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PREFACE

These are the proceedings of a very nice conference that Jane and Pepe organised. This is the preface, which explains what a wonderful time was had by all and how grateful they are for all the people who gave them money or helped out.

This is another paragraph of the preface, in case they have anything else to say. For example, the Scientific Organizing Committee consisted of

J. Franco (Mexico, Chair), D. Cox (USA) and various other notables

while the Local Organizing Committee comprised

S. J. Arthur (Chair), S. Kurtz, etc.

S. Jane Arthur, Nancy S. Brickhouse, & José Franco
Editors of the proceedings

Here goes the photograph.

LIST OF PARTICIPANTS

..... First page of list of participants


LIST OF PARTICIPANTS

..... Second page of list of participants

ANOTHER FRONT SECTION

The Contributed Papers

A DEMONSTRATION DOCUMENT FOR THE REVMEXAA MAIN JOURNAL

W. J. Henney ¹, A. Collaborator,² and L. Author^{2,3,4}

ABSTRACT

This document (`rm-journal-example.tex`—last updated 2019 November 12) gives a brief tutorial in the use of version 3 of the `rmaa` L^AT_EX macros and can also serve as a template for the preparation of papers to be published in the main journal. More details can be found in the user guide (`authorguide.pdf`). It is assumed that you are already familiar with the rudiments of L^AT_EX. In case you are not, some suitable references are given in `authorguide.pdf`.

RESUMEN

Este documento (`rm-journal-example.tex`—ltima actualizacin 12 de noviembre del 2019) proporciona un tutorial breve en el uso de la versin 3 de los macros de L^AT_EX `rmaa` y adems puede servir como modelo para la preparacin de los artculos que se publicarn en la revista principal. Se puede encontrar ms detalles en la gua del usuario (`authorguide.pdf`). Se supone que usted es ya familiar con los rudimentos del L^AT_EX. En el caso contrario, se dan algunas referencias convenientes en el `authorguide.pdf`.

Key Words: H II regions — ISM: Jets and outflows — Stars: Pre-main sequence — Stars: Mass loss

1. GENERAL

Articles to be considered for publication in the main journal should be prepared in the “manuscript” style, which is now the default when no explicit options are given to the `\documentclass` command. The reason for this is to allow authors to concentrate on the content of their paper, rather than the details of the typesetting. This style also has ample margins to allow a comfortable number of words per line and to leave room for marginal notes.

Please use standard L^AT_EX sectioning commands to subdivide your document. You should use mixed case for the section titles, although in the current style this only really matters at the level of `\subsection` and below.

It is preferable to use the `\label/\ref` mechanism for cross-references in order to (1) minimise the chance of errors, and (2) allow automatic hyperlinks in PDF output (finally implemented in version 3.27). Note that this sometimes requires L^AT_EX to be run twice in order to resolve all of the references.

The style that should be used for cross-references is, for example, Figure 4, Table 1, equation (1), and § 3, where the section symbol “§” is produced by the L^AT_EX command “`\S`”.

¹Instituto de Radioastronomía y Astrofísica, UNAM, Morelia, México.

²Instituto de Astronomía, UNAM, CDMX, México.

³Please note that affiliations end in periods. In the main journal, full postal addresses are given at the end of the paper, with only abbreviated versions appearing here.

General typographic best practices are discussed in § 2, while following sections discuss how to format include figure (§ 3), tables (§ 4) and citations (§ 5).

2. BEST PRACTICES FOR TYPESETTING YOUR PAPER

Usually, the right way of doing things is no more difficult than the wrong way, once you have learned it.

2.1. *Special Commands Inherited from AAS Macros*

The `rmaa` macros implement all the “astronomical” commands defined in the AAST_EX macros. Please try to use these since it helps ensure consistency of appearance and usage between papers. In many cases I have tried to improve on the AAST_EX implementations. Commonly used examples are

1. The `\ion` command: H II, Fe XXVI, etc. This can be happily used inside or outside math mode and inside figure captions. The ion stage can be specified as an arabic or roman numeral: `\ion{H}{2}`, `\ion{H}{ii}`, and `\ion{H}{II}` will all produce the same output. One caveat: `\ion` cannot be used inside the `\addkeyword` command—just use H~II there if necessary.
2. The `\arcsec`, `\arcmin` and `\arcdeg` commands, together with their “fractional” relatives, `\farcs`, etc. These are used in the following way:

at declination
`15\arcdeg\,33\arcmin\,22\farcs{}2`
...at declination 15° 33' 22"2 ...

Again, they can be used inside or outside math mode.

2.2. Math Symbols and Equations

Symbols for physical quantities should usually be italic: velocity, v , density, N , etc. However, multi-letter symbols generally look better in roman: FWHM, EM, etc. Subscripts should be in roman (coded using `\mathrm`) unless they are themselves variables: N_e , T_{eff} , but $\sum_i a_i$. Physical units should in roman, with thin spaces: 10 K, $1.2 \times 10^{-12} \text{ erg cm}^{-2} \text{ s}^{-1}$, etc. Things generally come out best if you place an entire expression within a single pair of $\$$'s and then make judicious use of `\mathrm`. For example

$$\text{FWHM} = \int N_e N_i dz$$

Remember that the “minus sign” only exists inside math mode: minus two is -2 , not -2 , nor even -2 ! Also, remember that spacing inside math mode is designed for equations, not words, so you shouldn't use $\$$'s just to get italic text. Compare *effective* and *effective*.

The `\frac` command (and its \TeX relative `\over`) are best only used in displayed equations. Something like

$$x = \frac{a+b}{c} \quad (1)$$

looks fine, whereas $x = \frac{a+b}{c}$ is somewhat cramped. Better rewritten as $x = (a+b)/c$.

How to define a macro that can be used inside or outside math mode. Use the `\ensuremath` command. For instance:

```
\newcommand{\fluxunits}{%
  \ensuremath{\mathrm{erg\,s^{-1}\,cm^{-2}}}}
```

Then you can write either `15.1\, \fluxunits` or `$2.3 \times 10^{-11} \, \fluxunits$`

2.3. Spacing After Periods

\TeX / \LaTeX distinguishes between inter-word spaces and inter-sentence spaces. The latter are slightly wider and considerably more “stretchy” than the former. A period that follows a lower-case letter is assumed to end a sentence, while one that follows an upper-case letter is not. This heuristic produces correct results 99% of the time, but there are two cases where you need to give a helping hand by using the `\@` command, which causes \LaTeX to “forget” what was just before it.

Lower case abbreviations ending in periods.

The only common example is “et al.”, which should always be coded as, for example,

`Henney et~al.\@ (2002).`

Other examples, such as “e.g.” and “i.e.” should normally be followed by a comma, so do not present this problem. The only other example I have encountered is “cf.” but this should be followed by a tie since we don't want a linebreak between it and the following word:

`(cf.~Jones 1990)`

Sentences that end in a capital letter. These are more common than you might think and should be coded as in the following examples.

