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How to Write a JKAS Paper†

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Abstract: This example document illustrates the typesetting of articles for the Journal of the Korean Astronomical Society (JKAS). Papers are written in LaTeX2e using the `jkas` class. This document summarizes the key steps and features of the JKAS style; likewise, its source code serves as an example for a practical JKAS paper. Questions, comments, and bug reports regarding the JKAS style should be addressed to the editorial office; please see `http://jkas.kas.org` for contact data.

Key words: journals: individual: JKAS

1. Introduction

JKAS articles are typeset in LaTeX2e. In order to get started, two files are required:

- `jkas.cls`, the class file which provides the necessary global definitions, and
- `template.tex`, the template which provides the basic structure necessary for a paper.

In order to write a paper, authors should place both files into the same directory and edit[1] `template.tex` starting from the top of the file. Actually, `template.tex` is designed as a minimum working example (MWE); it should compile right away without modifications. *Never* edit the class file!

The JKAS class file makes use of several external LaTeX packages which are loaded via the `usepackage` command. All of these packages have been freely available for years and are part of all standard LaTeX distributions. Nevertheless, it may happen that some very old or very slim distributions require manual installation of a missing package. Especially, when using implementations that load packages on the fly from the Internet (like, e.g., MiKTeX) it is usually necessary to either run an update first or to compile the source file while being connected to the Internet.

This document provides an overview over the key features of the JKAS style, with an emphasis on those features that deviate from standard LaTeX2e conventions; its source code serves as an example for typesetting a practical JKAS paper. For more general information on LaTeX we refer to the user guide provided by the LaTeX project team[2] and references therein.

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†This document deals with the technical aspects of writing a JKAS paper, *not* with editorial policy or scientific questions.
‡The actual author of this document; additional dummy authors have been added for illustration purposes only.
[1]Actually, the source file should be given a unique name.
[2]`http://latex-project.org/guides/usrguide.pdf`

2. Providing Global Information

When going through the template file, authors should provide, in this order,

1. article title;
2. author name(s);
3. affiliations;
4. name of corresponding author;
5. running author name(s);
6. running title;
7. key words;
8. abstract.

Please provide these at the places indicated in the template file.

Additional data, like journal page numbers, dates of submission and acceptance, and others can be inserted at the top of the template file. This will be taken care of by the editorial office – authors do *not* need to do anything here.

3. Formatting

JKAS papers use standard LaTeX2e syntax and formatting in general. However, in a few cases we introduced modifications that are not obvious and require brief explanations.

3.1. Equations

In general, equations are set via the usual `equation` environment like

$$E = m\gamma c^2 \quad \text{with} \quad \gamma = \left(1 - \frac{v^2}{c^2}\right)^{-1/2} \tag{1}$$

In some cases, equations are too long for a single line; in those cases, one can split the equation over several

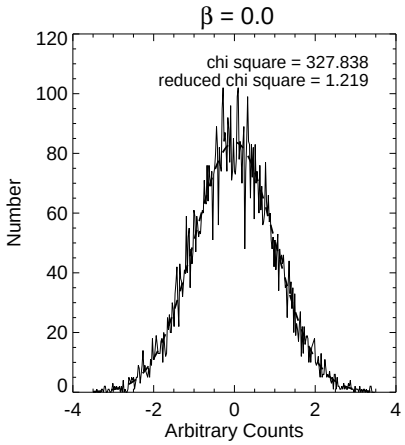

Figure 1. An example figure (Park & Trippe 2012).

lines via the `eqnarray` environment like this:

$$\begin{aligned}
\mathbf{a}_r^{i,\mathrm{gas}} &= -\sum_{j=1}^{N_n} m_r^j \left[f_i \left(\frac{P_r^i}{{\varrho_r^i}^2} \right) \nabla_r^i W_r^{ij}(h_r^i) \right. \\
&\quad \left. + f_j \left(\frac{P_r^j}{{\varrho_r^j}^2} \right) \nabla_r^j W_r^{ij}(h_r^j) \right] \\
&= -\frac{1+z}{\ell_b} A_s^i {\varrho_s^i}^{\gamma-2} \sum_{j=1}^{N_n} m_s^j \times \\
&\quad \left[f_i \nabla_s^i W_s^{ij}(h_s^i) \right. \\
&\quad \left. + f_j \left(\frac{A_s^j}{A_s^i} \frac{{\varrho_s^j}^{\gamma-2}}{{\varrho_s^i}^{\gamma-2}} \right) \nabla_s^j W_s^{ij}(h_s^j) \right]. \qquad (2)
\end{aligned}$$

