ARC Geophysical Research

Paper Title

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[1]First Affiliation
[2]Second Affiliation

Abstract

To be clear, this example document is not intended as a tutorial on how to write a scientific paper. This document is an example of how to properly format an ARC Alliance journal manuscript. Entries that are made by journal staff and authors, repsectively, are clearly marked in the template. Authors should not change margins, fonts, bibliographic style etc that are defined to ensure a consistent layout for all journal articles. Other packages needed for optimal presentation of the authors' work are permitted, including personally written style files that do not clash with the standard example template. Those familiar with the LaTeX documentclass `article` should find this template straightforward to use. Those unfamiliar with LaTeX will be able to more easily come up the learning curve because of the standard class and package approach used with this template. Many good resources exist online for those entering the TeX world [e.g. 1].

Keywords: Keyword one, Keyword two, Keyword three

1 Introduction

Because ARC Alliance journals are Diamond Open Access there exists a desire to produce uniform professionally typeset documents indicative of a fine journal but without an expensive production process. This template is designed to enable authors to produce a near final form of such a document, while requiring only minimal touch by production staff—for example to add paper identifiers for archiving, indexing, and distribution purposes. LaTeX is a mature, open-source standard for publishing that can produce beautiful output. Because of its open-source nature, a vast community of contributors has developed packages and posted them on

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public repositories such as `CTAN`. This vast, and growing, number of packages enables relatively straightforward typeset quality production of sophisticated mathematics and graphic laden manuscripts.

The purpose of this brief example is to illustrate example components of an ARC Alliance Geophysical Research manuscript. Many of the elements of such a manuscript follow standard conventions from documentclass `article`. To produce a modern look and feature-rich document several packages have been combined with this basic class to produce the desired design and functionality. While documentation is available for all of these add-on packages, the more subtle aspects of the template may never need to be understood by some users and details for the packages used are available on line for the curious. A summary of main aspects of the template follows.

2   Sections and Such

Sections, subsections, and subsubsections follow the standard LaTeX usage style and are the main elements used to organize a manuscript. These constructs are numbered and are typically used for common components of a manuscript, such as the introduction, background, methods, results, discussion, and conclusions. Of course, no rigid style is appropriate for all manuscripts, so deviations from these sections occurs. Subdivisions within each section will vary as well. It is common to add labels to sections to facilitate back references to specific material within a manuscript. Avoid organizations that include only a single level of construct. For example, if subsections are created within a section then their should be more than one subsection.

3   Floats

Floats refer collectively to figures and tables. LaTeX add on packages provide full support for publication quality graphics. Automatic referencing of figures and tables is also supported using the `label` command. Some simple examples can be used to illustrate floats. Figure 1 illustrates a simple figure, where `autoref` has been used to refer to the figure, which is hyperlinked. Figure 2 is a hyperlinked multi-pane figure. The `graphix` package was used for these examples, and this extensive flexible package can meet essentially all graphics needs for most users, especially when supplemented with the `subcaption` package used for Figure 2. Other packages exist as well for special graphics presentation. Table 1 is an example of a simple hyperlinked table. Standard LaTeX can be used to produce a wide range of tables that can meet most needs. Special table needs can be handled through various available packages that authors may choose to use.

Table 1: Table example.

