The `aipproc` class v1.2 (generic version) for LaTeX 2ε

F. Mittelbach* and D. P. Carlisle†

*Zedernweg 62, Mainz
†Willow House, Souldern

Abstract. This guide describes the functionality and use of the `aipproc` class by explaining its extensions and restrictions compared to the `article` class of standard LaTeX. It is not a manual to be used on its own but should be used together with an introductory manual on LaTeX such as [6].

CONTENTS

General Overview 1

Checking your LaTeX distribution 2

Class details 2
- Selecting the target layout . . . 2
- Supported options . . . 2
  - Paper selection . . . 2
  - Font selection . . . 2
  - Textual references . . . 3
  - Table note markers . . . 3
  - Citation mode . . . 3
  - Heading numbers . . . 3
  - Drafts . . . 3
- Front matter . . . 3
  - Multiple authors . . . 4
  - Dates . . . 4
  - Other front matter commands . . . 4
- Headings . . . 4
- Cross-references . . . 4
- Lists . . . 5
- Graphics support . . . 5
- Floats . . . 5
  - Figures . . . 6
  - Tables . . . 6
  - Counters . . . 8
  - Long tables . . . 8
  - Building floats manually . . . 8
- Urls . . . 8
- Bibliography . . . 8
  - Bibliography produced manually . . . 8
  - Bibliography produced using BibTeX . . . 10

General requirements and restrictions 10

Special requirements for individual layouts 10
- AIP proceeding layout 6x9 . . . 10
- AIP proceeding layout 8x11 single/double . . . 11
- ARLO . . . 11

GENERAL OVERVIEW

The `aipproc` class is a LaTeX 2ε document class for conference proceedings of the American Institute of Physics and other documents with similar layout requirements. It is intended to produce camera-ready copy for direct photo-offset use. The only modification done by the publisher is adding appropriate page numbers.

This version of the guide explains all features of the class some of which are only applicable to certain proceeding layouts.

The class provides essentially the same markup as implemented by LaTeX's standard `article` class. In addition to this it implements the following:

- extended set of front matter commands,
- automatic placement of floats into column or page areas including turning of table floats by 90° if necessary,
- allows mixing column and page-wide floats without getting the numbering out of sync,
- footnotes will appear below bottom floats,
- extended set of citation commands if the `natbib` system is installed,
- support for table notes,
- support for textual page references like "on the next page".

Due to the extended functionality an article written for LaTeX's standard article class might need adjustments in the following places before it can be used with the `aipproc` class (a more detailed description is given in later sections):

- In the preamble, since the `aipproc` class requires a `\layoutstyle` declaration.
- In the front matter, since the `aipproc` class uses an extended set of title/author declarations.
- In the body of floats, since the `aipproc` class only allows a single `\caption` command and processes the body in horizontal mode.

CHECKING YOUR LaTeX DISTRIBUTION

To ensure that your installation of LaTeX contains everything necessary to successfully use the `aipproc` class, run the file `aipcheck.tex` through LaTeX, e.g.,

```
latex aipcheck
```

It will try to determine if everything necessary is available and if not, will make recommendations what can be done about it. In certain cases you might be able to use the class if you follow the suggestions, in other cases the only solution is to upgrade your LaTeX installation.

CLASS DETAILS

Selecting the target layout

The class supports different layouts. These are selected by placing a `\layoutstyle` declaration in the preamble of the document.

`\layoutstyle{`*layout name*`}`

This command is required. With version 1.2 of the `aipproc` class the following *layout name*s can be specified.

6x9 Layout for the AIP Conference Proceedings with 6 x 9 inches single column format (short name `6s`).

8x11single Layout for the AIP Conference Proceedings with 8.5 x 11 inches single column format (short name `8s`).

8x11double Layout for the AIP Conference Proceedings with 8.5 x 11 inches double column format (short name `8d`).

arlo Layout for the "Acoustics Research Letters Online" — ARLO.

For example, the current guide was produced using the declaration `\layoutstyle{8x11double}`.

Supported options

As the class is based on the article class of standard LaTeX all reasonable[1] options of this class are supported automatically. In addition there are a number of options unique to the `aipproc` class.

