

# Author's Guide to AIP Substyles for REVTeX 4.1

AIP Journal Program<sup>1, a)</sup>  
American Institute of Physics  
Suite 1N01, 2 Huntington Quadrangle  
Melville, New York 11747-4502, USA

(Dated: March 2010; Revised 11 March 2010)

## CONTENTS

<b>I. Introduction</b>	1
A. Prerequisite Documentation	1
B. Software Requirements	1
C. Submitting to AIP Journals	2
D. Contact Information	2
<b>II. Sample L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> Document</b>	2
<b>III. REVTeX Class Options Specific to AIP</b>	2
A. Journal Substyle	2
B. Options for Citations and Bibliography	2
C. Formatting Options	3
<b>IV. Useful L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> Markup</b>	3
A. Title and Front Matter	3
B. Lead Paragraph	3
<b>V. Body</b>	3
A. Footnotes	3
<b>VI. Citations and References</b>	4
A. Using BibTeX	4
B. Multiple References per Citation	4

## I. INTRODUCTION

This is the author's guide to the AIP substyles for REVTeX 4.1, providing a useful formatting tool for L<sup>A</sup>T<sub>E</sub>X users submitting papers to journals published by the American Institute of Physics. This guide is intended as an adjunct to the documentation for REVTeX itself (published by the American Physical Society), so information contained therein is not repeated here, except as it bears on the specific features of the AIP substyles.

### A. Prerequisite Documentation

The following documentation should be considered your first source of information on how to prepare your document for use with this format; they are to be found

within the APS REVTeX 4.1 distribution. Updated versions of these are maintained at the REVTeX 4.1 homepage located at <http://authors.aps.org/revtex4/>, are also available at the Comprehensive T<sub>E</sub>X Archive Network (CTAN, see <http://www.ctan.org/>), and form part of the T<sub>E</sub>XLive distribution of T<sub>E</sub>X.

- *Author's Guide to REVTeX 4.1*
- *REVTeX 4.1 Command and Options Summary*
- *What's New in REVTeX 4.1*

The present guide builds upon these documents, with which you should already be familiar.

The AIP substyles distribution for REVTeX 4.1 includes a sample document (`aipsamp.tex`), a good starting point for the manuscript you are preparing for submission to an AIP journal.

By using REVTeX's *Author's Guide to REVTeX 4.1*, you can develop your document until it contains all of the content you desire. This guide informs you on document class options, commands, and markup guidelines specific to AIP journals.

### B. Software Requirements

This guide assumes a working REVTeX 4.1 installation including the AIP substyles. Please see the installation guide included with the distribution.<sup>1</sup>

Please note that the AIP substyles work *only* with REVTeX 4.1: the original REVTeX 4.0 release does *not* make the AIP substyle available, nor is it compatible with them.

For your computer to run REVTeX 4.1 with the AIP substyles, the following are required:

- a working installation of L<sup>A</sup>T<sub>E</sub>X
- REVTeX 4.1 and all packages it requires,
- the AIP substyles for REVTeX 4.1, and
- any further L<sup>A</sup>T<sub>E</sub>X packages used in your document.

The easiest way to obtain all of the needed software is to install an up-to-date distribution of T<sub>E</sub>X, like T<sub>E</sub>XLive, available on CTAN.

To obtain the most up-to-date version of this software, please see <http://www.aip.org/pubservs/compuscript.html>.

---

<sup>a)</sup>Electronic mail: [tex@aip.org](mailto:tex@aip.org)

### C. Submitting to AIP Journals

Authors preparing a manuscript for submission to AIP journals should consult the Information for Contributors for the applicable journal, available through links at <http://journals.aip.org/>. These requirements are not covered systematically in this author's guide; you are responsible for understanding the requirements of the particular journal to which you will submit your article.

For further information about journal requirements, contact the Editorial Office of the appropriate journal. (Follow links at <http://journals.aip.org/>.)

### D. Contact Information

Any bugs, problems, or inconsistencies concerning the AIP journal substyles should be reported to AIP support at [tex@aip.org](mailto:tex@aip.org). Reports should include information on the error and a *small* sample document that manifests the problem, if possible. (Please don't send large files!)

Feedback concerning REVTeX 4.1 itself should be sent, as usual, to the American Physical Society at [revtex@aps.org](mailto:revtex@aps.org).

To determine if the problem you are experiencing belongs to REVTeX or is specific to the AIP substyles, simply remove `aip` from your document class options and rerun your document. If the problem goes away, you may assume that it is due to the AIP substyles; if not, it belongs to REVTeX.

## II. SAMPLE L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> DOCUMENT

As the REVTeX documentation makes clear, your document employs a L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> document class (specifically `revtex4-1.cls`), so you should use the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> commands and environments familiar to you with, say, the standard article class `revtex4-1.cls`, and you will be able to employ many of the packages you are used to using with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>.