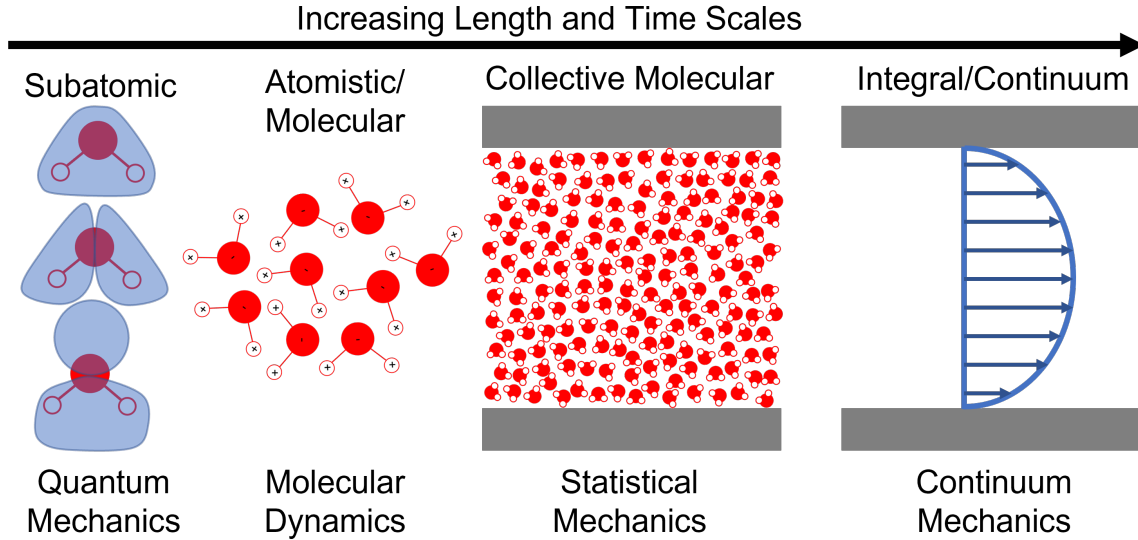| Column 1	Column 2	Column 3	Column 4	Column 5
1	5.60	12.31	1.53	5.57
2	7.69	14.02	1.28	4.80
3	4.07	17.83	1.35	5.12
4	3.79	17.94	1.40	5.28

Figure 1: Example publication quality figure.

4   Bibliographic References

Bibliographic entries should be created using a standard `.bib` file. Formatting of entries and the citation style is implemented using the `natbib` package. For example, a reference to `CTAN` can be made as a parenthetical entry [1] or as an in text entry as Greenwade [1]. Multiple references can be added in a single citation. Popular database systems can be used to generate a `.bib` file or utilities such as `JabRef` can also be used. Only the entries from the `.bib` file that are cited will be included in the paper. All references are hyperlinked to ease navigation.

5   Equation Construction

Equation constructs follow normal LaTeX conventions. A simple equation is

$$y = mx + b \, , \tag{1}$$

where note that equations should be punctuated. All normal constructs are available, including those from the `amsmath` package. The usual approach is to use native LaTeX and `amstex` to typeset equations. This provides easily understandable code for the knowledgeable reader without the need to learn a lot of new commands and minimal problems with clashes among defined variables.

In some cases, using native LaTeX and the `amsmath` package is not sufficient alone for the most efficient typesetting of a document. Authors may define macros to ease the typesetting job or even rely upon packages that do not clash with other packages loaded in the template. An example of such a case is shown in the following equation

$$
\begin{aligned}
&\epsilon^{\overline{\overline{wn}}}\frac{\partial J_n^{wn}}{\partial t} - J_n^{wn}\nabla\boldsymbol{\cdot}\left(\epsilon^{\overline{\overline{wn}}}\mathbf{w}^{wn}\right) + J_n^{wn}\langle J_n\mathbf{n}_n\boldsymbol{\cdot}\mathbf{v}_{wn}\rangle_{\Omega_{wn},\Omega} + 2\nabla\boldsymbol{\cdot}\langle\mathbf{w}_{wn}J_n\rangle_{\Omega_{wn},\Omega} \\
&- 2\langle(\mathbf{v}_{wn}\boldsymbol{\cdot}\mathbf{n}_n)K_n\rangle_{\Omega_{wn},\Omega} + \nabla\nabla\boldsymbol{:}\langle(\mathbf{I}-\mathbf{G}_{wn})(\mathbf{v}_{wn}\boldsymbol{\cdot}\mathbf{n}_n)\rangle_{\Omega_{wn},\Omega} - \langle\mathbf{n}_{wn}\boldsymbol{\cdot}\mathbf{v}_{wns}J_n\rangle_{\Omega_{wns},\Omega} \\
&+ \nabla\boldsymbol{\cdot}\langle\mathbf{n}_{wn}\mathbf{v}_{wn}\boldsymbol{\cdot}\mathbf{n}_n\rangle_{\Omega_{wns},\Omega} + \left\langle\mathbf{n}_{wn}\boldsymbol{\cdot}\nabla'(\mathbf{v}_{wn}\boldsymbol{\cdot}\mathbf{n}_n)\right\rangle_{\Omega_{wns},\Omega} + J_n^{wn}\langle\mathbf{n}_{wn}\boldsymbol{\cdot}\mathbf{v}_{wns}\rangle_{\Omega_{wns},\Omega} = 0 \, . \tag{2}
\end{aligned}
$$