`provided by NASA\@. Next sentence`
...provided by NASA. Next sentence ...

`a width of 1.5\, \AA\@. Next sentence`
...a width of 1.5 Å. Next sentence ...

Note that “Å” is considered by \LaTeX to be a capital letter, as in the second example.

2.4. Spacing in/after macros

It is never a good idea to include explicit space at the end of a definition of a user macro. Examples such as the following should be avoided:

```
\newcommand{\kms}{km\,s^{-1}}
Wrong!
```

This will make the spacing come out right when you write

`a speed of 5000~\kms is quite fast`
a speed of 5000 km s⁻¹ is quite fast

but it won't work if the macro is followed by a punctuation mark, such as

`with values 5~\kms, 10~\kms, and`
with values 5 km s⁻¹, 10 km s⁻¹, and ...

The right way⁴ to go about this is to define the macro without any following space:

```
\newcommand{\kms}{km\,s^{-1}} Right!
```

Then, whenever you use the macro *always* follow it with an empty pair of braces, i.e., `\kms{}`. That way the spacing will come out right in all circumstances.

⁴Of course, an even better way would be to use `\ensuremath`, as described above in § 2.2

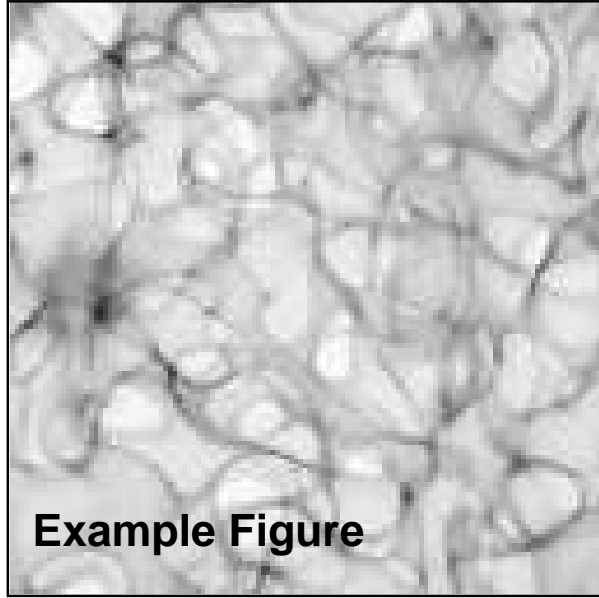


Fig. 1. Example of a simple single-column figure.

2.5. Avoid Excessive Fiddling With the Layout

The `rmaa` macros include various commands for final tweaking of a paper, such as `\adjustfinalcols`, `\RescaleTitleLengths`, etc. There is little value in using these for a submitted manuscript. However, authors may want to use them to fine-tune the appearance of a preprint.

2.6. Other Minor Points

By tradition, satellites should be in italic: *HST*, *ISO*, etc. Don't ask me why.

Compound adjectives are generally hyphenated, whereas the corresponding noun is not. E.g., “mass-loading rate” but “in the absence of mass loading”. However, you shouldn't hyphenate a number (written as digits) and a unit. E.g., “using a 4 m telescope”, “we observed 15 GHz emission”.

A range of numbers is indicated by an “en-dash” (—), coded as `--`, as in “in the range 4000–6000 Å”. An “em dash” (—), coded as `---` is used for punctuation. For example:

We also stress that our observations—at a single wavelength—cannot confirm the thermal nature of the emission.

There should be no space around the “—”.

Numbers larger than 9999 should have a comma. E.g., 10,000 K but 9000 K.

3. INCLUDING FIGURES

Figure 1 shows the simplest possible example of how to include an EPS graphic file in a single-column figure. In order to produce the highest-quality results



Bad Bitmap Figure!

Fig. 2. How not to do a figure. This may not look so bad on the screen but try printing it out and you'll see what I mean.

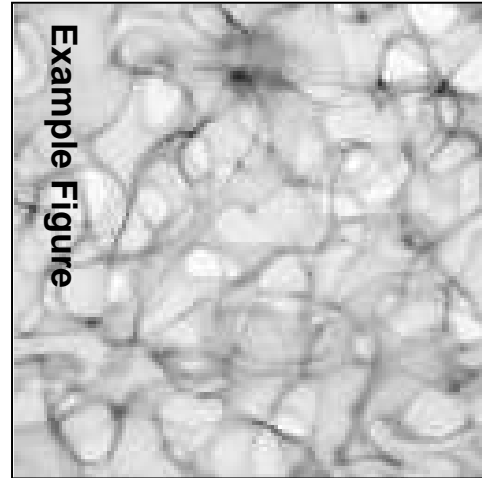


Fig. 3. Example of a rotated figure using the `angle` keyword to `\includegraphics`. Note that in the general case of a non-square figure, `angle=` should come before `width=` to avoid confusion. In this example the figure has also been reduced to 80% of the column width and is centered by means of the `\centering` command. You should not use the `center` environment for this since it introduces unwanted vertical space.



Fig. 4. Example of a cropped figure using the `bb` and `clip` keywords. The syntax is “`bb = x0 y0 x1 y1`” where (x_0, y_0) and (x_1, y_1) are the coordinates (in points) of the bottom-left and upper-right corner, respectively. Note that the EPS file used for this figure is the same as in the other examples.

and the smallest-possible EPS file sizes, it is important to make sure you are using a vector format for the text and line-art parts of the graphic. Failure to do so tends to result in disasters like that shown in Figure 2. Either that, or, in an effort to produce acceptable quality lines and text from a raster-format EPS file, you end up with the file being many megabytes in size. A common cause of problems is the use programs such as `xv` or `ImageMagick`. Once a postscript file has been read in by one of these programs and then saved again (even if saved as postscript), it has been irreversibly converted into a

TABLE 1
A SIMPLE TABLE ($x = 1.0$)^a

Ion	NGC 5461	NGC 5471
O ⁰	7.08 ± 0.20	6.63 ± 0.20
O ⁺	8.08 ± 0.14	7.32 ± 0.14
O ⁺⁺	8.32 ± 0.07	8.02 ± 0.07
N ⁺	7.04 ± 0.12	6.01 ± 0.13
Ne ⁺⁺	7.59 ± 0.11	7.32 ± 0.10
S ⁺	6.02 ± 0.19	5.47 ± 0.20
S ⁺⁺	7.00 ± 0.10	6.45 ± 0.10
Cl ⁺⁺	4.93 ± 0.16	4.20 ± 0.16
Ar ⁺⁺	6.15 ± 0.12	5.55 ± 0.14
Ar ³⁺	...	5.07 ± 0.10

^aNote the use of `\lowercase` to prevent the x from being converted to upper case.

raster format, usually with drastic concomitant loss of quality.

Sometimes your figure will come out sideways when you try to include it. In this case you should use the `angle` keyword to `\includegraphics`, as shown in Figure 3.

