

NATIONAL RADIO ASTRONOMY OBSERVATORY  
Edgemont Road, Charlottesville  
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14 May 1984

Editorial Supervisor,  
Astronomical Journal,  
American Institute of Physics,  
335 East 45 Street,  
New York,  
NY 10017

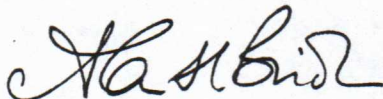
Dear Sir,

I enclose the corrected page proof and copy-edited manuscript of the article "Sidedness, Field Configuration and Collimation of Extragalactic Radio Jets", by A.H.Bridle.

I have made all corrections on the page proofs; printer's errors in red and two author corrections in black. I have also indicated the author corrections in the manuscript, for clarity.

In the reference to Bridle (1982), you added the text "Proceedings of" in front of "I.A.U. Symposium No.97"; for consistency, this should also be done in the reference to Cornwell and Perley (1982). I have marked this as a printer's error. I have added the page reference for Bridle and Perley (1984) as requested. Unfortunately I cannot do this for Pearson and Readhead (1984) as the Ann.Rev. vol.22 is not yet published (I obtained the page reference for my own article from an Ann.Rev. page proof). The article by Burns et al. (1984) is scheduled for the August 1 Ap.J., as indicated in my manuscript, but I do not have a more detailed reference. I am unsure of the most appropriate abbreviation for the reference to Schwab (1980); it given as SPIE Vol.231 1980 International Optical Computing Conference (1980) on the reprint I have available. SPIE is the self-abbreviation of the Society of Photo-optical Instrumentation Engineers. I shall be happy to conform to the A.I.P. norm for this reference, whatever that norm may be.

Yours sincerely,



Alan H. Bridle

29 March 1984

Dr. Alan H. Bridle  
National Radio Astronomy Observatory  
Edgemont Road  
Charlottesville, Virginia 22901

Dear Dr. Bridle:

We are happy to inform you that the manuscript,

SIDEDNESS, FIELD CONFIGURATION AND COLLIMATION OF  
EXTRAGALACTIC RADIO JETS by Alan H. Bridle

has been accepted and tentatively scheduled for the July  
1984 issue of THE ASTRONOMICAL JOURNAL. You should receive  
proofs during the period May 7 to May 28.

We shall make every effort to see to it that your paper is  
published promptly and in the scheduled issue. Your co-  
operation in observing the guidelines given on the enclosed  
sheet will help us to do this.

Yours sincerely,

*N. H. Baker*

Norman H. Baker  
Editor

Enclosure

NATIONAL RADIO ASTRONOMY OBSERVATORY  
Edgemont Road, Charlottesville  
Virginia 22901

20 March 1984

The Editors,  
Astronomical Journal,  
Department of Astronomy,  
Columbia University,  
538 West 120th Street,  
New York,  
NY 10027

Gentlemen,

I enclose two copies of the revised manuscript of the article "Sidedness, Field Configuration and Collimation of Extragalactic Radio Jets", by A.H.Bridle.

I have made several changes in response to the referee's comments. Following his first comment, I have added a paragraph to the introductory section describing the criteria for inclusion of a source in the BP jet list, and noting that the list is not statistically complete. I retain the discussions of the effects of the incompleteness in their original places, to maintain the logical sequence of the article. His second comment addressed an issue which I had excised from an earlier draft of the article for brevity. In fact most theoretical jet models treat both the point-by-point sidedness ratios that I use here and the integrated ratios mentioned by the referee. The same practical difficulties affect measurements of both types of ratio. Indeed, measures of the integrated ratios may diverge if the counterjet is not detected. The referee's comment has persuaded me to reinsert a paragraph discussing the issues involved, but I continue to employ the point-by-point ratio for the purpose of sidedness classification. On the referee's fourth point, he and I are actually in complete agreement. I have reworded and expanded the discussion of it (and have referred to a more extensive discussion in another article that is in press) to make it clear that this is the case.