In addition to the case demonstrated by Equation (2), equation arrays are also convenient for expressions like this:

$$\begin{aligned}
I &= \langle E_x^2 \rangle + \langle E_y^2 \rangle \qquad (3) \\
Q &= \langle E_x^2 \rangle - \langle E_y^2 \rangle \qquad (4) \\
U &= 2 \langle E_x E_y \cos\delta \rangle \\
V &= 2 \langle E_x E_y \sin\delta \rangle \qquad (5)
\end{aligned}$$

This last example also demonstrates how equation numbers in a line can be suppressed by placing a `nonumber` command at the end of the line to be affected.

3.2. Authors and Affiliations

Authors and affiliations are formatted via the `authblk` package. Author names are set by one `author` command *per author*, affiliations are given by one `affil` command *per affiliation*. Author names and affiliations are linked by labels (1, 2, 3, ...) which are set manually. In case of *a single affiliation for all authors*, it is sufficient to use a single `author` for all authors and a single `affil` for their common affiliation; labels are not required in this case.

Table 1
A simple example table

Model	Theory	Observation
A1	1.23	1.322
A2	2.75	2.913
A3[a]	6.55	6.766
B1	19.45	18.978
B2[b]	7.88	7.443

Notes, like this one, can be added below the table via the `tabnote` command. Extra space between lines in a table can be introduced via `addlinespace`. Note that captions are placed *below* figures but *above* tables.
[a] In addition, footnotes can be set like this ...
[b] ... and this.

3.3. Sectioning

3.3.1. General

A paper should be structured into sections and, as far as necessary, into subsections following the usual conventions of scientific writing. Sectioning is achieved via the usual `section`, `subsection`, and `subsubsection` commands, respectively.

3.3.2. Capitalization

All (sub)section titles should be written with the first letter of each word being capitalized, except for articles, prepositions, and conjunctions. Else than in previous versions of the JKAS style, article and section titles are not CAPITALIZED any more – instead, they are now set in Small Caps.

3.4. Figures

The JKAS class file loads the `graphicx` package by default. Accordingly, figures should be set with the `includegraphics` command within the `figure` (or `figure*` for two-column figures) environment. Please see Figure 1 for a simple single-column figure, Figure 2 for a wide double-column figure, and Figure 3 for a figure placed in an appendix.

3.5. Tables

Tables are constructed via the usual `table` (or `table*` for two-column tables) and `tabular` environments. In order to produce high-quality tables, JKAS uses the `booktabs` package which modifies the syntax for horizontal lines in tables (these are set with `toprule`, `midrule`, and `bottomrule`, respectively) and provides various additional options for "fine-tuning" the look of a table. In addition, the JKAS class provides the `tabnote` command for notes below the table. Please see Table 1 for a simple single-column table, Table 2 for a wide double-column table, and Table 3 (placed after the list of references) for a large table rotated by 90° using the `landscape` and `endlandscape` commands before and after the `table` environment, respectively. *Please note: many DVI viewers are not able to display rotated tables. In order to see correctly formatted output, you need to convert the DVI file into a PDF file (e.g., with* `dvipdfmx`*) and look at the PDF.*