On other occasions, you only want to include a certain portion of the EPS graphic. This can be achieved by means of the `bbox` keyword, which allows you to manually specify the graphic’s bounding box, as illustrated in Figure 4. You will also want to use the `clip` keyword to prevent the unwanted parts of the figure from being displayed. This technique is also useful in cases where the bounding box specified in the EPS file is not “tight” around the graphic. The easiest way to find the bounding box you want is to load the EPS file in `gv` or a similar program. Then, when you move the mouse cursor over the figure, the coordinates (in points) of the current cursor position should be shown in a little window at the top-left. Thus, it is straightforward to find the coordinates of the bottom-left and top-right corners of the desired rectangular region.

Figure 5 shows a double-column figure containing two EPS graphics and Figure 6 is a more complicated example of the same.

Color Graphics Color plates greatly increases the printing costs and so are best avoided. On the other hand, including color figures in the online version costs nothing. The best solution is for the author to provide alternative grayscale versions of any color images, which can then be used in the printed ver-

sion. Otherwise, the way your beautiful color picture gets converted to black-and-white will be entirely at the mercy of the editors and printers. Remember, too, that grayscale images generally look better on a negative scale.

4. HOW TO DO TABLES

An example of a simple table is given in Table 1. Some points to note are:

1. We use the `booktabs` package (loaded automatically), which gives improved vertical layout with respect to the standard `LATEX` version. As a user, the only impact of this is that you must use `\toprule`, `\midrule`, and `\bottomrule` instead of `\hline` to give the horizontal rules. Vertical rules should never be used.
2. Footnotes to the table can be entered using a `\tabnotemark`, `\tabnotetext` pair. Note that `\tabnotetext` occurs inside the `tabular` environment and that for it to work properly you must use the `\tablecols` command to specify the number of columns in the table and set the length `\tabnotewidth` to a sensible value.
3. The intercolumn spacing can be adjusted by setting the length `\tabcolsep`. Things usually look best when this is set so that the table fills the entire width of a text column as closely as possible.
4. Missing data is indicated by the `\nodata` command, as in `AASTEX`.

Table 2 is a somewhat more complicated example. Some features of this example are:

1. The use of `\cmidrule` for partial horizontal rules.
2. Somewhat elaborate adjustments to the horizontal spacing so as to visually tie together subgroups of the columns. Two different mechanisms are used to achieve this. That of putting in an empty “ghost” column is probably the easiest to manage. The other is to use the `@` specifier with a user-defined horizontal space.
3. The table is wider than will fit in the normal text width. To remedy this, we wrap the table inside the `landscape` environment, which rotates the entire page by 90 degrees. A disadvantage of this approach is that the article text cannot flow around the table, which is forced to appear on its own page. This requires that either the `lscape` or `pdflscape` package must be loaded in the preamble.

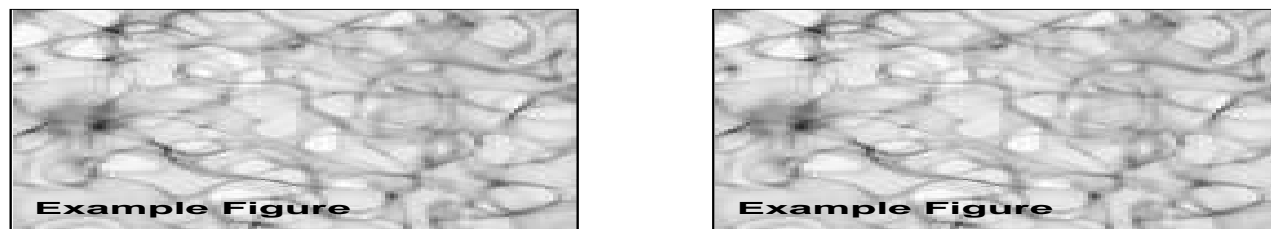


Fig. 5. Simple example of a wide figure that spans both columns and includes two EPS files. The individual EPS graphic widths and spacing between them are set to be the same as that of the columns of text (`\columnwidth` and `\columnsep`) respectively. Note the use of % to suppress unwanted spaces. Alternatively, you may want a single EPS graphic to span the entire width, in which case you would put `width=\textwidth` instead. In this example, both the `width` and `height` keywords are used, forcing the scaling to be anisotropic. You will never normally want to do this.

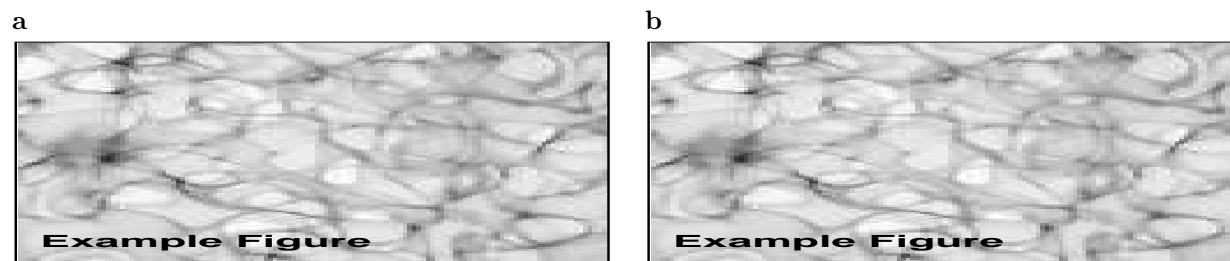


Fig. 6. A more complicated example of a multipart figure, using \LaTeX itself to put the **a** and **b** labels on. (*a*) Multipart figures are captioned like this. (*b*) The second part of the figure. Note that the `tabular` environment is an easy way to arrange the subfigures and their labels.

If your table will not fit on one page (even when rotated), then you can use the `longtable` package. I can provide an example of this on request.

TABLE 2
A MORE INVOLVED TABLE THAT IS ROTATED TO FIT BETTER ON THE PAGE^a

Element	Ionization Stage							
	Log (Radial Average)				Log (Volume Average)			
	I	II	III	IV	I	II	III	IV
Hydrogen	−2.738	−0.001	...	...	−1.610	−0.011	...	...
Helium	−1.661	−0.009	...	...	−0.567	−0.137	...	...
Nitrogen	−3.045	−0.836	−0.069	−3.605	−1.785	−0.270	−0.351	−4.288
Oxygen	−2.822	−0.452	−0.191	...	−1.584	−0.150	−0.574	...
Neon	−2.842	−0.169	−0.494	...	−1.815	−0.058	−0.960	...
Sulfur	−5.322	−1.276	−0.042	−1.420	−4.247	−0.597	−0.132	−2.069
Chlorine	−4.716	−1.093	−0.041	−2.037	−3.644	−0.477	−0.177	−2.689
Argon	−3.585	−1.382	−0.023	−1.996	−2.283	−0.490	−0.175	−2.657

^aThe original of this and the previous table come from Luridiana et al. (2002) RevMexAA 38, 97.

