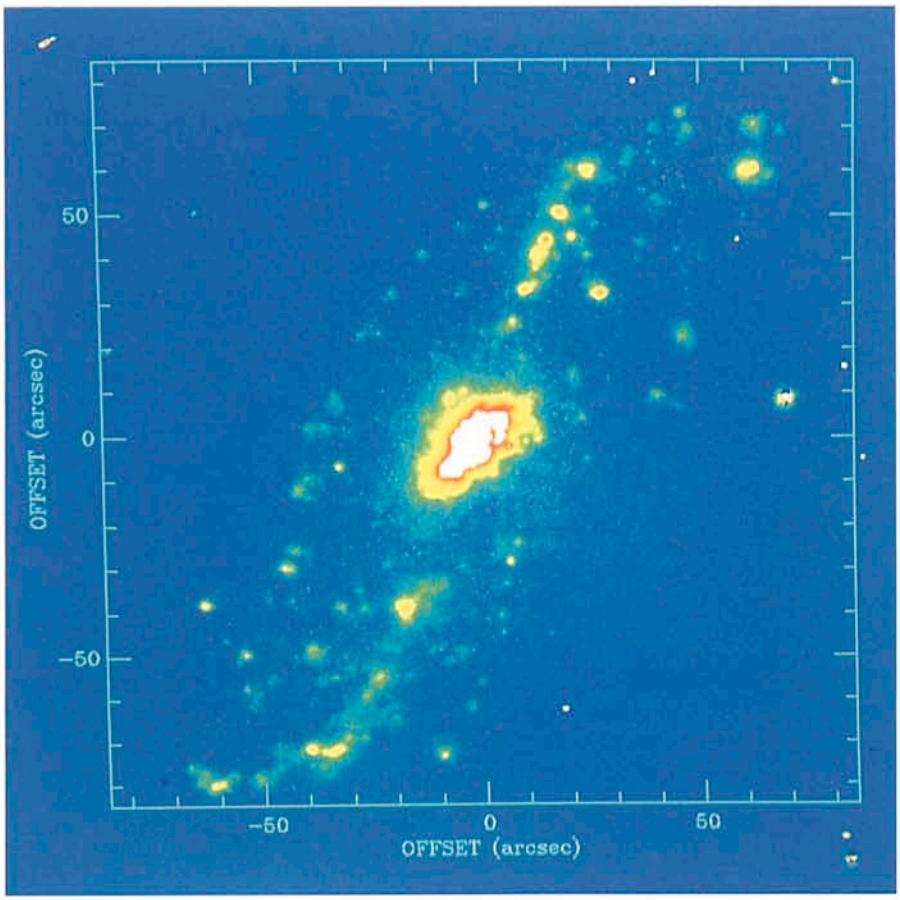

Figure 3: *The disk of NGC 1808. The Hα+[NII] line emission is mainly observed along a line at PA = 155°. This linear structure extends roughly 3 kpc to both sides of the nucleus and further out bends in opposite directions following the galactic rotation. (North is to the top and east to the left).*

To determine the velocities in and around the bar it is now necessary to obtain further spectra at various position angles.

4. The Scenario

The question arises, what is the physical connection of the different features described above. In the following we describe a scenario which tries to answer this question.

The clue to the scenario is *the bar*. The presence of a bar potential strongly influences the gas flow in the disk and the nuclear region of a galaxy. Galactic disks are very sensitive to m=2 resonances, and it is therefore expected from stellar dynamical studies that bars can easily be excited by gravitational interaction (e.g. Athanassoula 1990). The warp of the outer spiral arms in NGC 1808 (see Koribalski et al. 1992a) could be the result of a recent tidal interaction with the neighbour galaxy NGC 1792, located at a projected distance of about 130 kpc. The bar in NGC 1808, which is not seen in the visual light, is clearly detected in optical emission lines and less pronounced in the neutral hydrogen and radio continuum emission. The curved dust lanes in the disk of NGC 1808 (see Laustsen et al. 1987) could correspond to shocks induced by this 6 kpc bar.