As the discussion is now longer in a few places, I have slightly changed the division of the article into sections. I have also added to and updated the references, and have made a few small changes to the English. I trust that this revised version will be accepted for publication in the Astronomical Journal.

Yours sincerely,

*A.H. Bridle*

Dept. of Physics and Astronomy  
University of New Mexico  
Albuquerque, NM 87801  
505/277-2705  
March 12, 1984


Dr. Alan Bridle  
National Radio Astronomy Observatory  
Edgemont Road  
Charlottesville, VA 22901

Dear Alan:

I was asked to referee your latest paper on jets entitled "Sidedness, Field Configuration...etc". Enclosed is my report for your consideration. As you can see, I think that it is a very good paper and should be published in AJ. My comments are relatively minor and should be viewed just as food for thought for the most part. I would be happy to discuss any of my comments with you in further detail. Just give me a call.

Best wishes to you and Mary.

Sincerely yours,



Jack O. Burns

P.S. This was written with my new IBM PC home computer. How does it look? I also have some software to emulate a tektronics 4012 terminal so that I can run AIPS on the UNM VAX/780 and display relatively high resolution contour maps on the screen. This is all done from my house. I'm having a lot of fun with this new toy!

Referee's Report  
by J.O. Burns

on  
Sidedness, Field Configuration and Collimation of  
Extragalactic Radio Jets  
by A.H. Bridle

This is an excellent paper and I strongly recommend it's publication in the *Astronomical Journal*. The author has extended several of the important correlations on jet parameters previously noted in his earlier reviews using a larger sample which he has meticulously collected. The results on collimation in Section III represent one new and important statistic that must be incorporated into theoretical models. I am pleased to see a much more quantitative approach to the subject of jets which has been lacking in some of the papers which have previously appeared in the literature.

I have only several minor points which I would like the author to consider:

(1) On p. 6, there is the first mention of the fact that the list of 125 jet sources is not in any way statistically complete. This is clearly important as it could lead the reader astray if he/she were not aware that the list does not reflect the statistics of a volume limited sample. My suggestion is that this fact should be noted right at the beginning of the paper in the first paragraph rather than waiting until p. 6. For those that may not have the BP review at their side while reading this paper, it would be useful to take just two or three sentences to remind the reader of the nature of the sample.

(2) With regard to the sidedness issue on p.3, isn't it the ratio of the integrated powers/fluxes of the jet/counterjet that is important for use in most theoretical models. For example, in the relativistic beaming scheme, the entire jet is Doppler boosted/diminished. Therefore, for the straight jets in particular one should use the total jet flux. The ratios will tend to be much higher for the one-sided jets suggesting higher Lorentz  $\gamma$ -factors for the flows. In practice, these numbers are never quoted in the literature. So, shouldn't you at least note this in the paper?

(3) p.7 Burns et al. (1984) paper will be published in the *Ap.J.* in the Aug. 1, 1984 issue.

(4) p12, last paragraph. I agree with the general statement that QSOs have jets much more often than distant radio galaxies. However, I believe that it is not the total flux that is most important in determining whether or not a galaxy will have a jet but rather the core power. For example, in the distant radio galaxy sample of Laing and Owen, the cores are very weak and the jets are essentially nonexistent even though the total source powers are high. On the other hand, in the sample of strong core radio galaxies in Burns et al. (1984), about 50% of the sources have jets. Quasars simply have strong cores more often than radio galaxies, thereby leading to the asymmetry in jet statistics for these powerful sources.

Saikia

27 February 1984

Dr. Alan H. Bridle  
National Radio Astronomy Observatory  
Edgemont Road  
Charlottesville, Virginia 22901

Dear Dr. Bridle:

The manuscript,

SIDEDNESS, FIELD CONFIGURATION AND COLLIMATION OF  
EXTRAGALACTIC RADIO JETS by Alan H. Bridle

has been received and will receive prompt attention.

Enclosed is a copy of the American Astronomical Society's  
"Transfer of Copyright Agreement". This form must be com-  
pleted and received by our office before the manuscript  
can be accepted for publication.

Yours sincerely,

*N. H. Baker*

Norman H. Baker  
Editor

Enclosure