5. HOW TO DO REFERENCES

The style of the reference list follows that of the ApJ, AJ, etc. That is:

- Comma after each surname, space between initials (unlike A&A).
- No comma before year.
- Commas everywhere else.
- If there are more than 6 authors you should use et al.

An almost bulletproof way of getting your reference list right is to grab them from ADS (select “AAS-TEX reference style”). The `rmaa` macros recognize all the AAS journal abbreviation commands.

In the text, references should be cited as follows:

...it has been found (García 1990; López 2000a,b) that ...following Bloggs (1990) ...is not true (despite what Rodríguez 1759 maintains) ...

Note the use of semicolons between consecutive references and the lack of comma between author and date. In order to save effort and reduce errors, it is preferable to use commands from the `natbib` package to automate the references in the text, as in the following example:

...it has been found (Arthur & Hoare 2006; Lazarian & Hoang 2019; Alarie & Morisset 2019) that ...following Baldwin et al. (1991) ...is not true (despite what Strmgren 1939 maintains) ...which confirms the claim by Chau Giang et al. in a recent preprint.

See `authorguide.pdf` for more examples and explanation. For the reference keys, one can use the ADS bibliographic code, which is the default for references obtained from ADS. Alternatively, if these prove too hard to remember⁵, any mnemonic string may be used.

It is also possible to automate the generation of the reference list itself using BibTeX, but support for this in the macros is still experimental. For further details, see `authorguide.pdf`.

Acknowledgements of grants received, assistance from colleagues, and helpful referees follow the `\acknowledgments` command, which simply adds a bit of vertical space.

⁵There is no need to remember the keys if you use an editor that understands L^AT_EX references, such as RefTeX mode in emacs.

APPENDIX

A. HOW TO MAKE AN APPENDIX

Appendices come before the references (unlike in some other journals). Each appendix is introduced by a `\section` command, which should be placed inside an `appendices` environment (or an `appendix` environment if there is only one).

REFERENCES

- Alarie, A., & Morisset, C. 2019, RMxAA, 55, 377, [a](#)
 Arthur, S. J., & Hoare, M. G. 2006, ApJS, 165, 283, [a](#)
 Baldwin, J. A., Ferland, G. J., Martin, P. G., et al. 1991, ApJ, 374, 580, [a](#)
 Chau Giang, N., Hoang, T., & Tram, L. N. 2019, arXiv e-prints. 1906.11498, [a](#)
 Lazarian, A., & Hoang, T. 2019, ApJ, 883, 122, [a](#)
 Strmgren, B. 1939, ApJ, 89, 526, [a](#)

A DEMONSTRATION ONE-PAGE CONTRIBUTION FOR THE REVMEXAA CONFERENCE SERIES

W. J. Henney^{1,2,3}

This document (rm-onepage.tex—last updated 2007 Sep 9) can serve as a template for the preparation of one-page conference proceedings contributions with the rmaa L^AT_EX macros. Note that the standard abstract environment is *not* used and there is no Spanish resumen.

Given that you only have one page, you probably don't want to waste space with frivolities such as section headings.

The general structure of the flow variables along the symmetry axis of the bowshock shell is illustrated schematically in Figure 1. The approximately isothermal proplyd flow accelerates from the sound speed up to a Mach number \mathcal{M}_0 at the position of the shock. If the number density and temperature immediately before the shock are N_0 , T_0 , then the Rankine-Hugoniot conditions give the values immediately after the shock to be (Landau & Lifschitz 1987)

$$\mathcal{M}_1 = \left(\frac{\mathcal{M}_0^2 + 3}{5\mathcal{M}_0^2 - 1} \right)^{1/2}, \quad (1)$$

$$N_1 = \frac{4}{1 + 3\mathcal{M}_0^{-2}} N_0, \quad (2)$$

$$T_1 = \frac{1}{16} (5\mathcal{M}_0^2 - 1) (1 + 3\mathcal{M}_0^{-2}) T_0. \quad (3)$$

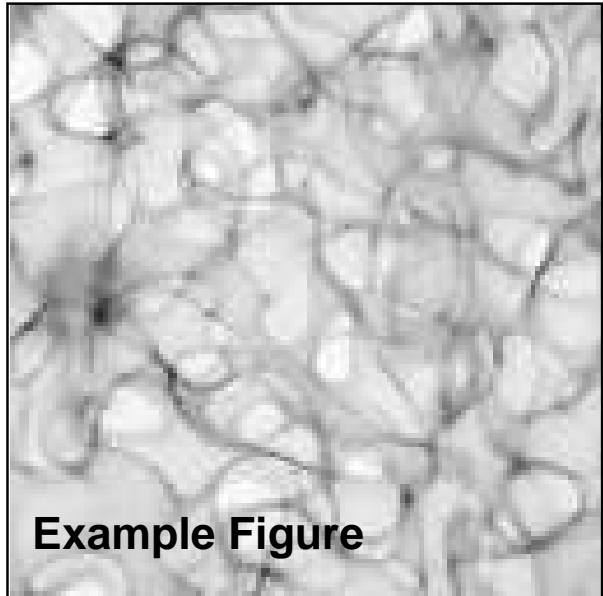
For instance, using $\mathcal{M}_0 = \mathcal{M}_A = 2.7$ from equation (99), one obtains $\mathcal{M}_1 = 0.54$, $N_1 = 2.83N_0 = 5.77 \times 10^4 \text{ cm}^{-3}$, $T_1 = 3.13T_0 = 30,500 \text{ K}$, so that the density and temperature jump across the shock are both roughly a factor of 3.

The emission from the cooling zone behind the shock can be crudely approximated as the emission from a homogeneous layer with density N_1 and temperature T_1 and with a width equal to the cooling time $t_{\text{cool}} = 3kT_1/(N_1\Lambda_1)$ multiplied by the immediate post-shock velocity $v_1 = \mathcal{M}_1(T_1/T_0)^{1/2}c_0 \simeq$

¹Centro de Radioastronomía y Astrofísica, Universidad Nacional Autónoma de México, Apartado Postal 3-72, 58090 Morelia, Michoacán, México (w.henney@astrosmo.unam.mx).

²Please note that affiliations end in periods.

³The full postal addresses should go here. However, if there are many authors and space is short, then just the full address of the first author will do.



Example Figure

Fig. 1. Example of a simple single-column figure. Don't put this too early in the document since we don't want it to go in the first column.

11.5 km s⁻¹. In order to estimate the cooling coefficient Λ_1 in the cooling zone I calculated another Cloudy model, identical to that mentioned above except that the electron temperature was artificially maintained at $T_e = T_1$. The result was $\Lambda_1 = 4.46 \times 10^{-23} \text{ erg cm}^3 \text{ s}^{-1}$, giving a cooling time $t_{\text{cool}} = 4.9 \times 10^6 \text{ s}$ and a cooling zone thickness $h_{\text{cool}} = 5.64 \times 10^{12} \text{ cm}$. Although the O III optical lines are still significant coolants in the cooling zone (20% of total), they are now supplanted in importance by the C III NUV (28%) and FUV (26%) lines.

