blue central colour to have a redder halo, while those systems with a relatively red central colour (ellipticals and SOs) seem to have a bluer halo colour.

At the bottom of the flow chart in Fig. 1 we have indicated the possible presentation of the acquired data bases. Eventually our final data base of 16,000 galaxies will be expanded by two to three orders of magnitude compared to the preliminary results for the Fornax cluster. By then we will have acquired an unprecedented set of properties of Southern Hemisphere galaxies. The size of the sample and the uniform approach as attempted in this project should allow us to study the universe in an unbiased way.

The 2.2 m Telescope is Ready

M. Tarenghi, ESO

The 2.2 m Zeiss telescope is the last telescope to have arrived on La Silla, thanks to a 25-year loan to ESO from the Max-Planck-Gesellschaft (MPG) who will receive for their contribution 25 % of the observing time. ESO assumed responsibility for the installation of the telescope, the arrangement of necessary modifications, and construction of the building and dome according to specifications agreed with the MPG. ESO will also assume responsibility for the maintenance and operation of the telescope.

The erection of the telescope began on February 15, 1983, and as a result of a collaboration of qualified personnel from Zeiss and MAN and the services of many ESO technicians, we succeeded in obtaining the "first light" on the night of June 22, 1983. During the following weeks the telescope was used for optical, mechanical and electronic tuning. The end of the bad winter weather made it possible to start using the telescope with the photographic camera, the B & C spectrograph plus CCD camera, or a Danish RPCS detector and the CCD camera

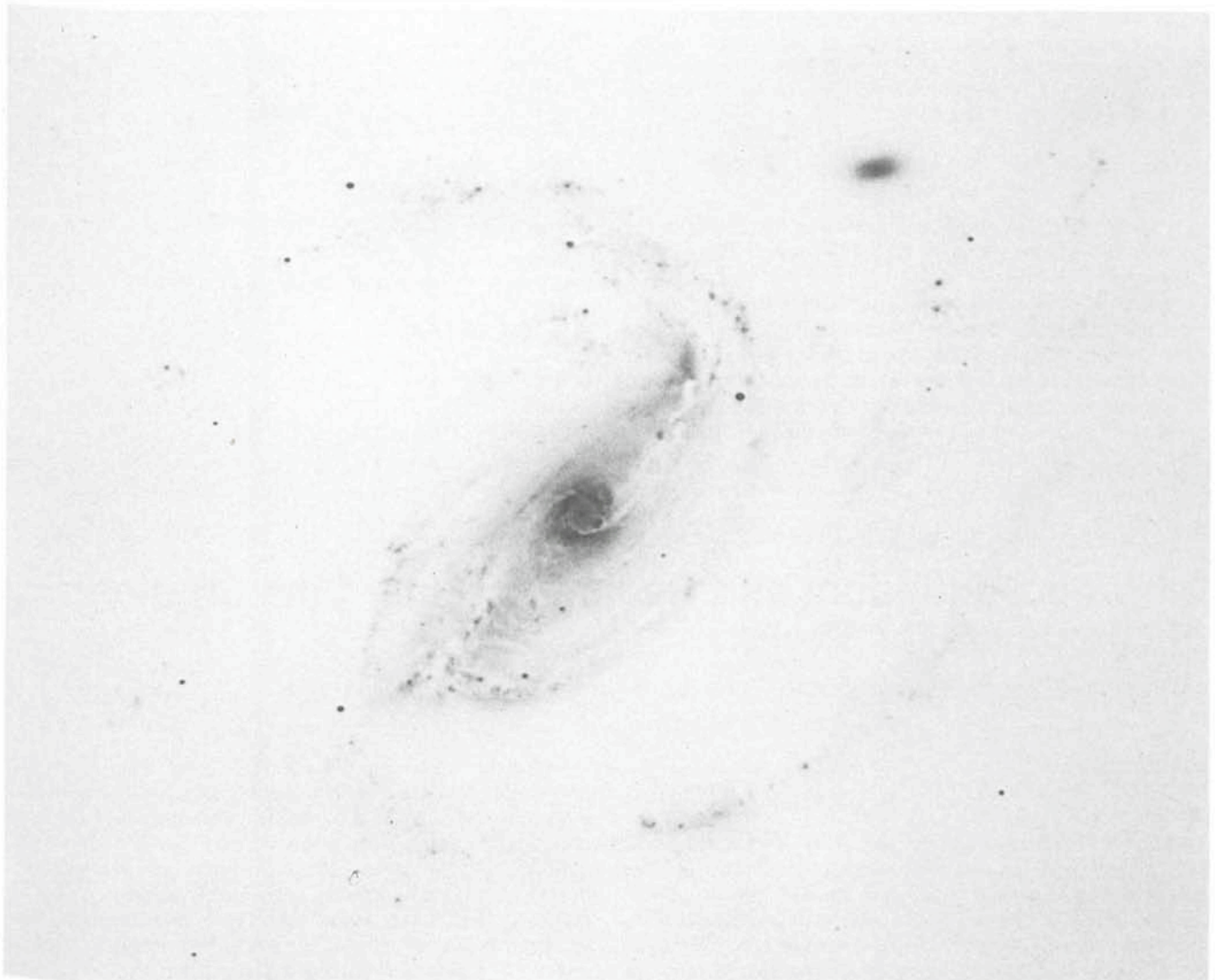

Fig. 1: *This image of the peculiar galaxy NGC 1097 (≡ ARP 77) is an enlargement of the third plate obtained during the commissioning time of the 2.2 m telescope on the night of September 30, 1983. A IIa-O emulsion was used, without filter, and the exposure time was 40 minutes. The star images are slightly elongated because of a field rotation around the guide star, caused by the fact that the polar axis had not yet been properly adjusted. Nevertheless, the excellent optical quality of the telescope (80 % of the light inside 0.4 arcsec) and a good seeing of about 0.7 arcsec, gave a superb view of this Arp galaxy where "the material of arm seems to flow around the companion" and a ring of HII regions surrounds a star-like nucleus.*