Paper selection

Two options control the placement of the text on the physical page. Choose the one that corresponds to your printer paper.

letterpaper Directs the class to assume that the output is printed on US letter sized paper (default).

4apaper Directs the class to assume that the output is printed on A4 sized paper.

Font selection

Four options control the selection of fonts in the document; use at most one of them.

mathptm Directs the class to use PostScript Times and Symbol fonts (a few missing glyphs are taken from Computer Modern) for math by loading the `mathptm` package. This option is the default.
This option does not support the `\boldmath` command since there exists no PostScript Symbol font in bold. It is possible, however to use `\mathbf` which allows you to get at least a bold Latin Alphabet.

mathtime Directs the class to use MathTime fonts for math by loading the `mathtime` package. These fonts are commercial so that this option will not work if you don't own them. If this option is chosen one can also use the options for this package as global options to the class. The most important ones are

uprightgreek Use upright greek characters instead of slanted ones.

mtbold Use MathTime Bold characters bold glyphs.

mtpluscal Use MathTimePlus calligraphic characters for `\cal`.

mtplusscr Use MathTimePlus script characters for `\cal`.

[1] Reasonable means not conflicting with fixed requirements for the AIP class, e.g., as this class requires 10pt body size option `11pt` and `12pt` are ignored and produce a warning.

lucidascr Use Lucida calligraphic characters for `\cal`.

lucidascr Use Lucida script characters for `\cal`. The last four options require additional commercial fonts, i.e., MathTimePlus or Lucida.

nomathfonts Directs the class not to set up math fonts (which means using the installation default which is usually Computer Modern). This option is intended in case a special math font setup is loaded in the document preamble.

cmfonts Directs the class to use standard Computer Modern fonts for math and text. This does not conform to the specification for this class and is intended for draft preparation in environments where the required fonts are unavailable.

Textual references

The next options enable textual references; if this is desired select one of them:

varioref Loads the `varioref` package (see [4, p.41ff]) allowing to produce textual page references. See section on Cross-references on the following page for details.

nonvarioref Disables the `\reftextvario` command so that the strings produced by `varioref` commands will not depend on the number of references seen so far. Implies the varioref option.

Table note markers

Notes to tables can be influenced as follows:

tnotealph Produce raised lower case alphabetic marks to indicate table notes.

tnotesymbol Use footnote symbols to indicate table notes (default).

Citation mode

The citation mode can be influenced with the following two options:

numcites Citations are typeset using numbers. Depending on the proceeding style these might appear raised or in brackets, etc. (default).

bibliocites Citations are typeset using an author/year scheme. This requires the installation of the `natbib` system.

In some layout styles these options might be without effect.

Heading numbers

Heading numbers can be turned on or off with the following two options:

numberedheadings Headings are numbered.

unnumberedheadings Headings are unnumbered (default).

In some layout styles these options might be without effect.

Drafts

Finally there is one standard `article` class option which has its functionality extended:

draft Allows `\tableofcontents` and similar commands to work without error message (during development of article). It marks overfull boxes and also provides page numbers in the printout.
Remove this option when producing the camera ready copy.

Front matter

The class supports an extended set of front matter commands. These commands differ from those used by standard LaTeX's `article` class. Thus, if an article already written is adapted to be used with the `aipproc` class, the front matter has to be modified somewhat.

Some of the commands below are required only for certain proceedings. Declarations that are not required will be silently ignored.

`\title[`*short title*`]{`*title text*`}`

In standard LaTeX this command has no optional argument. In the `aipproc` class one can specify an abbreviated title text which is used, for example, in the running footer in draft mode.

`\author{`*author name*`}{`*author information*`}`

In standard LaTeX this command had only one argument containing both author name and address information. In this class it has two arguments and the second argument contains data structured using key/value pairs separated by commas.

For example, the authors of this paper have been specified as:

```
\author{F. Mittelbach}{
 address={Zedernweg 62, Mainz},
 email={frank.mittelbach@latex-project.org},
}
\author{D. P. Carlisle}{
 address={Willow House, Souldern},
 email={david@dcarlisle.demon.co.uk},
}
```

Supported keywords will be `address`, `email`, `altaddress`, `homepage`, and `thanks`. (With release 1.2 of `aipproc` class only `address` and `email` should be used; support for the other keywords will be added later.) Depending on the layout of the target proceedings some of the keys may get ignored!

