, σ, and μ plots.

(1) Three of the four near edge-on galaxies NGC's 1543, 1574 and 4477 show significant amounts of rotation ($V_{max} \simeq 100$ km s^{-1}) on either the major or minor axis.

(2) The major and minor axis rotation curves of NGC 1543 and the minor axis rotation curve of NGC 1574 show a clear turnover in velocity. This is particularly notable for the minor axis of NGC 1574 where the velocity falls back to zero at r = 30″. This effect has also been observed in other SB0 galaxies (Galletta, private communication).

(3) The rotation curves of several galaxies are noticeably asymmetric with respect to their photometric centres (e.g. NGC 1574, see also NGC 6684, Bettoni and Galletta, 1988).

(4) There is a considerable variation in the slopes of the velocity dispersion profiles between galaxies from almost flat for NGC 4477 to sharply falling with increasing radius for NGC 1574. NGC 1291, 1543 and 4754 are intermediate cases, listed in order of increasing slope in dispersion with radius.

It is clear that even from our small sample of SB0 galaxies their complexity is considerable, based on the large variation of their observable parameters. The interpretation of these observations, in particular the sizes, shapes and luminosities of the bars and their relationship to the observable kinematics will be addressed in future papers through an application of our N-body numerical models.

References

Bettoni, D., Galletta, G.: *Astron. Astrophys,* **190,** 52.

Bottema, R.: 1988, *Astron. Astrophys.* **197,** 105.

Gunn, J.E., Thuan, T.X.: 1976, *Publ. Astron. Soc. Pac.* **88,** 543.

Jarvis, B.J., Dubath, P.: 1988, *Astron. Astrophys. Lett.* In press.

Jarvis, B.J., Dubath, P., Martinet, L., Bacon, R.: 1988, *Astron. Astrophys. Suppl.* In press.

Kormendy, J., Illingworth, G.: 1982, *Astrophys. J.* **256,** 460 (KI).

Kormendy, J.: 1983, *Astrophys. J.* **275,** 529.

Longo, G., de Vaucouleurs, A.: 1983, *A General Catalogue of Photoelectric Magnitudes and Colors in the U, B, V System of 3,578 Galaxies Brighter than the 16th magnitude (1936–1982),* University of Texas at Austin.

Longo, G., de Vaucouleurs, A.: 1985, *Supplement to the General Catalogue of Magnitudes and Colors of Galaxies in the U, B, V System,* Dept. of Astronomy, University of Texas at Austin.

Sargent, W.L.W., Schechter, P.L., Boksenberg, A., Shortridge, K.: 1977, *Ap. J.* **212,** 326.

Tonry, J., Davis, M.: 1979, *Astron. J.* **84,** 1511.

de Vaucouleurs, G.: 1975, *Astrophys. J. Suppl. Ser.* **29,** 193.

Tentative Time-table of Council Sessions and Committee Meetings Until the End of 1988

31 Oct.–4. Nov.	Finance Committee, Chile
14/15 November	Scientific Technical Committee
28/29 November	Finance Committee
1/2 December	Observing Programmes Committee
6 December	Committee of Council
7 December	Council

All meetings will take place in Garching unless stated otherwise.