Equation 2 could of course be typeset without added macros or packages, but the complexity of the symbols and operators would make such an effort burdensome. When complicated
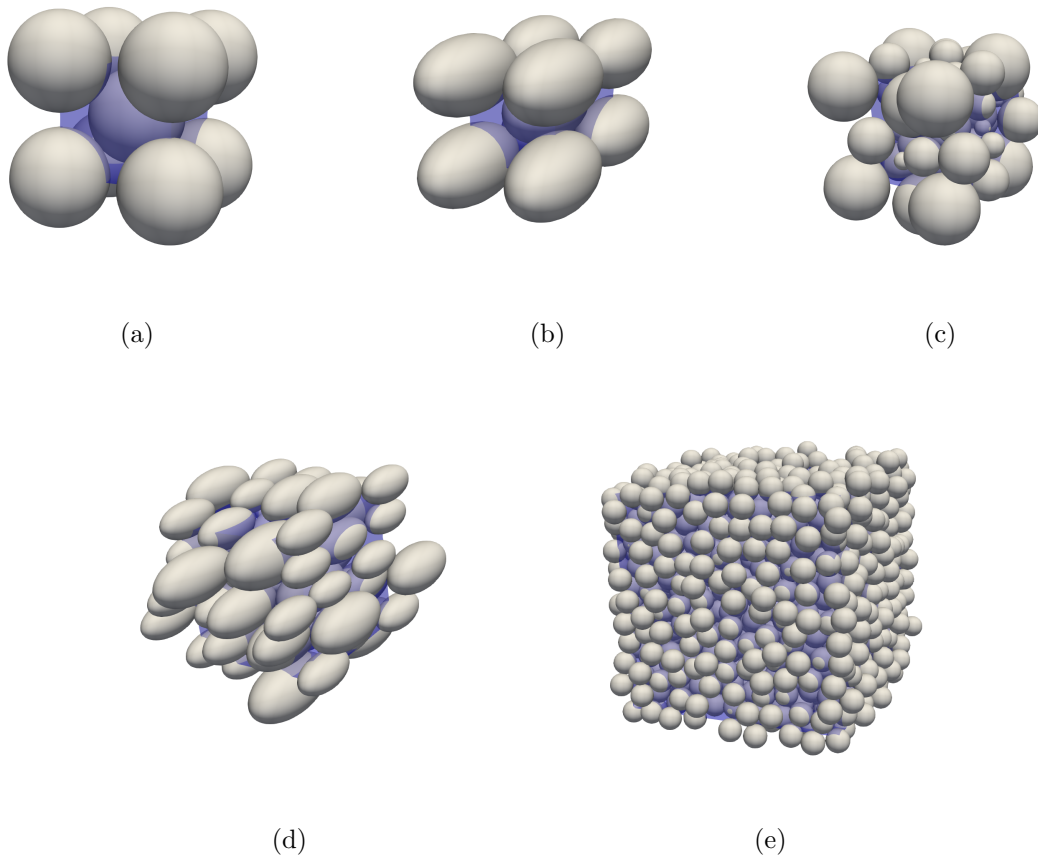
Figure 2: Multipane figure example: (a) pane a description; (b) pane b description; (c) pane c description; (d) pane d description; and (e) pane e description.

equations with specialized notation that become significantly longer than this example are needed, challenges mount and user packages specially tailored to the job can make things easier. Such specialized approaches are allowable with ARC Alliance journals.

6   Conclusions

Some elements of the template have been shown. A conclusions section is not required, but it will often appear.

Acknowledgements

Sources of funding and other acknowledgments should appear in an unnumbered section.

Data Availability

Availability of all data and codes used to process or generate the data is required in a publicly accessible and persistent repository at the time of publication.

Author Contributions

The specific contributions of each author should be noted with each author denoted by their initials and starting on a new line.

A   Appendix Title

Appendices, if used, are placed here.

References

[1] G. D. Greenwade. The Comprehensive Tex Archive Network (CTAN). *TUGBoat*, 14(3): 342–351, 1993.