`\classification{`*data*`}`

Some proceedings require classification data, e.g., PACS numbers. If not, this declaration is ignored.

`\keywords{`*data*`}`

Some layouts require keyword data. If not, this declaration is ignored.

`\copyrightholder{`*name*`}`

Some layouts require copyright information. Normally a default is provided by the class. With this declaration the copyright holder can be overwritten.

`\copyrightyear{`*year*`}`

Some layouts require copyright data. With this declaration the copyright year can be specified. (If such data is required the current year is provided as default).

`\begin{abstract}`

In contrast to standard LaTeX the abstract environment has to appear before the `\maketitle` command.

`\maketitle`

This command inserts the actual front matter data. It has to follow the above declarations.

Multiple authors

Multiple authors are entered by specifying one `\author` command per author. Care needs to be taken when specifying shared addresses: they have to be absolutely identical. Depending on the chosen layout the class will merge such addresses but will recognize them only as identical, if the input including spaces is the same!

The `\and` command as defined in the `article` class to separate multiple authors is not supported.

Dates

`\received{`*date*`}`

`\revised{`*date*`}`

`\accepted{`*date*`}`

Some layouts require specification of date of arrival, revision, and/or acceptance. The above declarations provide a way to specify such dates if necessary.

`\date{`*date*`}`

The article class provides the `\date` command which is not used by `aipproc` class. If supplied it will be ignored unless the `draft` option is specified in which case it will show up in a footer line together with the title and the page number to ease document development.

Other front matter commands

The `\tableofcontents`, `\listoffigures`, and `\listoftables` commands are provided but produce (beside output) an error message unless the `draft` option was selected. This is done since the `aipproc` class does not support page numbering and thus the above commands essentially produce incorrect data.

Headings

The `aipproc` class officially supports three heading levels, i.e., `\section`, `\subsection`, and `\subsubsection`.

It also supports the commands `\paragraph` and `\subparagraph` although the latter heading levels are not part of the `aipproc` class specification and are therefore discouraged.

Cross-references

Cross-references to page numbers are not possible with the `aipproc` class as the page numbers are determined after production. For this reason the `\pageref` command of LaTeX is disabled by default.

Since headings in most layouts do not carry numbers they can't be referenced either.

References to tables, figures, and equations are possible using the LaTeX commands `\label` and `\ref`.

However if the class option `varioref` or `nonvarioref` is used, references to page numbers are

possible again as they will generate textual references of the form “on the following page” or “on an earlier page” etc. The produced strings are customizable as described in detail in the `varioref` package documentation or in [4, p.41ff].

The class defaults are as follows and can be changed with `\renewcommand` in the document preamble. The `varioref` package normally distinguishes between reference to facing pages and references to pages that need turning over using different strings in these cases. However, since with `aipproc` class class page numbers are not determined at the time of production no assumption can be made that page x and $x+1$ actually fall onto the same double spread. For this reason the defaults used here do not produce strings containing the word “facing” or “opposite”.

```
\renewcommand\reftextfaceafter
   {on the next page}
\renewcommand\reftextfacebefore
   {on the \reftextvario{previous}
                {preceding} page}
\renewcommand\reftextafter
   {on the \reftextvario{next}
                {following} page}
\renewcommand\reftextbefore
   {on the \reftextvario{previous
              page}{page before}}
\renewcommand\reftextcurrent
   {on \reftextvario{this}
              {the current} page}
```

Normally, text for references which are “far away” are produced using `\reftextfaraway` in `varioref`. However, to produce textual references without referring to actual page numbers even in this case, this command was hijacked in the `aipproc` class and redefined to determine whether or not this is a reference to some earlier or later page. So instead of changing this command the class provides the following two commands for customization:

```
\renewcommand\reftextearlier
   {\reftextvario{on an earlier
                page}{earlier on}}
\renewcommand\reftextlater
   {\reftextvario{later on}
                {further down}}
```

To illustrate the result of this package all references in this document are made using `\vref` or `\vpageref`, e.g., references to Figure 2 further down and Figure 1 on the following page. These commands work best if used only for important references. Be careful when using them several times close to each other as the automatically generated texts then may sound strange (as they do in the example in this paragraph).