Using `aipsamp.tex` as an example, your document will start with the usual REVTeX `\documentclass` statement, but with a particular document class option `aip` that specifies the AIP substyle:

```
\documentclass[aip]{revtex4-1}
```

You will then invoke the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> compatible packages your document requires, say:

```
\usepackage{graphicx}%
\usepackage{dcolumn}%
\usepackage{bm}%
```

follow up with your document content:

```
\begin{document}
...
```

TABLE I. AIP journal substyles

Journal	class option
<i>Appl. Phys. Lett.</i>	<code>apl</code>
<i>Biomicrofluidics</i>	<code>bmf</code>
<i>Chaos</i>	<code>cha</code>
<i>J. Appl. Phys.</i>	<code>jap</code>
<i>J. Chem. Phys.</i>	<code>jcp</code> <sup>a</sup>
<i>J. Math. Phys.</i>	<code>jmp</code>
<i>J. Renewable Sustainable Energy</i>	<code>rse</code>
<i>Phys. Fluids</i>	<code>pof</code>
<i>Phys. Plasmas</i>	<code>pop</code>
<i>Rev. Sci. Instrum.</i>	<code>rsi</code>

<sup>a</sup> Default journal substyle.

and finish with a statement specifying your BibTeX database:

```
\bibliography{aipsamp}
\end{document}
```

The books in the bibliography of this guide provide extensive coverage of all topics pertaining to preparing documents under L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> they are highly recommended.

## III. REVTeX CLASS OPTIONS SPECIFIC TO AIP

### A. Journal Substyle

To access particular features of the AIP substyle, you will specify an additional document class option: the journal substyle, e.g.,

```
\documentclass[aip,jcp]{revtex4-1}
```

in this case, *J. Chem. Phys.*, the default. A complete list of AIP journals with the corresponding journal substyle appears in Table I.

### B. Options for Citations and Bibliography

The citation style for AIP journals is:

- numerical (default style),
- author-year, and
- numerical author-year,

the latter two styles being only allowed for *Chaos* or *J. Math. Phys.*

The familiar numerical citations and numbered bibliography are the default for most journals: citations are superscript numbers, and the (numbered) bibliographic entries appear in the order cited.

Author-year citations are only allowed for *Chaos* or *J. Math. Phys.*, with citations given in author-and-year

format. Bibliographic entries are sorted by alphabetical order of first author’s surname, then by year.

Numerical author-year citations (only allowed for *Chaos* or *J. Math. Phys.*) are superscript numbers, just like numerical citations, but the bibliographic entries are sorted like the author-year entries and are numbered. This means that the first citation will not necessarily be 1.

To obtain the numerical style, simply accept the default, or supply a class option of `numerical`:

```
\documentclass[aip,numerical]{revtex4-1}
```

For author-year citations for *Chaos* or *J. Math. Phys.*, you may specify the `author-year` option:

```
\documentclass[aip,author-year]{revtex4-1}
```

Each of the above two options are part of standard REVTeX.

To obtain numerical author-year citations for *Chaos* or *J. Math. Phys.*, give the `author-numerical` option:

```
\documentclass[aip,author-numerical]{revtex4-1}
```

Note that the `author-numerical` option is not part of standard REVTeX so use of it outside of the AIP substyles may not have any effect.

### C. Formatting Options

There are two commonly used formats for an article you may write. One will comply with the manuscript submission formatting requirements of the editorial office of the journal you are submitting to. The other will emulate the format of your article in the published journal itself.

For journal submission, accept the default, or you may specify the `preprint` option:

```
\documentclass[aip,preprint]{revtex4-1}
```

To emulate the formatting of the journal, specify the `reprint` option:

```
\documentclass[aip,reprint]{revtex4-1}
```

Note that emulation is not by any means complete: the fonts used will differ, and therefore the length of the article will not represent an accurate estimate. Other details may also differ.

A summary of class options of interest to AIP authors appears in Table II.

## IV. USEFUL L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> MARKUP

L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> markup is the preferred way to structure your file. In general, the use of low-level commands like T<sub>E</sub>X primitives or Plain T<sub>E</sub>X macros is less preferable. Please see the REVTeX User’s Guide,<sup>2</sup> the L<sup>A</sup>T<sub>E</sub>X manual,<sup>3</sup> and the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> book<sup>4</sup> for further details.

TABLE II. Other class options

Function	class option
<i>Citation and References</i>	
superscript numbered	<code>numerical</code> <sup>a,b</sup>
author-year	<code>author-year</code> <sup>c</sup>
numbered author-year	<code>author-numerical</code> <sup>c</sup>
<i>Format</i>	
journal submission	<code>preprint</code> <sup>a</sup>
journal emulation	<code>reprint</code>

<sup>a</sup> Default option.

<sup>b</sup> Standard

<sup>c</sup> Only allowed for *Chaos* or *J. Math. Phys.*

### A. Title and Front Matter

The REVTeX User’s Guide has complete information on using REVTeX’s special markup for your article’s title, author list, abstract, and other front matter elements. Note that class option `superscriptaddress` is the default for the AIP substyles, as required by all AIP journals.