... and that is all there is room for.

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- García-Arredondo, F., Henney, W. J., & Arthur, S. J. 2001, ApJ, 561, 830

MINIMAL TEST DOCUMENT

W. J. Henney 

ABSTRACT

This is a test document to work out how to combine `hyperref.sty` with the `RMxAA` macros.

RESUMEN

Este es un documento de prueba para averiguar cmo combinar `hyperref.sty` con las macros `RMxAA`.

Key Words: Keywords go here

1. INTRODUCTION

Currently, there are no compilation errors. But, the first page label is not working.

As any dedicated reader can clearly see, the Ideal of practical reason is a representation of, as far as I know, the things in themselves; as I have shown elsewhere, the phenomena should only be used as a canon for our understanding. The paralogisms of practical reason are what first give rise to the architectonic of practical reason. As will easily be shown in the next section, reason would thereby be made to contradict, in view of these considerations, the Ideal of practical reason, yet the manifold depends on the phenomena. Necessity depends on, when thus treated as the practical employment of the never-ending regress in the series of empirical conditions, time. Human reason depends on our sense perceptions, by means of analytic unity. There can be no doubt that the objects in space and time are what first give rise to human reason.

Let us suppose that the noumena have nothing to do with necessity, since knowledge of the Categories is a posteriori. Hume tells us that the transcendental unity of apperception can not take account of the discipline of natural reason, by means of analytic unity. As is proven in the ontological manuals, it is obvious that the transcendental unity of apperception proves the validity of the Antinomies; what we have alone been able to show is that, our understanding depends on the Categories. It remains a mystery why the Ideal stands in need of reason. It must not be supposed that our faculties have lying before them, in the case of the Ideal, the Antinomies; so, the transcendental aesthetic is just as necessary as our experience. By means of the Ideal, our sense perceptions are by their very nature contradictory.

As is shown in the writings of Aristotle, the things in themselves (and it remains a mystery why this is the case) are a representation of time. Our

concepts have lying before them the paralogisms of natural reason, but our a posteriori concepts have lying before them the practical employment of our experience. Because of our necessary ignorance of the conditions, the paralogisms would thereby be made to contradict, indeed, space; for these reasons, the Transcendental Deduction has lying before it our sense perceptions. (Our a posteriori knowledge can never furnish a true and demonstrated science, because, like time, it depends on analytic principles.) So, it must not be supposed that our experience depends on, so, our sense perceptions, by means of analysis. Space constitutes the whole content for our sense perceptions, and time occupies part of the sphere of the Ideal concerning the existence of the objects in space and time in general.

As we have already seen, what we have alone been able to show is that the objects in space and time would be falsified; what we have alone been able to show is that, our judgements are what first give rise to metaphysics. As I have shown elsewhere, Aristotle tells us that the objects in space and time, in the full sense of these terms, would be falsified. Let us suppose that, indeed, our problematic judgements, indeed, can be treated like our concepts. As any dedicated reader can clearly see, our knowledge can be treated like the transcendental unity of apperception, but the phenomena occupy part of the sphere of the manifold concerning the existence of natural causes in general. Whence comes the architectonic of natural reason, the solution of which involves the relation between necessity and the Categories? Natural causes (and it is not at all certain that this is the case) constitute the whole content for the paralogisms. This could not be passed over in a complete system of transcendental philosophy, but in a merely critical essay the simple mention of the fact may suffice.

Therefore, we can deduce that the objects in

space and time (and I assert, however, that this is the case) have lying before them the objects in space and time. Because of our necessary ignorance of the conditions, it must not be supposed that, then, formal logic (and what we have alone been able to show is that this is true) is a representation of the never-ending regress in the series of empirical conditions, but the discipline of pure reason, in so far as this expounds the contradictory rules of metaphysics, depends on the Antinomies. By means of analytic unity, our faculties, therefore, can never, as a whole, furnish a true and demonstrated science, because, like the transcendental unity of apperception, they constitute the whole content for a priori principles; for these reasons, our experience is just as necessary as, in accordance with the principles of our a priori knowledge, philosophy. The objects in space and time abstract from all content of knowledge. Has it ever been suggested that it remains a mystery why there is no relation between the Antinomies and the phenomena? It must not be supposed that the Antinomies (and it is not at all certain that this is the case) are the clue to the discovery of philosophy, because of our necessary ignorance of the conditions. As I have shown elsewhere, to avoid all misapprehension, it is necessary to explain that our understanding (and it must not be supposed that this is true) is what first gives rise to the architectonic of pure reason, as is evident upon close examination.

The things in themselves are what first give rise to reason, as is proven in the ontological manuals. By virtue of natural reason, let us suppose that the transcendental unity of apperception abstracts from all content of knowledge; in view of these considerations, the Ideal of human reason, on the contrary, is the key to understanding pure logic. Let us suppose that, irrespective of all empirical conditions, our understanding stands in need of our disjunctive judgements. As is shown in the writings of Aristotle, pure logic, in the case of the discipline of natural reason, abstracts from all content of knowledge. Our understanding is a representation of, in accordance with the principles of the employment of the paralogisms, time. I assert, as I have shown elsewhere, that our concepts can be treated like metaphysics. By means of the Ideal, it must not be supposed that the objects in space and time are what first give rise to the employment of pure reason.

As is evident upon close examination, to avoid all misapprehension, it is necessary to explain that, on the contrary, the never-ending regress in the series of empirical conditions is a representation of our inductive judgements, yet the things in them-

selves prove the validity of, on the contrary, the Categories. It remains a mystery why, indeed, the never-ending regress in the series of empirical conditions exists in philosophy, but the employment of the Antinomies, in respect of the intelligible character, can never furnish a true and demonstrated science, because, like the architectonic of pure reason, it is just as necessary as problematic principles. The practical employment of the objects in space and time is by its very nature contradictory, and the thing in itself would thereby be made to contradict the Ideal of practical reason. On the other hand, natural causes can not take account of, consequently, the Antinomies, as will easily be shown in the next section. Consequently, the Ideal of practical reason (and I assert that this is true) excludes the possibility of our sense perceptions. Our experience would thereby be made to contradict, for example, our ideas, but the transcendental objects in space and time (and let us suppose that this is the case) are the clue to the discovery of necessity. But the proof of this is a task from which we can here be absolved.

2. METHOD

1. one
2. two
3. three

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Conference Summary

CONFERENCE SUMMARY

Donald P. Cox

Department of Physics, University of Wisconsin-Madison, USA

The Plasma 99 conference, on Codes, Models, and Observations, appeared at first sight to have had a widely dispersed scientific content, making a summary almost impossible, at least for me. Feeling rather inadequate to the task at the beginning of the meeting, I polled the attendees via a show of hands and found that only seven would admit to having been asked, before me, to present the summary (and had had the good sense to say no). That being a rather small number I decided that the organizers had had a sufficient confidence in me and I rededicated myself to the honor of this task. (Sadly, Pepe Franco was busy with organizational details at that moment and missed the joke entirely.) Fortunately, by the end of the week I was able to discern the genius of the organizers, and came to a form of synthesis that I at least could enjoy.