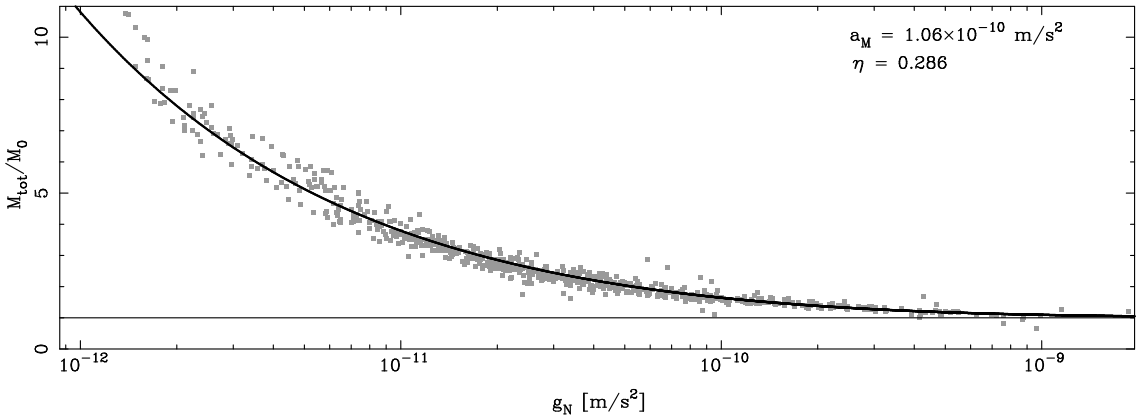

Figure 2. An wide figure spanning over two columns, from Trippe (2013).

Table 2
Another example table, this one spanning over two columns

β	0.0	0.25	0.5	0.75	1.0	1.25	1.5	1.75	2.0
RUN A:									
mean	0.003	0.003	0.003	0.005	0.015	0.036	0.055	0.061	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.261	1.335	1.250	1.085	1.272	1.635	1.774	1.628	1.302
RUN B:									
mean	0.004	0.005	0.005	0.005	0.003	0.002	0.002	0.000	−0.004
deviation from 0 ($\sigma_{\overline{x}}$)	1.597	1.996	1.863	1.300	0.425	0.173	0.128	0.000	0.189

3.6. Labels

We strongly encourage authors to cross-reference their document by using the `label` command in (sub)section titles, figures, tables, and equations. This provides an easy and robust way to make statements like "please see Section 3.5" or "cf. Table 1". Most importantly, this guarantees consistency of cross-references even after major re-organizations of the manuscript. Please note the JKAS convention for cross-references: figures are referred to as "Figure 1", tables as "Table 1", equations as "Equation (1)", and (sub)sections as "Section 3.6", respectively.

3.7. List of References

References are set in `natbib` style. Each reference should comprise, in this order: author name(s), year of publication, title of publication, journal acronym, volume number, and page number (or article number). For books, the city and the name of the publisher should be given instead of journal, volume, and page. For illustration, we provide a list of references at the end of this document; these references are taken from Park & Trippe (2012).

3.8. Balancing Columns on the Last Page

A balancing of the columns on the last page of a paper can be enforced by loading the `flushend` package. This should be done with care however because `flushend` tends to cause problems with footnotes located on the last page and with line spacings. Accordingly, we provide the package in the header of the template file but leave it switched off – i.e., commented out – by default. In the present document, `flushend` is deactivated in order to avoid unwanted interactions with Table 3.

4. CONCLUSIONS

The new JKAS style has been determined by the JKAS Editorial Board in 2014 in a way to keep the JKAS tradition as much as possible. This sample LaTeX file is made by one of the Board members, Professor Sascha Trippe, and is provided to JKAS authors for the purpose of showing the standard JKAS style. Authors are requested to refer to this sample file for their preparation of papers.

ACKNOWLEDGMENTS

We are grateful to all past and current JKAS authors for their trust and their support.

APPENDIX A. DISCLAIMER

The class and template files provided by JKAS have been checked thoroughly. Nevertheless, we can never exclude bugs; bug reports are very much appreciated. The class and template files, as well as this manual, may be modified without notice. The works cited in the list of references are examples only and are otherwise unrelated to this document or to JKAS.