### B. Lead Paragraph

One AIP journal, *Chaos*, requires a paragraph of text to precede the first `\section` of the article; this is known as a lead paragraph and is formatted boldface. To give your article a lead paragraph, include a quotation environment ahead of the first `\section` command:

```
\documentclass[aip]{revtex4-1}
\begin{document}
\begin{quotation}
Here is my lead paragraph!
\end{quotation}
\section{Introduction}
...
```

The `quotation` environment functions normally after the first `\section` command in the document.

## V. BODY

For general information on commands used in the body of the document, see the REVTeX User’s Guide. Herein are some features specific to the AIP author.

### A. Footnotes

If you are using numbered citations (numerical or numbered author-year), footnotes are by default incorporated into the reference section along with your bibliographic

entries. This automated feature is only effective if you use Bib<sub>T</sub>E<sub>X</sub> to prepare your bibliography.

Author-year style bibliography does not lend itself to such a treatment, so by default footnotes appear in text as is usual. However, be advised that, if your article is accepted for publication, footnotes may be incorporated into text during the production process.

## VI. CITATIONS AND REFERENCES

The preparation of your bibliography “by hand” is possible; however, if you do so, you will be entirely responsible for compliance with submission requirements for your bibliographic entries, for incorporating any text footnotes into the references, and for checking bibliographic entries. (In this connection, you may find useful the file `reftest.tex`, distributed with REV<sub>T</sub>E<sub>X</sub>.)

There are numerous reasons to use Bib<sub>T</sub>E<sub>X</sub>, not least because it automates the first and second of the above checks.

### A. Using Bib<sub>T</sub>E<sub>X</sub>

Refer to the REV<sub>T</sub>E<sub>X</sub> User’s Guide, the L<sub>A</sub>T<sub>E</sub>X manual, and the Bib<sub>T</sub>E<sub>X</sub> manual for full information about using Bib<sub>T</sub>E<sub>X</sub>.

When using Bib<sub>T</sub>E<sub>X</sub> keep in mind that changing your bibliography style or citation style (via the document class options described above) will require you to rerun Bib<sub>T</sub>E<sub>X</sub>. The standard litany (using `aipsamp.tex` as an example) for this is:

```
> latex aipsamp
> bibtex aipsamp
> latex aipsamp
> latex aipsamp
```

Here, the first invocation of `latex` has the effect of rewriting the `aipsamp.aux` file, and the invocation of `bibtex` creates a new `aipsamp.bbl` file. The next two

runs of `latex` are then required: the first to update the `aipsamp.aux` file reflecting the new values of your citations and the second to employ those citations correctly. Be sure to check the end of the `aipsamp.log` file for any message advising you to rerun `latex`.

### B. Multiple References per Citation

In an article using numerical citations, it is not uncommon to encounter the need for a citation that refers to more than one article or other reference. To accommodate such a case, REV<sub>T</sub>E<sub>X</sub> 4.1 implements markup similar to that of the `mcite` package for L<sub>A</sub>T<sub>E</sub>X 2<sub>ε</sub>.

Let’s say that two citation keys `able` and `baker` need to be combined into a single reference. The syntax for the `\cite` command is:

```
word\cite{able,*baker} further text
```

When you run Bib<sub>T</sub>E<sub>X</sub> the resulting bibliography will contain the two entries, but run together as a single numbered reference. In the `\cite` command argument, any cite key that starts with the `*` character signifies that its bibliographic entry is to be joined together with the one preceding it; the `*` may join together any number of entries into a single reference.

<sup>1</sup>For help regarding the installation of this software and its use, please send email to [tex@aip.org](mailto:tex@aip.org).

<sup>2</sup>Available with the REV<sub>T</sub>E<sub>X</sub> distribution, see <http://authors.aps.org/revtex4/>.

<sup>3</sup>L. Lamport, *L<sub>A</sub>T<sub>E</sub>X a Document Preparation System* (Addison-Wesley, Reading, MA, 1996).

<sup>4</sup>M. Goossens, F. Mittelbach, and A. Samarin, *The L<sub>A</sub>T<sub>E</sub>X Companion* (Addison-Wesley, Reading, MA, 1994).

<sup>5</sup>D. E. Knuth, *The T<sub>E</sub>Xbook* (Addison-Wesley, Reading, MA, 1986).

<sup>6</sup>H. Kopka and P. Daly, *A Guide to L<sub>A</sub>T<sub>E</sub>X 2<sub>ε</sub>* (Addison-Wesley, Reading, MA, 1995).

<sup>7</sup>M. Goossens, S. Rahtz, and F. Mittelbach, *The L<sub>A</sub>T<sub>E</sub>X Graphics Companion* (Addison-Wesley, Reading, MA, 1997).

<sup>8</sup>S. Rahtz, M. Goossens *et al.*, *The L<sub>A</sub>T<sub>E</sub>X Web Companion* (Addison-Wesley, Reading, MA, 1999).