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5 May 1981

Dr. N.H. Baker,
Editor, The Astronomical Journal,
Columbia University,
Pupin Building,
New York, NY 10027.

Dear Dr. Baker,

I enclose two copies of the manuscript of the article HIGH RESOLUTION OBSERVATIONS OF THE X-RAY GALAXY NGC 3862 (3C 264) IN ABELL 1367, which has been revised after consideration of the referee's comments.

We have commented on the 20cm polarization of the extended structure, and have rationalised the units for electron densities and luminosities, as requested by the referee. We have also rephrased our comment about 3C 286 as a polarization calibrator so as not to give the erroneous impression that the degree of polarization of this source was assumed.

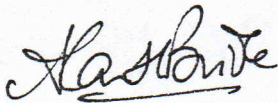
On the major point about follow-up observations, we regret that the 6cm data from the VLA will not be available in the near future. While the referee is correct in saying that 6cm VLA data would provide higher resolution, it is not quite true to say that only a few scans would resolve the issues about the central structure. The problem is one of dynamic range; the unresolved core will be proportionally more dominant in a high-resolution 6cm map and a fairly complete synthesis with the VLA at 6cm is required to obtain the dynamic range that is needed. We proposed such an experiment for the VLA in the appropriate configuration this year, but unfortunately in the extreme pressure for VLA time it was not scheduled. As the VLA cycle of configurations is approximately 12 months long, it will be another year before the proposal can be reconsidered.

Although the 20cm data by themselves cannot distinguish between the two models we have discussed, one of them is a new model (which the referee has found "interesting" - report, para.2). We believe that the unusual nature of the radio structure, and the possibility that it represents a rare class of diffusion-dominated morphology, will be of sufficient interest to radio astronomers to merit publication on their own. These VLA results will also complement the lower-resolution Westerbork data (reference to Gavazzi and Perola) which are about to be published, in defining the radio properties of a system now of considerable interest to X-ray astronomers (e.g. the reference to Elvis *et al.* 1981). We therefore feel that it would be inappropriate to delay dissemination of these VLA results until the follow-up work at the VLA again can compete for observing time a year from now.

While I share your concern for the fragmentation of the burgeoning literature on extragalactic radio sources, I am also concerned that this is a case where only the VLA can settle some issues that have been raised by new VLA observations. The 12-month cycle of VLA configurations can therefore, as in this case, introduce very significant delays between the raising of new questions and their settlement by further VLA observations. The VLA configurations with the appropriate resolution to follow up on this work will not become available again until the Spring of 1982. Even then it will be difficult to ensure that the follow-up can be scheduled as the dynamic range requirement does unfortunately mean that the referee is not quite correct in implying that only a small amount of VLA time would be needed. (This was in fact precisely the reason given by the VLA scheduling committee for deferring the proposal).

In these circumstances we feel that the data which have raised these questions about diffusion-dominated morphology should be publicly presented even though not all of the answers to them are clear. We hope that you will agree with us and that the revised manuscript will therefore be accepted for publication in the Astronomical Journal.

Yours sincerely,

A handwritten signature in cursive script, appearing to read "A. H. Bridle". The signature is written in dark ink and is positioned above the typed name.

Dr A. H. Bridle