ANNOUNCEMENT OF AN ESO CONFERENCE

Scientific Importance of High Angular Resolution at Infrared and Optical Wavelengths

The European Southern Observatory is organizing an international conference on the subject "SCIENTIFIC IMPORTANCE OF HIGH ANGULAR RESOLUTION AT INFRARED AND OPTICAL WAVELENGTHS", to be held in the ESO building at Garching bei München during the period of 24–27 March 1981.

The purpose of this conference is to discuss, on the one hand, the systems in use or under construction and possible future developments to achieve high angular resolution and, on the other hand, to discuss the areas of astrophysics which, in the next decades, will most benefit from observations at high angular resolution.

PROGRAMME

I. Light Propagation in the Atmosphere and Image Formation

F. Roddier (Nice)	Atmospheric Limitations to High Angular Resolution Imaging
J.W. Hardy (ITEK Corp.)	Active Optics in Astronomy

II. Speckle Interferometry

A. Labeyrie (CERGA)	Review of the Field and Trends
G. Weigelt (Erlangen)	Speckle Interferometry and Speckle Holography
P. Léna (Meudon)	Speckle Interferometry in the Infrared
J.E. Nelson (Berkeley)	Coherent Large Telescopes

III. Interferometry with Multiple Systems

C.H. Townes (Berkeley)	Multiple Telescope Interferometry in the Infrared
A. Labeyrie (CERGA)	Multiple Telescope Interferometry: Compact or Diluted Telescopes?
F.J. Low (Tucson)	Interferometry with the Multiple Mirror Telescope and Conventional Telescopes
O. Citterio (Milan)	Infrared Observations with a 12 m baseline Interferometer
C. Froehly (Limoges)	Coherence through Fiber Optics
D. Dravins (Lund)	Search for fine Structure on Stellar Surfaces by Intensity Interferometry

IV. Scientific Importance of High Angular Resolution

1. Planets and Asteroids

T. Encrenaz (Paris)

2. Stars and Star Formation

B. Zuckerman (Maryland)	Circumstellar Envelopes
H.W. Yorke (Göttingen)	Evolution and Appearance of Protostars and their Envelopes
H.J. Habing (Leiden)	Current and Future Observations of Pre-Main-Sequence Objects
P.A. Strittmatter (Tucson)	Preplanetary Disks
A. Blaauw (Leiden)	Binary Stars
E. Schatzman (Nice)	Observations of Stellar Winds and Coronae

3. Extragalactic Objects

G.A. Tammann (Basel)	Normal Galaxies
M.H. Ulrich (ESO)	Nearby Seyfert Galaxies
A. Boksenberg (London)	Radio Galaxies and Quasars: Present and Future Results
M.J. Rees (Cambridge)	Highly Compact Structures in Galaxy Nuclei and Quasars

V. Discussions

Panel discussions will take place on Friday. Topics may include:

- High Resolution in the Space Telescope Era.
- The Future of Interferometry Using Existing Telescopes or Conventional Telescopes under Construction.
- The Scientific Case for Large Interferometers.
- Building Infrared and Optical Interferometers and Budgetary Considerations.

Scientific Organizing Committee: A. Boksenberg, D. Dravins, A. Labeyrie, P. Léna, M.H. Ulrich (Chairman), G. Weigelt.

List of Preprints Published at ESO Scientific Group

December 1980 – February 1981

126. A.C. Danks and M. Dennefeld: Near-infrared Spectroscopy of Comet Bradfield (1979L). *Astronomical Journal.* December 1980.
127. P. Véron, M.P. Véron and E.J. Zuiderwijk: NGC 4507: A Weak Seyfert 1 and X-ray Galaxy. *Astronomy and Astrophysics,* Research Note. December 1980.
128. E.G. Tanzi, G. Chincarini and M. Tarenghi: Infrared Observations of AE Aqr. *Publications of the Astronomical Society of the Pacific.* December 1980.
129. J.H. Oort, H. Arp and H. de Ruiter: Evidence for the Location of Quasars in Superclusters. *Astronomy and Astrophysics.* December 1980.
130. D. Engels, W.A. Sherwood, W. Wamsteker and G.V. Schultz: Infrared Observations of Southern Bright Stars. *Astronomy and Astrophysics Suppl.* December 1980.
131. D. Maccagni and M. Tarenghi: X-ray Observations of Six BL Lacertae Fields. *Astrophysical Journal.* December 1980.
132. W. Wamsteker: Standard Stars and Calibration for JHKLM Photometry. *Astronomy and Astrophysics,* Main Journal. January 1981.
133. J. Danziger, W.M. Goss, P. Murdin, D.H. Clark and A. Boksenberg: The Supernova Remnant in 30 Dor B. *Monthly Notices of the Royal Astronomical Society.* January 1981.
134. G. Chincarini and M.F. Walker: Image Tube Spectroscopic Studies of Rapid Variables. IV. Spectroscopic and Photome-

tric Observations of AE Aquarii. *Astronomy and Astrophysics.* January 1981.