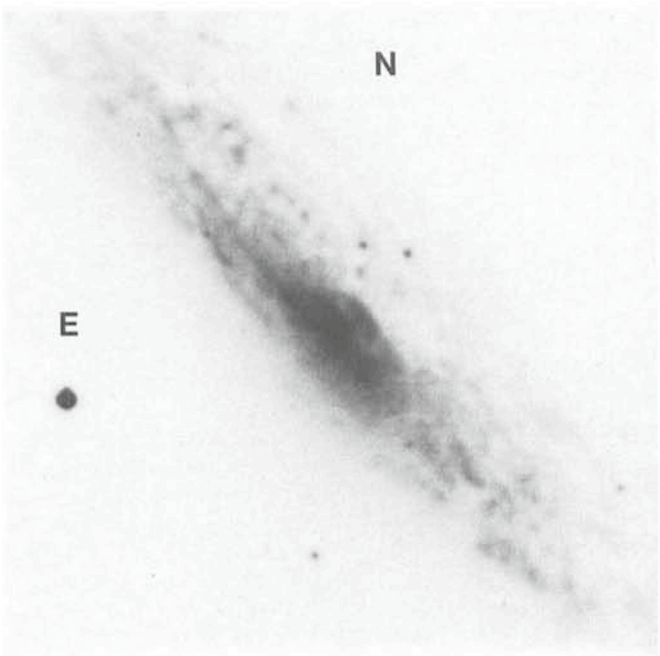

Fig. 2: *The Sc galaxy NGC 1448. The star 25″ E, 5″ S of the nucleus is the recently discovered supernova (IAU Circ. 3877, 3878). This is a CCD picture obtained on October 27/28, 1983, by O.-G. Richter and H. Pedersen with the 2.2 m telescope. The seeing was ~ 0″.7. The field is ~ 60″ square, the pixel size is 0″.36.*

in a photographic mode. The seeing was for the most part better than 1 arcsec and all instruments seemed to perform at the expected levels.

At the present stage we are working towards the final adjustments in order to make use of all automatisms foreseen for the next observing period. We have good reason to believe that the telescope will be fully operational on January 1, 1984, as planned, and that European astronomers will then be able to take full advantage of this powerful new telescope in Chile.

PERSONNEL MOVEMENTS

STAFF

Arrivals

Europe

GIORDANO, Paul (F), Optical Technician, 1.11.1983
REISS, Roland (D), Electronics Engineer, 21.11.1983
JENSEN, Bjarne (DK), Electronics Engineer, 1.1.1984
LOPRIORE, Sergio (I), Mechanical Engineer, 16.1.1984
GROTE, Rainer (CH), Project-Draughtsman, 1.3.1984

Chile

LINDGREN, Harri (S), Astronomer, 1.10.1983
URQUIETA, Arturo (USA), Senior Optical Technician, 1.10.1983
KAABERGER, Ulf (S), Electro-mechanical Engineer, 16.10.1983
LE SAUX, Paul (F), Instrumentation Engineer, 8.11.1983

Departures

Europe

KAZIMIERZAK, Bohumil (B), Mechanical Engineer, 29.2.1984

Chile

MULLER, André (NL), Senior Astronomer, 30.9.1983

FELLOWS

Arrivals

Europe

SURDEJ, Jean (B), 1.10.1983
ANGEBAULT, Louis (F), 1.1.1984
JÖRSÄTER, Steven (S), 16.1.1984

Chile

CHALABAEV, Almas (F), 1.3.1984

Departures

Europe

KOTANYI, Christopher (B), 30.11.1983

ASSOCIATES

Departures

Chile

GREGORY, Thomas (USA), 22.11.1983

Infrared Continuum and Radio Molecular Line Studies of Circumstellar Shells

Nguyen-Q-Rieu, N. Epchtein and T. Le Bertre, Observatoire de Meudon

Introduction

Long-period variables radiate most of their energy in the near and mid-infrared regions. The energy distribution of Mira variables peaks around 2 μm and the well known infrared source IRC+10216 is very bright between 2 and 20 μm. Many late-type stars are not seen at optical wavelengths but appear as strong infrared objects. Re-emission of stellar radiation by warm circumstellar grains is responsible for the infrared continuum flux. Both visible and unidentified infrared cool stars also emit radio molecular lines which are excited by collision with molecular hydrogen or by infrared radiation. Combined infrared and radio observations are therefore of great interest to determine molecular excitation processes.

Late-type stars are characterized by the mass-loss phenomenon. Matter is continuously expelled from the star through a combination of mechanisms such as shock heating and radiation pressure on grains. This can result in a stratification of the circumstellar shell, and molecular line emission serves as probes of physical conditions in different layers. In particular, SiO maser emission (rotation lines in ground and excited vibrational states) and infrared vibration-rotation molecular lines which are excited in extreme conditions, i.e. high gas density and temperature, arise near the stellar photosphere. By contrast, millimetre thermal emission of CO and linear carbon chain molecules, the cyanopolyynes $HC_{2n+1}N$, takes place in the stellar envelope at about 10 to 10^3 stellar radii (Fig. 1). Different shell layers can be sampled by observing appropriate molecular transitions.