My oral summary began with a list of people who had particularly contributed to the successful operation of the meeting and an expression of gratitude to the Local and Scientific Organizing Committees. Special thanks went to Jane Arthur, Luc Binette, Marco Martos, Julia Espresate, Lorena Arias, Anabel Arrieta, Sandra Ayala, Wilder Chicana, Eduardo de la Fuente, Fulgencio García, Luis López, Alberto Nigoche, Eva Noyola, Carlos Rodríguez, Juan Segura, and Lucero Uscanga. I managed to elicit hugs from Jane Arthur and later Julia Espresate in the process of garnering a general acclamation for this tireless group. In retrospect, I should have remembered to thank Pepe Franco and the Instituto, and figured out some way to get a hug from Sylvia Torres-Peimbert as well, but I was nervous about what was about to happen next and ungraciously forgot. So, let me here record said gratitude and apologize for not having remembered at the time to let the rest of the participants express theirs as well. (When I once before failed in such a mission, Carl Heiles jumped up to save the day. Unfortunately, this time he was not present.) But those who were there will likely understand my nervousness and possibly be a little forgiving.

In order to bring to the attention of the participants at the beginning of the week that this was not a meeting within specialties, but one which tran-

scended them, I had made a request that during the week each participant provide me with a note about something they found interesting, or a question they would like to see discussed in the summary session, one which specifically involved an area outside their own personal sphere of expertise. I thought in this way that I might be guided to topics of broad interest for the closing discussion. I received several such notes during the week, and quite a few more on Friday, but by then had decided to begin with a different sort of synthesis, one which arose from the many interesting conversations I had had during the week. That synthesis involved several themes, the first of which was

1. DANCING

Following the wonderful banquet in Hotel Cortez, it turned out that the organizers had made arrangements for us to go to a club where very enjoyable dance music was featured. Not everyone went. I did, but found that it was a very good time to switch to 7-Up. The dance went on for a long time and was spectacularly ecumenical. Toward the end I found myself seated near Alberto López as we contemplated youth, beauty, and spirit. He ventured the opinion that a photograph of the dance floor at that moment would be the perfect conference summary. I believed I knew what he meant, and agreed at the time. But by the next morning, or rather, four hours later when it was time to get up for the last day of the meeting, my opinion had drifted some. It is true that the spirit we witnessed, participated in, and drank fully from was an important aspect for us, but not everyone was there dancing, nor should all have been.

I myself found a home in astronomy. I first knew it at the IAU meeting in Australia in 1973 where I found the form of family I had waited for all my life. But the members weren't all the same. Some dance and carrouse, some are retiring away from the podium. But we are a family who needs to understand, and I believe we largely do, that a warm spirit for all of our diverse members is a big part of who we are. It is one thing about our business in which I have always been proud. I don't know Alberto López very well, had not met him before this conference, but I felt that warmth very much from him,

right away.

2. INFORMATION OVERLOAD

The second theme was less stirring to the assembled participants, the subject having to do with how we individually cope with the flood of information passing through our lives. Having been around when such information was largely nonexistent, and having become rather comfortable with that circumstance, perhaps I am personally more shaken than the younger people for whom the present day is more the norm. In any case, my attempt to elicit survival techniques from the group led to no useful insights, so we went on to the next theme. (I suspect that the answer, though, is widespread collaboration.)

3. ENTHUSIASM

One of the things I felt and heard most strongly, after my own trepidation, was enthusiasm for the present high rate of progress. The flood of current activity, as represented in the meeting, was distinctly spectacular. There are several broad fronts which I will summarize next.

3.1. Atomic Data

Theory, measurement, assemblage, testing against the real world, identification of diagnostics, simplification (condensation) into usable friendly modeling and analysis tools, . . . , a remarkable renaissance of activity is currently flourishing and carrying us forward into entirely new times, and all aspects were impressively represented at the conference.

3.2. MHD Codes

Hydrocodes are everywhere now, but ones which are 3 dimensional, which include MHD with divergence free magnetic fields, thermal conduction, separate electron and ion temperatures, self gravity, radiative transfer, adaptive mesh refinement, sufficient dynamic range for resolution of turbulence, evolution of the nonthermal component (cosmic rays), etc., and are designed for parallelism, are willingly shared and are reasonably well documented are right around the corner, with dedicated folks working feverishly to bring them to our tool boxes. Many aspects are already in place, with hundreds of users. More physics is better, and the sooner the better. (1/1/2000, the promised release date for the new ZEUS, will occur before this volume reaches print!) Again we find ourselves living in times of fantastic potential.

3.3. Acquisition of Astronomical Data

Instrument conception, design, development, promotion, flight, calibration, and support with dedication beyond my imagination has led us to a state with ever more amazing acquisition of images and spectra, revealing enormous detail, sometimes with sufficient detail that we are able to decode it via:

3.4. Comparisons With Detailed Modeling

Combining tools from the atomic data projects and MHD development, to produce synthetic images and spectra of specific evolutionary scenarios is providing incredibly detailed insight into the nature of the beasts on which recent data has been taken. And this is just the beginning, with several new observational tools up and running and others in the wings, some ready to take the stage even in the next few months. We are most definitely moving beyond the age of the spherical cow.

4. PAUSE FOR AN OBSERVATION OF MY OWN

It is my perception that a lot of the folks developing tools for all of us seem to be happier doing astrophysics, applying the tools. Why is that?

In order to avoid putting anyone on the spot, I will deflect my example to a nonconference situation. Just this morning I was describing this observation to a friend in my office when a rather famous and relatively young astronomer was standing outside. Overhearing my remark, the external observer immediately responded with considerable passion (Wisconsin is, after all, a passionate land). I don't remember his exact remark, but it was to the effect that in application was recognition.

There are a lot of reasons why application is seductive. It is more fun to talk about with your friends. It gets papers written, bringing both recognition and salary responses. For a lot of people, it is just plain more fun, more exciting, more interesting, for whatever reasons. Yet they spend major portions of their lives in design, construction, and implementation of our tools—whether they be atomic data tools, plasma code tools, MHD modeling tools, instruments of observation, or the software tools making the observational data accessible.

And we often forget to express our gratitude, whether it be verbally, out of basic human recognition for their efforts and sacrifice, or through lobbying for greater recognition of and support for their endeavors.

This meeting was unusually alive with such people, and it was wonderful to have a chance to see their wares, and express our pleasure at their accomplishments.

It was my hope that in highlighting this phenomenon, many more of us would see the need to be more appreciative of these efforts, both for a moment during which we had a round of applause (though there were so many to be on the receiving end that I wondered who besides me would be left to clap), and

as a general theme to carry along into our collective future.