`\eqref{`*label*`}`

For reference to equation numbers `\eqref` can be used instead of the standard `\ref` command. The `\eqref` command will automatically add any frills required by the layout style, while `\ref` will only typeset the plain number. For example, in the `arlo` style it will print “Eq. (1)” while `\ref` would result in “1”.

Lists

The `aipproc` class supports all standard list environments like `itemize`, `enumerate`, etc.

Graphics support

Support for including and manipulating graphics is provided as the standard LaTeX `graphicx` package is automatically loaded by the `aipproc` class. For detailed descriptions of the commands made available by this package see [5] or the package documentation coming with the LaTeX release. A sufficient introduction is also given by [6] although there only the `graphics` package (a subset of the `graphicx` package) is described.

A typical application is given in the following example where a picture is resized to span 70% of one column:

```
\begin{figure}[!b]
 \resizebox{.7\columnwidth}{!}
  {\includegraphics{escher}}
 \source{Guy Shaw}
 \caption{An illustration taken
          from~\cite{A-W:GMS94}}
 \label{fig:a}
\end{figure}
```

resulting in figure 1 on the next page.

Floats

Floats are objects which do not have to stay in sync with the running text but are allowed to move from their original place to some other position where they fit better for page breaking reasons. Such objects they are typically numbered so that they can be referenced from within the running text.

LaTeX by default supports two float types: figures and tables. These float types are also supported by the `aipproc` class although their internal implementation is quite different resulting in a number of important differences in behavior:[2]

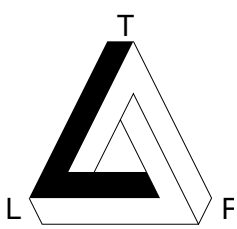
- The position of the float caption is determined automatically, independently of the placement of the `\caption` command within the float body.
- Depending on its width the float automatically spans two columns. In case of a table the whole object (including its caption) might be rotated automatically if its exceeds `\textwidth`.
- The body of the float environments are processed in L-R mode and not in paragraph mode as in standard LaTeX. This is necessary for measuring its width. Thus if paragraph mode is needed one has to put a `minipage` environment of the appropriate width (e.g., `\columnwidth`) into the body.
- Only one `\caption` command per float is allowed.

Figures

`\begin{figure}[`*pos*`]`

Like with standard LaTeX the optional *pos* argument can be used to specify into which float areas this float is allowed to migrate (default is `tbp`).

The environment `figure*` is not supported as figures that need to span both columns are automatically recognized.



Source: Guy Shaw

FIGURE 1. An illustration taken from [4]

[2] There exist packages that extend the number of float types. (This information is given as a footnote to show that footnotes in this class come out below a bottom float.)

`\source{`*text*`}`

Command to specify the origin of the picture shown. The *text* will be printed in small italics below the illustration.

A typical example of a figure float would be

```
\begin{figure}
 \resizebox{.8\textwidth}{!}
          {\includegraphics{outline}}
 \caption{PostScript example taken
          from~\cite{A-W:GMS94}}
 \label{fig:b}
 \source{F. Mittelbach}
\end{figure}
```

The result is shown in Figure 2 on the following page.

`\spaceforfigure{`*horizontal*`}{`*vertical*`}`

If the illustration is to be manually pasted into the final document one can leave the right amount of space by using this command as follows:

```
\begin{figure}
 \spaceforfigure{2in}{1cm}
 \caption{Caption for a figure to be
          pasted in later}
 \label{fig:3}
 \source{F. Mittelbach}
\end{figure}
```

All standard TeX units can be used to specify the space needed. The above example make room for an illustration that is two inches wide and one centimeter high. The result is shown as Figure 3 on the next page.

Tables

`\begin{table}[`*pos*`]`

Like with standard LaTeX the optional *pos* argument can be used to specify into which float areas this float is allowed to migrate (default is `tbp`).

The environment `table*` is not supported as tables that need to span both columns are automatically recognized.

Typically the body of the environment would consist of a `tabular` environment responsible for producing the actual table including the table and stub headers.