135. Ch. Motch: A Photometric Study of 2A 0526–328. *Astronomy and Astrophysics,* Main Journal. February 1981.
136. M.P. Véron: On the Width and Profile of Nuclear Emission Lines in Galaxies. *Astronomy and Astrophysics,* Main Journal. February 1981.
137. J. Krautter, G. Klare, B. Wolf, W. Wargau, H. Drechsel, J. Rahe and N. Vogt: TT Ari: A New Dwarf Nova. *Astronomy and Astrophysics,* Main Journal. February 1981.
138. N. Vogt: Z. Chamaeleontis: Evidence for an Eccentric Disc during Supermaximum? *Astrophysical Journal.* February 1981.

PERSONNEL MOVEMENTS

STAFF

ARRIVALS

Europe

JANSSON, Jill, S, Secretary, 1.2.1981
BAUDET, Loic, F, Optical Technician, 1.4.1981
BUZZONI, Bernard, Optical Technician, transfer from Chile to Europe, 1.4.1981
BIEREICHEL, Peter, D, Software Engineer, 1.4.1981
COIGNET, Gilbert, F, Electronics Technician, 1.4.1981
DIETL, Ottomar, D, Maintenance Technician, 1.4.1981
STEC, Frédéric, F, Electronics Technician, 1.4.1981
VERSCHUREN, Rita, B, Secretary, 1.4.1981
MÜLLER, Karel, DK, Adm. Assistant (Accounting), 1.5.1981
LJUNG, Bo, S, Electronics Engineer, 16.5.1981
WIRENSTRAND, Hans, S, Systems Programmer, 11.5.1981

Chile

ROUCHER, Jacques, F, Electronics Technician, 1.2.1981

DEPARTURES

Europe

GRIP, Rolf, S, Technical Assistant (Mech.), 31.5.1981
WENSVEEN, Martinus, NL, Optical Technician, 28.2.1981

Chile

BECHMANN, Erling, DK, Foreman (Electro-mech.), 31.3.1981

ASSOCIATES

ARRIVALS

Europe

GAHM, Gösta, S, (part-time) 1.1.1981

DEPARTURES

Europe

CHINCARINI, Guido, I, 15.1.1981

FELLOWS

ARRIVALS

Europe

MOTCH, Christian, F, 1.1.1981
LUND, Glenn, New Zealand, 15.3.1981

The Ionized Gas of M33 as Seen with a 6 m, F/1 Telescope

G. Courtès and J.P. Sivan, Laboratoire d'Astronomie Spatiale, CNRS, Marseille, and J. Boulesteix and H. Petit, Observatoire de Marseille

With few exceptions, the ionized hydrogen regions in a galaxy are extended sources emitting only a few lines of very faint intensity. The use of a narrow interference filter (to select one of the most intense lines) in combination with a focal reducer design (to increase the illumination of the focal plane) at the focus of a large telescope is the best way to obtain deep photographs of the ionized hydrogen features in nearby galaxies (Courtès, G.: 1973, *Vistas in Astronomy* **14,** 81). It should be noted that in this optical arrangement, the filter is not set in the small f-number beam of the focal reducer, but in the lower aperture beam of the telescope, thus making possible the use of very selective interference filters (which accept a very narrow angular field). This method has been extensively used for several years by Courtès and his co-workers at the 1.93 m telescope of Haute-Provence Observatory, at the Palomar 200 inch telescope, and, more recently, at the 3.6 m telescope of ESO.

As previously discussed (Courtès, G.: 1965, IAU Symposium No. 27, A25), when an f/1 focal reducer is attached at the focus of a 2 m class telescope (for instance the f/5 Newtonian focus of the 1.93 m telescope of Haute-Provence), the illumination of the photographic emulsion is increased (by a factor of 25 in this example), but the spatial resolution is unavoidably degraded (a pixel size of 20 microns corresponds to 2.1 seconds of arc). On the contrary, when an f/1 focal reducer is used in combination with a 4 m class telescope or, *a fortiori,* with a larger telescope, the equivalent focal length becomes long enough for the minimum image diameter to be determined mainly by the seeing instead of by the resolving power of the emulsion. In the case of the f/8 Cassegrain focus of the ESO 3.6 m telescope (a project of such an instrument has been designed by M. Leluyer for the 3.6 m ESO telescope), the illumination of the detector is increased by a factor of 64 and the limiting angular resolution is near 1 second of arc for a pixel of 20 microns (Boulesteix, J., Courtès, G., Laval, A., Monnet, G., Petit, H.; 1974, Proceedings of ESO/SRC/CERN Conference on Research Programmes for the New Large Telescopes, 221).

One of the most important results that have been obtained when applying these techniques to the study of the ionized gas of nearby spiral galaxies, is the discovery of a general, diffuse Hα emission in the spiral arms and, sometimes, over the entire galactic disk. (Carranza, G., Courtès, G., Georgelin, Y. P., Monnet, G., Pourcelot, A., Astier, N.: 1968, *Annales d'Astrophysique,* **31,** 63; Monnet, G.: 1971, *Astronomy and Astrophysics,* **12,** 379). In our Galaxy also, the interstellar medium is ionized outside of the condensed, classical H II regions. The presence of a