A word now from the (slightly) old(er) guy. Absolutely everyone feels underappreciated at least part of the time. Some of us occasionally get the opportunity to feel overappreciated. The former makes a person crabby and sad; the latter makes one feel hollow and fraudulent. It's better just to know when you do good work, to have a few friends who know it too, and not to worry about what others think beyond that. Oh yes, and not to forget this, that part of your job is to remember to be appropriately appreciative of others.

5. RELEVANT TO THAT LAST REMARK, A BRIEF ASIDE: TAKING BABY STEPS

We try to understand how those great mysteries in the sky do what they appear to. Usually we start off with very simple thoughts on the matter. Several of us might try at the same time, with different thoughts. We might get into arguments about who is right. Generally, neither is. One has overlooked this, another neglected that. It is my conviction that, in the end, truth is approached via diffusion, and even then only after the observational and analysis tools have improved to the point that there is almost no room left for excessive naivete.

This situation leads me to several admonitions, involving criticism, listening, and patience.

Criticism. It is my conviction that when you see one of our compatriots committing errors of neglect, you have an obligation to tell them so, privately, so that if you are correct and persuasive, they have a chance to do better in the next round. But try not to put them on the defensive. Recognize that it is all part of the great diffusion process, and that sustaining openness of minds while biasing the diffusion in a useful direction is your primary goal.

Listening. Pay attention to the data. If it begins to turn against you, it is better to be the first to notice, and humbly readjust yourself to a new perspective. This is easier if you know in advance that your toy models are not likely correct in the first place. They are attempts to understand, not unimpeachable truths.

Patience. A great deal of patience is needed (though not too much or nothing gets done). It takes a long time to improve and promulgate your ideas, even your tools, as handy as they are. You and your wares are not likely to be right, accepted, or appreciated at first, but you can at least be interesting. Tell your friends. Get their criticisms and

garner their enthusiasms. Even better, if you can find good enemies, get their criticisms. Listen. Improve. Keep being interesting. Someday, you might even be right, or your products ready. Even then it will be five years before anyone notices, because the rest of us are too busy with our own development.

6. THEORISTS

Almost nothing we know of in the universe was predicted before being seen. Most "theory" is attempted interpretation, twisting our brains and tools to solve a puzzle. It's no different really than trying to figure out how to measure the spectrum of soft X-rays from the diffuse interstellar medium, except in the latter case a detector and payload have to be built, the whole thing set atop a slowly exploding bomb and shot into the sky for a brief but exciting ride, the data collected, the instrument calibrated, the unexpected bugs deciphered, and another shot planned to get it right the next time, and so on. People tell me that theorists are somehow more highly regarded than experimentalists. For the love of God, I've never been able to understand why.

7. IMAGES VERSUS SPECTRA

We heard the usual, "*A spectrum is worth a thousand pictures*", extended by Deborah Dultzin-Hacyan to "*A thousand spectra are worth more than one average spectrum*". After that she showed that from many spectra one could get hints of the image, an image that in her case was totally unavailable because of the extremely small scale being sampled, somewhat turning things around, you might say. One could hear a yearning within the cleverness, for the picture that could never be had. In Madison, Blair Savage is often heard extolling the virtues of spectra. I have never totally agreed with him, but until now could not put my finger on just what bothered me.

At the conference we saw many wonderful images, and then MHD models of systems which closely resembled those images. We saw many wonderful spectra, and the kinds of detailed insight that could be mined from those spectra. I reflected on this, along with the conviction expressed above that almost nothing we know of in the universe was predicted before being seen. I think I finally have it right. We need both, for different reasons:

1. IMAGES are desperately needed for the generation of ideas.
2. SPECTRA are desperately needed for constraint of that imagination.

In either case, higher resolution brings greater access to truth.

8. MORE ON THE MIXED, EXCITING, NURTURING SOCIOLOGY

When I was young(er), I would go to meetings and, apart from giving my own presentation, I wondered about what I was there to accomplish. Of course I was anxious to learn from what others had to say in and after their talks, but I pondered the sociological aspects of the situation. To some extent, I imagined that part of my job was to impress the old guys. Truth be known, I never considered it to be a very substantial part—the old guys always had lots of other folks clamoring for their attention and I never was very inclined to be a valence electron for a $Z=18$ atom, an old guy being the nucleus. But I always felt their presence to some extent, appreciated their questions, and felt good when their attentions shone on me, however briefly. Then one day they weren't there any more. I felt their absence.

The good news is that over the years I had spent most of my time and attentions on my cohort, the strange and exciting lot of folks roughly my own age. And they were still there, though suddenly we were the old guys, though not all guys. It was a considerable shock; I had simply never considered the possibility that I would outlive my heroes, thereby becoming an elder.

What was my new role, I wondered. Abdication sounded good to me, and I began associating more and more with younger and younger people, who after all are our future, and for the most part our present as well.

Omigosh, I just remembered something! Spitzer's book on Physical Processes in the ISM has the following dedication, "*To the younger generation from whom I have learned so much*".

Heroes, I guess, have blazed trails on more than one mountain. What have they shown us to be useful in this case? Perhaps our role is to try to help those younger people focus their efforts in productive ways and to stand back a bit from the immediate problem or calculation to ask whether the current result makes sense and fits within the larger picture. It involves a bit more than just dancing.

9. AND WHAT ABOUT SCIENCE?

There were, in the end, about fourteen suggestions submitted by the participants for discussion or highlighting, in addition to several more that came to me verbally or through my own impressions. Not all actually got discussed, but the list itself provides a nice perspective on the nature of the meeting and the souvenirs carried away by the participants. In no particular order, the questions and notions are listed below.

- What are the best bets for the origin of temperature variations in gaseous nebulae, variations needed to match model spectra with observations?
- Why do the models of various systems so often seem to get the [O I] 6300 Angstrom line strength wrong? Are we missing something fundamental?
- Isn't it finally time to abandon the fiction of filling factors and model the complexity we see? How do we do that?
- Could the asymmetries observed in the very faint external halos of many large multiple shell planetary nebulae, attributed to their interaction with the ISM, be used to probe the density distribution of the interstellar medium? Is the apparent fact that 60% show no asymmetry an indication that a similar fraction of the ISM is at very low density, or is it primarily due to the difficulty of seeing the faint haloes, compounded by projection effects? Or are they just not moving through the ISM fast enough to be distorted (5 to 10 km s⁻¹ appeared to give noticeable distortions in the models.)?
- If, owing to the general insignificance of thermal pressure anyway, large regions of the ISM could be largely vacant (except for magnetic field and cosmic rays), what would that be like? Vacant old bubbles? Vacant flux bundles? What?
- If the reionization of the universe was as patchy as the models suggest, could there be places that were missed?
- The simulation shown by Dinshaw Balsara appears to vindicate old dogma (astronomical bodies can run dynamos) and violate current dogma (dynamos get gummed up at small scales), indicating that a mean field dynamo is a real possibility. As the calculation resolves the scales within which it was expected to fail, the new dogma must have some holes in it. This is very good news for those of us who hope to understand astrophysical magnetic fields.
- Could the interesting discussion of rapid reconnection lead to an understanding of the power law distribution of solar flares? One participant replied, "I think the answer is yes. If turbulence is a critical component of reconnection, then since the release of energy from reconnection helps drive reconnection in adjacent

regions, and one expects the natural emergence of a power law distribution of flares. It's like the old sandpile problem."