`\tablehead{`*cols*`}{`*h-pos*`}{`*v-pos*`}{`*heading text*`}`

To ease the production of tables the command `\tablehead` is provided which is essentially and abbreviation for a `\multicolumn` command that additionally boldens its text argument. I.e., *cols* specifies

Source: F. Mittelbach

FIGURE 2. PostScript example taken from [4]

Source: F. Mittelbach

FIGURE 3. Caption for a figure to be pasted in later

the number of columns the *heading text* should span and *h-pos* defines the horizontal positioning of the text of the column(s), e.g., `l`, `r`, `c`, or `p{...}`. In contrast to a simple `\multicolumn` command the *heading text* can be split vertically by using `\\` to denote the line breaks. The *v-pos* argument should contain either `t`, `c`, or `b` denoting the vertical placement of the text in relation to other cells of that row. It is only relevant if the *heading text* consists of more than one line. See the example table below that demonstrates the use of this command.

`\source{`*text*`}`

Command to specify the origin of the data given in the table. The *text* will be printed in small italics below the table.

`\tablenote{`*text*`}`

Command to produce a note to the table. It can only be used within a `table` environment and should be used only at the right end of a table cell. The command produces a raised footnote symbol at the place used which sticks into the right margin. As far as LaTeX is concerned this symbol does not occupy any space. Thus is will not modify the alignment of table columns. The *text* will appear below the table.

In the current release notes to `\caption` or `\source` are not possible.

`\tablenote*{`*text*`}`

Like `\tablenote` but this time the raised footnote symbol will occupy space. This version is intended to be used in the middle of cells.

An example showing the use of all commands described above is shown in Table 1. It was produced by the following input:

```
\begin{table}
\begin{tabular}{lrrrr}
\hline
```

TABLE 1. Average turnover per shop: by type of retail organisation

	Single outlet	Small[a] multiple	Large multiple	Total
1982	98	129	620	847
1987	138	176	1000	1314
1991	173	248	1230	1651
1998[b]	200	300	1500	2000

Source: Central Statistical Office, UK

[a] 2-9 retail outlets
[b] predicted

```
 &\tablehead{1}{r}{b}{Single\\outlet}
 &\tablehead{1}{r}{b}{Small\tablenote
       {2-9 retail outlets}\\multiple}
 &\tablehead{1}{r}{b}{Large\\multiple}
 &\tablehead{1}{r}{b}{Total}   \\
\hline
1982 & 98  & 129 & 620    & 847\\
1987 & 138 & 176 & 1000  & 1314\\
1991 & 173 & 248 & 1230  & 1651\\
1998\tablenote{predicted}
     & 200 & 300 & 1500  & 2000\\
\hline
\end{tabular}
\source{Central Statistical Office,
        UK}
\caption{Average turnover per shop: by
  type of retail organisation}
\label{tab:a}
\end{table}
```

`\setlength{\hlinesep}{`*value*`}`

Vertical spacing between horizontal lines produced from `\hline` inside a tabular environment is controlled by the length parameter `\hlinesep` in this class. The default value (1pt) gives one point extra space above such lines and three times as much (i.e. 3pt) extra space below. This is done to implement the layout requirements for tables in the AIP proceedings (which are not supposed to have vertical lines in the tables). If tables with vertical lines are necessary for some reason, then the value of this parameter should be set to `0pt` either globally for the whole document or locally within the `table` environment. Otherwise the vertical lines will have strange gaps whenever a `\hline` command is used to produce a horizontal line.

Counters

The `\alph` and `\fnsymbol` commands to represent counter values have extended ranges. For example `\alph` will now count up to 52 (zz) and the `\fnsymbol` command will produce the following symbols ∗, †, ∗∗, ‡, §, ¶, ‖, ††, ‡‡, §§, ¶¶, ∗∗∗, †††, ‡‡‡, §§§, and ¶¶¶. This will allow for up to 16 table notes per table. For documents that need a larger number of table notes select the option `tnotealph` to switch to lower case alphabetic letters to mark such notes.

Long tables

Tables which are longer than one page cannot be placed into a `table` environment as floats cannot have a size larger than a page. Such tables are supported by the standard LaTeX package `longtable` written by David Carlisle. However this package only works in single column mode.

With two-column layouts, such as the one for the AIP 8x11 double column proceedings, such tables can only be added at the end of the paper by preceding the `longtable` environments with a `\onecolumn` declaration.

