

total population of 900 globular clusters within 16:1¹⁸. For a good distance determination they should be followed 2 mag beyond the peak of their luminosity function^{1,19}, i.e. $M_B = -5$ or $m_B = 24.0$. Their identification will rest (a) on statistical subtraction of foreground stars and background galaxies, and (b) on (partial) resolvability. Because of the relatively large number of foreground stars, a large field must be surveyed, particularly since it is not yet known down to which magnitude the clusters will appear to be resolved with the NTT. 16 blue frames are needed, of which the inner six are expected to be available from the nova follow-up. Almost the entire field will be covered by 6 V frames that are needed for colour information. Scaling by luminosity, 350 clusters within 10"0 are expected for NGC 5102. This requires 9 blue and 4 V frames. The cluster population of NGC 5236 must be much smaller (~80?). Here the cluster identification depends entirely on resolution. Nine blue frames are requested under optimal observing conditions for later follow-up spectroscopy (this not being part of the present proposal). Eventually the globular clusters in this Sc galaxy are decisive to test whether their luminosity function depends on galaxy type.

(4) Planetary nebulae. To establish the luminosity function of planetary nebulae for different galaxy types one central frame in each of the five programme galaxies is needed. For a reliable identification four exposures in the red channel are required: [O III] $\lambda 5007\text{\AA}$ -on, $\lambda 5007\text{\AA}$ -off, H α -on, and H α -off. Judging from the luminosity functions presented for the Virgo Cluster⁶, the photometry should be carried out down to 26.5 mag. Because of the narrow filters grey time is permissible.

(5) Brightest stars. The B and V frames under (3) of the two S0 galaxies are likely to resolve the brightest stars of the red-giant tip; they will be valuable as future distance indicators for E and S0 galaxies. Additional distance information will be obtained from the brightest blue and red stars²⁰ of the three late-type galaxies. They will be identified from B, V colour magnitudes diagrams. The necessary frames are obtained under (1) and (3); only four additional V frames are needed for NGC 5236.

Conclusion

The first nine half-nights have been allotted to the Key Programme, beginning in April, 1991. They will be devoted almost entirely to the Cepheids. The decisive test is to demonstrate that they appear within the expected magnitude range. In the positive case, even a pre-

SEST Users' Meeting and Workshop on Millimetre-Wave Interferometry

The second SEST Users' Meeting will be held at ESO Garching on Wednesday 22 May 1991, and it will be followed by a one-day workshop on current developments in millimetre-wave interferometry on Thursday 23 May. Further information can be obtained from the Secretariat of the Science Division.

liminary Cepheid distance of the Centaurus Group will allow to further optimize the strategy for the other distance indicators.

Until the new generation of instruments will become available on Space Telescope, the NTT is probably the only telescope with which the present project can be carried out. If successful, the project should also outline future avenues of the VLT.

It is obvious that the present programme would have little hope of success without the institution of the Key Programme.

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STAFF MOVEMENTS

Arrivals

Europe:

ALBRECHT, Miguel (D),
Astronomer/Data Archivist
BECKER, Joachim (D), VLT Project
Manager/Head VLT Division
CAROLLO, Marcella (I), Student
CLASS, Shala (D), Laboratory
Technician (Photography)
DE JONGE, Peter (NL),
Construction Site Manager
DE RUIJSSCHER, Resy (NL),
Technical Secretary
SILBER, Armin (D), Technician
(Instrument Integration)

Chile:

ALTIERI, Bruno (F), Coopérant
GREDEL, Roland (D), Fellow
JORDA, Laurent (F), Coopérant

Departures

Europe:

FERRARO, Francesco (I), Fellow
PRUGNIEL, Philippe (F), Fellow
SCHLÖTELBURG, Martin (D), Fellow

Chile:

HUTSEMÉKERS, Damien (B), Fellow