APPENDIX B. PREPRINTS

We strongly encourage authors to post their papers on preprint servers like arXiv. In some cases it has been

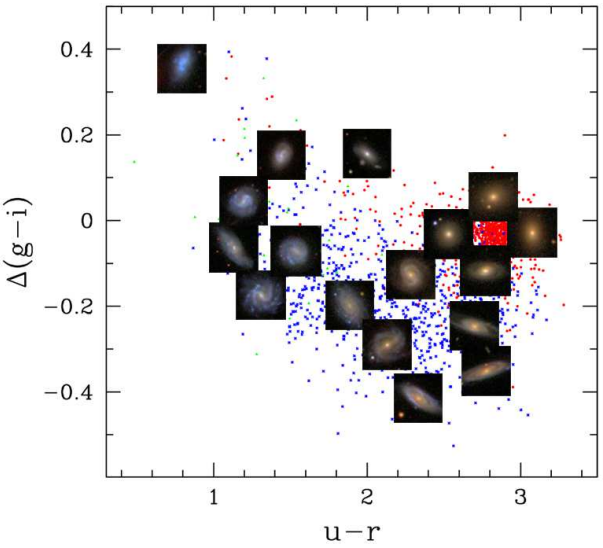

Figure 3. Galaxies in the $u-r$ color and $g-i$ color gradient space (Park & Choi 2005). A figure placed in the appendix.

observed that the presence of the KAS copyright statement in `jkas.cls` led to rejection of a paper because of a suspected copyright violation. In order to prevent any trouble, we can provide a modified class file named `xjkas.cls` which is identical to `jkas.cls` except that the copyright statement has been removed. In order to create a "preprint-friendly" version of your paper,

1. place `xjkas.cls` in the same directory as `jkas.cls`;
2. change the `documentclass` of your source file from `jkas` to `xjkas`.

Appendix C. Bonus Features

Customized definitions or calls for additional packages can be placed at the beginning of the LaTeX source file. For illustration, we provide a user-defined `ion` command as a handy tool for writing ions like H II or C IV.

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Table 3
A large table rotated by 90° using `landscape` and `endlandscape` before and after the `table` environment, respectively.

β	0.0	0.25	0.5	0.75	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Run A:															
mean	0.003	0.003	0.003	0.005	0.015	0.036	0.055	0.061	0.055	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.261	1.335	1.250	1.085	1.272	1.635	1.774	1.628	1.302	0.005	0.015	0.036	0.055	0.036	0.055
Run B:															
mean	0.004	0.005	0.005	0.005	0.003	0.002	0.002	0.000	−0.004	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.597	1.996	1.863	1.300	0.425	0.173	0.128	0.000	0.189	0.005	0.015	0.036	0.055	0.036	0.055
Run C:															
mean	0.003	0.003	0.003	0.005	0.015	0.036	0.055	0.061	0.055	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.261	1.335	1.250	1.085	1.272	1.635	1.774	1.628	1.302	0.005	0.015	0.036	0.055	0.036	0.055
Run D:															
mean	0.004	0.005	0.005	0.005	0.003	0.002	0.002	0.000	−0.004	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.597	1.996	1.863	1.300	0.425	0.173	0.128	0.000	0.189	0.005	0.015	0.036	0.055	0.036	0.055
Run E:															
mean	0.003	0.003	0.003	0.005	0.015	0.036	0.055	0.061	0.055	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.261	1.335	1.250	1.085	1.272	1.635	1.774	1.628	1.302	0.005	0.015	0.036	0.055	0.036	0.055
Run F:															
mean	0.004	0.005	0.005	0.005	0.003	0.002	0.002	0.000	−0.004	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.597	1.996	1.863	1.300	0.425	0.173	0.128	0.000	0.189	0.005	0.015	0.036	0.055	0.036	0.055
Run G:															
mean	0.003	0.003	0.003	0.005	0.015	0.036	0.055	0.061	0.055	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.261	1.335	1.250	1.085	1.272	1.635	1.774	1.628	1.302	0.005	0.015	0.036	0.055	0.036	0.055
Run H:															
mean	0.004	0.005	0.005	0.005	0.003	0.002	0.002	0.000	−0.004	0.005	0.015	0.036	0.055	0.036	0.055
deviation from 0 ($\sigma_{\overline{x}}$)	1.597	1.996	1.863	1.300	0.425	0.173	0.128	0.000	0.189	0.005	0.015	0.036	0.055	0.036	0.055

Of course, `tabnote`s can also be placed below large and rotated tables.