According to Combes & Gerin (1985) a bar causes molecular clouds inside corotation to stream towards the centre and to accumulate at the Inner Lindblad Resonance (ILR). The crowd of clouds at this specific radius is often observed as a nuclear ring. In NGC 1808 the resonance location is denoted by a ring or spiral of "hot spots" (Fig. 1) enveloped by a fast rotating torus of cold gas (Koribalski et al. 1992b). A similar scenario is for example found in the barred galaxy NGC 2903 (Jackson et al. 1991).

CO measurements obtained with the SEST show a high concentration of molecular gas in the central area (Dahlem et al. 1990). The FIR/CO(1–0) luminosity ratio which is often used as a measure of massive-star formation efficiency is about 20 $L_{\odot}/M_{\odot}$. Due to the low resolution of the data we have no information about the molecular gas distribution in the bar.

Finally, the observed *outflow* of neutral and ionized gas from the central starburst region into the halo of the galaxy NGC 1808 (Koribalski et al. 1992a, Phillips 1992) might be the consequence of the accretion of cold gas near the centre, at the location of the ILR(s). Reaching the nuclear region, it will be heated and, due to the gas pressure of supernovae and winds, ejected along the rotation axis of the galaxy. The radial dust filaments emerging from the central region of NGC 1808 to at least 3 kpc above the plane clearly show the large energetics involved in this process.

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New ESO Preprints

(December 1992 – February 1993)

Scientific Preprints

887. E.J. Wampler et al.: The Absorption Spectrum of QSO 2116-358 *Astronomy and Astrophysics.*

888. F. Matteucci et al.: Constraints on the Nucleosynthesis of Cu and Zn from Models of Chemical Evolution of the Galaxy. *Astronomy and Astrophysics.*

889. Xiao-wei Liu et al.: Observations of the Bowen Fluorescence Mechanism and Charge Transfer in Planetary Nebulae II. *Monthly Notices of the Royal Astronomical Society.*

890. M.-H. Ulrich et al.: The Time Variability of the UV Continuum and of Lyα in 3C273. *The Astrophysical Journal.*
891. I. J. Danziger et al.: Gradients of Metal Line Indices in a Sample of Early Type Galaxies.
C. M. Carollo and I. J. Danziger: Line-Strength Gradients and Dynamics of NGC 2663 and NGC 5018.
F. Matteucci: Chemical Evolution of Elliptical Galaxies with Dark Matter.
Presented at the ESO/EIPC Workshop "Structure, Dynamics and Chemical Evolution of Early-Type Galaxies", Elba, 25 – 30 May 1992.
892. O. Hainaut et al.: Imaging of Very Distant Comets: Experience and Future Expectations.
R. M. West: Summary and Discussion of Observations.
Contributions to the Proceedings of the "Workshop on the Activity in Distant Comets."
893. P. François and F. Matteucci: On the Abundance Spread in Solar Neighbourhood Stars. *Astronomy and Astrophysics.*
894. P. Bouchet and I. J. Danziger: Infrared Photometry and Spectrophotometry of SN 1987 A: II. November 1987 to March 1991 Observations. *Astronomy and Astrophysics.*
895. P. Møller and S. J. Warren: Emission from a Damped Lyα Absorber at Z = 2.81. *Astronomy and Astrophysics.*
896. M. A. Prieto et al.: The Extended Nebulosity in the Radio Galaxy 3C227. *Monthly Notices of the Royal Astronomical Society.*
897. C. N. Tadhunter et al.: Optical Spectroscopy of a Complete Sample of Southern 2 Jy Radio Sources. *Monthly Notices of the Royal Astronomical Society.*
898. J. Surdej et al.: Gravitational Lensing Statistics Based on a Large Sample of Highly Luminous Quasars.
899. J. M. Beckers: On the Relation Between Scintillation and Seeing Observations of Extended Objects. Published as a Letter to the Editor of *Solar Physics.*

ESO Proceedings "HIGH-RESOLUTION IMAGING BY INTERFEROMETRY II"

In the September 1992 issue of *The Messenger* we announced the imminent availability of the above-mentioned proceedings. As a matter of fact, they were delivered only at the end of February 1993. We apologize for this delay, which could not be anticipated at the time the September issue of *The Messenger* went to press.