The package is supported by the class in the sense that captions within a `longtable` environment will be formatted using the appropriate style; however in contrast to the `table` environment it is the responsibility of the user to place the caption at the top of the table. The commands `\source` and `\tablenote` are not supported within this environment, but the `\tablehead` command can be used to produce column heads if desired.

Refer to the `longtable` package documentation or to [6, p.122ff] for a detailed description of the syntax of the `longtable` environment.

A possible alternative is the package `supertabular` written by Johannes Braams; however in this case no attempt has been made to ensure that a table produced with `supertabular` conforms to the layout specification for the `aipproc` class. Be aware that this package defines its own `\tablehead` command (with a completely different function).

Refer to the package documentation for the syntax description. A detailed comparison between `supertabular` and `longtable` can be found in Chapter 5 of [6].

Building floats manually

The original LaTeX environments `figure` and `table` as well as their star forms are still available under the names `ltxfigure` and `ltxtable`. They should not be used in normal circumstances but are provided in case the automatism of the `aipproc` class needs overwriting.

Please note that if these environments are used the position of the `\caption` command determines the placement of the caption within the float body and that the special commands for figures and tables, e.g., `\tablenote`, etc. as provided by this class are not available within these environments.

Urls

`\url{`*data*`}`

For documenting URLs and related data the `\url` command is provided. It allows breaking the URL in certain places and typesets it in an adequate font and format. Instead of using curly brackets the argument can be delimited by two identical characters not used in the argument.

Bibliography

Referring to other articles, books, etc. can be done using the `\cite` command of standard LaTeX. The list of references itself can either be produced using standard LaTeX methods or using BibTeX.

If installed, the `aipproc` class class includes the `natbib` system which offers an extended set of citation commands. These commands have been originally developed to support author/year citation styles but are also useful with numerical citation styles.

The `natbib` system has two basic citation commands, `\citet` and `\citep` for *textual* and *parenthetical* citations, respectively. There also exist the starred versions `\citet*` and `\citep*` that print the full author list, and not just the abbreviated one. All of these may take one or two optional arguments to add some text before and after the citation. Table 3 later on shows some examples. There are many more commands and variants, see [2] or [3] for further details.

Bibliography produced manually

`\begin{thebibliography}{`*widest-label*`}`

Environment to hold the list of references.

TABLE 2. Files used by the `aipproc` class

File	Date	Version	Description
aipproc.cls	2000/08/31	v1.2a	AIP Proceedings (FMi)
fixltx2e.sty	1999/12/01	v1.06	fixes to LaTeX
calc.sty	1998/07/07	v4.1b	Infix arithmetic (KKT,FJ)
ifthen.sty	1999/09/10	v1.1b	Standard LaTeX ifthen package (DPC)
graphicx.sty	1999/02/16	v1.0f	Enhanced LaTeX Graphics (DPC,SPQR)
keyval.sty	1999/03/16	v1.13	key=value parser (DPC)
graphics.sty	1999/02/16	v1.0l	Standard LaTeX Graphics (DPC,SPQR)
trig.sty	1999/03/16	v1.09	sin cos tan (DPC)
graphics.cfg		v3.0i	Driver-dependant file (DPC,SPQR)
dvips.def	1999/02/16	ver 1.5x	Verb mode for urls, etc.
url.sty	1999/03/28	v1.4b	Standard LaTeX document class
article.cls	2000/05/19	v1.4b	Standard LaTeX file (size option)
size10.clo	2000/05/19		
aipxfm.sty		PSNFSS-v8.1	Times + math package (SPQR)
mathptmx.sty	2000/01/12	PSNFSS-v8.1	Times font as default roman(SPQR)
times.sty	2000/01/12	PSNFSS-v8.1	font definitions for OT1/ptm.
ot1ptm.fd	2000/01/12		
fontenc.sty		v1.91	Standard LaTeX file
t1enc.def	2000/08/30		font definitions for T1/ptm.
t1ptm.fd	2000/01/12	PSNFSS-v8.1	Standard LaTeX package
textcomp.sty	2000/08/30	v1.91	(jk/car/fm) Standard LaTeX file
ts1enc.def	1998/06/12	v3.0d	package for extended references (FMi)
varioref.sty	1999/12/02	v1.2c	
aip-8s.clo			
tcrt0001.sty			
shortvrb.sty	2000/07/04	v2.0m	Standard LaTeX documentation package (FMi)
hyperref.sty	2000/05/08	v6.70f	Hypertext links for LaTeX
pdfenc.def	2000/05/08	v6.70f	Hyperref: PDFDocEncoding definition (HO)
hyperref.cfg			
hdvips.def	2000/05/08	v6.70f	Hyperref driver for dvips
pdfmark.def	2000/05/08	v6.70f	Hyperref definitions for pdfmark specials
ts1cmr.fd	1999/05/25	v2.5h	Standard LaTeX font definitions
natnotes.tex	2000/05/08	v2.18	Cross-referencing by name of section
natnotes.sty	2000/01/12	PSNFSS-v8.1	font definitions for T1pcr.
t1pcr.fd	2000/01/03	Fontinst v1.801	font definitions for OT1/pmncm.
ot1pmncm.fd	2000/01/03	Fontinst v1.801	font definitions for OML/pmncm.
omlpmncm.fd	2000/01/03	Fontinst v1.801	font definitions for OMS/pzccm.
omspzccm.fd	2000/01/03	Fontinst v1.801	font definitions for OMX/psycm.
omxpsycm.fd	2000/01/03	Fontinst v1.801	font definitions for TS1/ptm.
ts1ptm.fd	2000/01/12	PSNFSS-v8.1	Graphic file (type eps)
escher.eps			Graphic file (type eps)
outline.eps			