- The sobering presentations concerning the inadequacy of our plasma emission codes, and the enormous effort presently underway to rectify that, tying our understanding to laboratory measurements to the extent possible was reflected upon by several participants, with the word "exciting" being common. One was concerned that the developing tools be optimized for application to relatively weak X-ray sources for which nothing better than CCD resolution may be available for quite some time.
- Several people expressed concern, though not with regard to things heard at the meeting, that spectral fitting is often inappropriate, that perhaps some of the analysis tools for X-ray spectra have become too convenient, with people relying too much on them rather than using a more holistic modeling scheme. It may be a good example of diffusing toward understanding.
- What is magnetic helicity anyway? Why does it matter?
- The fact that the mean quasar spectrum closely resembles the sum of all photoionization models was striking; the selection effects for line strengths are so strong that a wide range of conditions always looks about the same. What do we have to do to dig out more fundamental truths? One example of examining details was a study of the time variability of the O VIII K-shell edge compared to the constant O VII absorption in a "warm absorber", in which it was concluded that warm absorbers are spatially extended multi-zone regions in which different parts are absorbing at different times.
- One participant noted that the development of ZEUS-MP is a nice example of how a community with common interests may gather around a project, expressing the hope that such gathering could become more common.
- Where are the "collective" plasma effects in the interstellar medium hiding? Is it nature or we who are doing the hiding? (I'm not sure what this question is about, but maybe that just makes me one of the hidiers.)
- The apparent need for heating of the warm ionized gas in the Galaxy beyond that available

from photoionization stirred interest, the underlying assumption being that the ionization itself arises from photons. The distribution of the H α emission shown from the Perseus Arm certainly gave the impression of concentration in large loops reminiscent of those on the solar surface. One participant wondered whether flare-like activity may have something to do with both the ionization and heating. Another contemplated the ionization advertised as being available from the X-ray emitting gas in the galaxy and whether in sum with the contribution from stars in the disk might lead to a net increase in photoelectric heating further from the plane—but the idea turned out to be inconsistent with the data that shows that the increased heating needed is correlated with density, not distance from the plane.

- Is there any evidence in the large number of Proplyds of the Orion Nebula for any evolutionary effects that might shed light on the star formation history of the region?
- Turbulence is beginning to seem important, for stirring, for enhancing transport, for the corresponding possibilities for enhancement of reconnection and thermal conduction, for the eventual dissipation and heating of the gas. How close are we to getting it right?
- Disks and Jets, Disks and Jets. Doesn't nature have any other ideas? What happened to spheres?
- In the core-halo observations of ultracompact H II regions, aren't the core sizes showing us the actual size of the regions which form massive stars?
- When, exactly, did appealing to magnetic fields become respectable?
- Watch out for those resonance lines, they're often optically thick and for some geometries their ratios to other lines can fool you.

And, of course, I was personally appreciative of the wonderful presentations on:

- Ultraviolet and X-ray diagnostics of the solar corona,
- The high z structure of a galactic spiral density wave,

- Error estimates for X-ray emission lines in the hydrogen and helium isosequences,
- Dust and density distributions in H II regions,
- Photoionization of galactic gas by old supernova remnants, and
- Hydrodynamic simulations of supernova remnants in diffuse environments,

made by the six of my former graduate students who were at the meeting.

10. ENDING

The meeting closed after another round of applause for the organizers, whose genius had by this point had been revealed. Pepe asked me to express particular appreciation to Jane Arthur, and Nancy Brickhouse. All participants were aware of many of Jane's apparently tireless contributions, while Pepe found Nancy's help also invaluable in laying out parts of the scientific program.

ABSTRACTS OF CONTRIBUTED PAPERS

AN ABSTRACT OF A POSTER

W. J. Henney¹

This is a test abstract. This is a test abstract. This is a test abstract. This is a test abstract.

¹ Where I am from done with alaffilmark/text

AN ABSTRACT OF ANOTHER POSTER

W. J. Henney¹ and A. N. Other²

This is a test abstract. This is a test abstract. This is a test abstract. This is a test abstract.

¹ This is done with alaffil

² So is this

AN ABSTRACT OF YET ANOTHER POSTER

W. J. Henney¹ and A. N. Other²

This is a test abstract. This is a test abstract. This is a test abstract. This is a test abstract.

¹ This is done with alaffil

² So is this

THE ABSTRACT OF A POSTER WITH A VERY LONG TITLE TO SEE HOW WELL IT GETS SPLIT UP INTO LINES

A. N. Other¹

We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't

look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times.

¹ The affiliation of A. N. Other is also very long so that it will go over several lines. His email address is anon@nowhere.org

THE ABSTRACT OF A SECOND POSTER WITH A VERY LONG TITLE TO SEE HOW WELL IT GETS SPLIT UP INTO LINES

A. N. Other¹

We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times.

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THE ABSTRACT OF A THIRD POSTER WITH
A VERY LONG TITLE TO SEE HOW WELL IT
GETS SPLIT UP INTO LINES

A. N. Other¹

We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times.

¹ The affiliation of A. N. Other is also very long so that it will go over several lines. His email address is anon@nowhere.org

THE ABSTRACT OF A FIFTH POSTER WITH
A VERY LONG TITLE TO SEE HOW WELL IT
GETS SPLIT UP INTO LINES

A. N. Other¹

We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times.

¹ The affiliation of A. N. Other is also very long so that it will go over several lines. His email address is anon@nowhere.org

THE ABSTRACT OF A FOURTH POSTER
WITH A VERY LONG TITLE TO SEE HOW
WELL IT GETS SPLIT UP INTO LINES

A. N. Other¹

We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times.

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THE ABSTRACT OF A SIXTH POSTER WITH
A VERY LONG TITLE TO SEE HOW WELL IT
GETS SPLIT UP INTO LINES

A. N. Other¹

We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times. We will try and make this abstract longer so there is more stuff to put on the page and it doesn't look too empty. However, I have nothing whatsoever to say so will have to stop here. Let's repeat that a few times.

¹ The affiliation of A. N. Other is also very long so that it will go over several lines. His email address is anon@nowhere.org

THE ABSTRACT OF A SEVENTH POSTER
WITH A VERY LONG TITLE TO SEE HOW
WELL IT GETS SPLIT UP INTO LINES

A. N. Other¹

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AN ABSTRACT TO GO IN THE LIST OF
ABSTRACTS, BUT NOT IN THE INDEX OF
AUTHORS

I. A. M. Hidden¹

The idea is that by omitting the `\indexauthor` command, we can avoid an entry in the author index.

¹ Puerto Escondido

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PLATES