Delivery of the proceedings had originally been promised by the printer for August 1992. In early September more than half of the pages had been printed and a large number of the printing sheets had already been mounted and corrected. Then, in mid-September, the printer had to leave his old premises and move into new ones. At the same time, the staff who had been working on the proceedings left the printer.

It was then that the printer completely lost control of the production process. Part of the original manuscripts disappeared, some of the printed sheets as well. New, corrected sheets were printed without our corrections having been carried out. The quality of many of the illustrations was such that we could not accept them. When they were printed again, the result was hardly better. In addition, progress was extremely slow.

Now the proceedings have been delivered, and, apart from some minor imperfections and a number of "weak" illustrations, the quality is satisfactory.

We are sorry that this all could happen and apologize again, especially to those who have already ordered and paid the proceedings and whose patience has been put to a severe test.

K. K.

900. M. A. Albrecht: Archiving Data from Ground-based Observatories. Presented at Astronomical Data Analysis Software & Systems (ADASS '92), Boston, November 1992.
901. M. Della Valle and H. Duerbeck: The Space Density of Classical Novae in the Galactic Disk. *Astronomy and Astrophysics.*
902. R. L. M. Corradi and H. E. Schwarz: The Bipolar Outflow of He 2-36. *Astronomy and Astrophysics.*
903. P. Artymowicz et al.: Star Trapping and Metallicity Enrichment in Quasars and AGN's. *The Astrophysical Journal.*
904. Xiao-wei Liu and J. Danziger: Electron Temperature Determination from Nebular Continuum Emission in Planetary Nebulae and the Importance of Temperature Fluctuations. *Monthly Notices of the Royal Astronomical Society.*
905. A. Jorissen et al.: S Stars: Infrared Colors, Technetium, and Binarity. *Astronomy and Astrophysics.*
906. Bo Reipurth and S. Heathcote: Observational Aspects of Herbig-Haro Jets. Invited review presented at the Astrophysical Jets symposium held at the Space Telescope Science Institute in Baltimore on 12 – 14 May 1992.
907. P. Molaro et al.: Interstellar CaII and NaI in the SN 1987A Field: I. Foreground and Intermediate Velocity Gas. G. Vladilo et al.: Interstellar CaII and NaI in the SN 1987A Field: II. LMC Gas. *Astronomy and Astrophysics.*
908. J. K. Kotilainen et al.: CCD Imaging of Seyfert Galaxies: Deconvolution of the Nuclear and Stellar Components. *Monthly Notices of the Royal Astronomical Society.*

Technical Preprint

50. M. Faucherre et al.: The VLT Interferometer: Current Status and Expectations for the Next 20 Years. Proceedings of an ESA Colloquium on Targets for Space-Based Interferometry, Beaulieu, France, 13 – 16 October 1992.

IRAC2 Observations of the Spiral Galaxy NGC 2997

D. Block[1,2], P. GROSBØL[3], A. MONETI[3], P. PATSIS[3]

[1]Visiting Astronomer, European Southern Observatory; [2]Witwatersrand University, South Africa; [3]European Southern Observatory

The galaxy NGC 2997 is one of the beautiful, grand-design, spiral galaxies in the southern sky. It is classified as Sc(s)I in the Revised Shapley-Ames Catalog (Sandage and Tammann, 1981) and has a D_{25} diameter of 8.3 arcmin. Blue images show very regular inner arms with clear dust lanes while the arms bifurcate (break up) in the outer parts (see Fig. 1). Its inclination angle of $\approx$ 40° is well suited for both morphological and dynamical studies. With a linear scale of 1″ $\approx$ 50 pc on the sky (H_o = 80 km/s/Mpc), it is possible to analyse not only general features but also the finer details such as the material lying between the spiral arms and the bulge.

These characteristics make NGC 2997 a perfect candidate for a detailed study of grand-design spiral structure in disk galaxies. Two important ingredients in making dynamic models of galaxies are their rotation curve and accurate surface photometry maps. Wheras the rotation curve gives the overall potential or mass distribution, maps are required