Source: Output of `\listfileswhenprocessing aipguide.tex`

`\bibitem{`*label*`}`

Command to start a bibliographical entry having the label *label* for use in `\cite` commands. Refer to the publishers manual, e.g., [1], for information on how to lay out individual entries. For example:

```
\bibitem{Brown2000}
  Brown, M.~P., and Austin, K.,
  \emph{The New Physique},
  Publisher Name, Publisher City,
  2000, pp. 212--213.
```

If commands from `natbib` (e.g., from table 3) should be usable, then additional information has to be passed to the `\bibitem` via an optional argument.

`\bibitem[`*display-info*`]{`*label*`}`

The optional argument *display-info* should then, and only then, contain the author(s) name(s) followed by the year in parentheses without any spaces, for example:

```
\bibitem[Brown and Austin(2000)]
        {Brown2000}
  ...
```


TABLE 3. Example of `natbib` commands and their results

Author/year style		
`\citet{jon90}`	⇒	Jones et al. (1990)
`\citet[chap.~2]{jon90}`	⇒	Jones et al. (1990, chap. 2)
`\citep{jon90}`	⇒	(Jones et al., 1990)
`\citep[chap.~2]{jon90}`	⇒	(Jones et al., 1990, chap. 2)
`\citep[see][]{jon90}`	⇒	(see Jones et al., 1990)
`\citep[see][chap.~2]{jon90}`	⇒	(see Jones et al., 1990, chap. 2)
`\citet*{jon90}`	⇒	Jones, Baker, and Williams (1990)
`\citep*{jon90}`	⇒	(Jones, Baker, and Williams, 1990)
Numerical style		
`\citet{jon90}`	⇒	Jones et al. [21]
`\citet[chap.~2]{jon90}`	⇒	Jones et al. [21, chap. 2]
`\citep{jon90}`	⇒	[21]
`\citep[chap.~2]{jon90}`	⇒	[21, chap. 2]
`\citep[see][]{jon90}`	⇒	[see 21]
`\citep[see][chap.~2]{jon90}`	⇒	[see 21, chap. 2]
`\citep{jon90a,jon90b}`	⇒	[21, 32]

The essential feature is that the label (the part in brackets) consists of the author names, as they should appear in the citation, with the year in parentheses following. There must be no space before the opening parenthesis! This will be automatically produced if BibTeX is used.

Bibliography produced using BibTeX

The `aipproc` class is accompanied by BibTeX style files which can be used to produce compliant reference lists from BibTeX database files. To use BibTeX one first has to run the source file through LaTeX then run BibTeX and then rerun LaTeX twice to get all references resolved. BibTeX is described in more detail in appendix B of [6] and in chapter 13 of [4].

