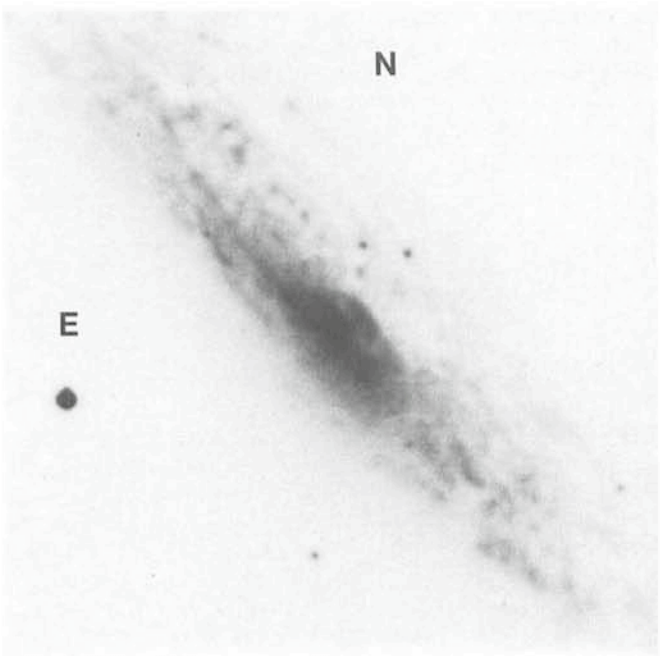

Fig. 2: *The Sc galaxy NGC 1448. The star 25″ E, 5″ S of the nucleus is the recently discovered supernova (IAU Circ. 3877, 3878). This is a CCD picture obtained on October 27/28, 1983, by O.-G. Richter and H. Pedersen with the 2.2 m telescope. The seeing was ~ 0″.7. The field is ~ 60″ square, the pixel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