`\bibliographystyle{`*style-name*`}`

This declaration specifies to BibTeX that the style *style-name* should be used. It can be placed anywhere within the document but is usually positioned directly in front of the command described below.

For a discussion which of the supplied BibTeX styles should be used for which proceedings see the section "Special requirements…" below.

`\bibliography{`*bib-list*`}`

This command denotes the position where the reference list produced by BibTeX will be included in the document. The *bib-list* is a comma separated list of BibTeX database files.

GENERAL REQUIREMENTS AND RESTRICTIONS

This class was designed to work with LaTeX 2ε release 1999/06/01 or a later version. Earlier releases may work but have not been tested.

With the exception of the packages `natbib` and `url` it only requires files which are part of a standard LaTeX distribution, i.e., it should work if your installation contains the following components: `base`, `tools`, `graphics`, and `psnfss`, see 2 on the page before for files used to produce this document.

The most recent LaTeX distribution as well as `natbib` and `url` can be obtained from CTAN sites (Comprehensive TeX Archive Network).

Refer to `http://www.tug.org` for more information on CTAN and TeX in general.

A ready to run TeX system for various platforms which has everything required is available on CD-ROM, look into `http://www.tug.org/texlive.html`.

SPECIAL REQUIREMENTS FOR INDIVIDUAL LAYOUTS

AIP proceeding layout 6x9

- The entire paper will be reduced 15% in the printing process. Please make sure all figures as well as the text within the figures are large enough in the manuscript to be readable in the finished book.
- The use of the `\source` command is discouraged.

- Compliant BibTeX styles are `aipproc` (for use with `natbib`) and `aipprocl` (if `natbib` is missing at the site).
- The options `bibliocites` and `numberedheadings` have no effect.

AIP proceeding layout 8x11 single/double

- The use of the `\source` command is discouraged.
- Compliant BibTeX styles are `aipproc` (for use with `natbib`) and `aipprocl` (if `natbib` is missing at the site).
- The options `bibliocites` and `numberedheadings` have no effect.

ARLO

- A copyright year (`\copyrightyear`) needs to be provided.
- Pacs numbers should be provided (`\classification`).
- The `arlo` layout offers one additional environment to specify multimedia files:

```
\begin{multimedia}
 \multimediauid{523}
 \multimediatype{gif}
 \multimediasize{1.2Mb}
 \multimediaurl{http://yorktown.%
       eng.yale.edu/test/msXXX/}
 \multimediacaption{Fancy video}
 \label{fv} % label is optional
\end{multimedia}
```

  References to a multimedia file can be made using `\label` and `\ref`. Instead of the latter command `\multimediaref` can be used to automatically get the appropriate frills, e.g., 'Mm. 2' instead of just '2' as produced by `\ref`.
- Select the `draft` option for the initial submission and the copy-editing stage. Replace it by the `final` option when producing the camera ready copy, so that page numbers and other items are stripped away.
- To conform to the layout specification for citations the `natbib` system has to be installed.
- For ARLO two compliant BibTeX styles are available: `arlonum` should be used together with the class option `numcites`, while `arlobib` should be used together with the option `bibliocites`.
- The options `bibliocites` and `numberedheadings` can be used to switch to author/year citation scheme and numbered headings, respectively.

REFERENCES

1. American Institute of Physics, *Conference Proceedings: Instructions for Camera Ready Manuscripts*, Feb 2000.
2. Daly, P., *Natural Sciences Citations and References (Author–Year and Numerical Schemes)*, 1999, distributed as `natbib.dtx` with the `natbib` software.
3. Daly, P., *Reference sheet for `natbib` usage*, 1999, distributed as `natnotes.tex` with the `natbib` software.
4. Goossens, M., Mittelbach, F., and Samarin, A., *The LaTeX Companion*, Reading, Massachusetts: Addison-Wesley, 1994.
5. Goossens, M., Rahtz, S., and Mittelbach, F., *The LaTeX Graphics Companion*, Tools and Techniques for Computer Typesetting, Reading, Massachusetts: Addison-Wesley, 1997.
6. Lamport, L., *LaTeX: A Document Preparation System*, second edn., Reading, Massachusetts: Addison-Wesley, 1994.