The `aip` substyle for REVTEX*

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This file embodies the implementation of the AIP journal substyles for APS's REVTEX 4.1 document class for electronic submissions to AIP journals.

The distribution point for this work is http://authors.aip.org/REVTEX. The archive contains ready-to-Install files, documentation, and full source.

This package is also distributed via CTAN: http://www.ctan.org/pub/tex-archive/macros/latex/contrib/aip, and as a ready-to-install image as http://www.ctan.org/pub/tex-archive/install/macros/latex/contrib/aip.tds.zip.

The `aip` package was commissioned by the American Institute of Physics and is distributed under the terms of the LaTeX Project Public License, the same license under which all the portions of LaTeX itself is distributed. Please see http://ctan.tug.org/macros/latex/base/lppl.txt for details.

To use this document class, you must have a working TeX installation equipped with LaTeX 2_ε and possibly pdftex and Adobe Acrobat Reader or equivalent.

To install, retrieve the distribution, unpack it into a directory on the target computer, and move the file `aip.rtx` into a location in your filesystem where it will be found by LaTeX.

To use, read the user documentation `auguide.pdf`.

Contents

1 Overview **3**

2 Processing Instructions **3**
- 2.1 Build Instructions . . . 3
- 2.2 Bill of Materials . . . 4
  - 2.2.1 Primary Source . . . 4
  - 2.2.2 Generated by `latex aip.dtx` . . . 4
  - 2.2.3 Generated by `tex aip.dtx` . . . 4
  - 2.2.4 Documentation . . . 4
  - 2.2.5 Auxiliary . . . 4

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3 Code common to all modules **5**

4 The driver module `driver` **5**
4.1 The Preamble . . . 5
4.1.1 Docstrip and info directives . . . 6
4.2 The "Read Me" File . . . 6
4.3 The Document Body . . . 8

5 AIP: A set of journal-specifc extensions to REVTEX **9**

6 The `aip` class option: the `aip` module **9**
6.1 Defend Against Forseeable Errors . . . 9
6.2 Substyle Options . . . 9
6.3 AIP Setup . . . 10
6.3.1 Running header and footer . . . 11
6.3.2 Title block . . . 11
6.3.3 Lead-in paragraph . . . 16
6.3.4 Stacked Heads . . . 16
6.3.5 Runin Heads . . . 17
6.3.6 Table of Contents . . . 19
6.3.7 Default column bottom . . . 20
6.3.8 Table alignment style . . . 21
6.3.9 Footnote formatting . . . 21
6.3.10 Appendix . . . 21
6.3.11 Bibliography . . . 22
6.3.12 Index . . . 26
6.3.13 Typesize Processing . . . 27
6.4 A. Running Title . . . 27
6.5 B. Equation numbering, figure and table numbering . . . 28
6.6 C. Title . . . 28
6.7 D. Author footnote . . . 28
6.8 E. Author . . . 28
6.9 F. Affiliations . . . 28
6.10 G. Received date . . . 28
6.11 H. Abstract . . . 28
6.12 J. Lead Paragraph . . . 28
6.13 K. Headings . . . 28
6.14 L. Text Footnotes . . . 28
6.15 M. Citations and Bibliography . . . 29
6.16 N. References . . . 29
6.17 O. Examples of Numerical References . . . 29
6.18 P. References in Author-year mode . . . 29
6.19 Q. Numbered Author-year References . . . 29
6.20 R. Tables . . . 29
6.21 S. Figures . . . 29
6.22 Society defaults . . . 29

6.23 Journal-Specific Code 30
6.23.1 jcp 30
6.23.2 pop 30
6.23.3 rsi 30
6.23.4 jap 31
6.23.5 apl 31
6.23.6 cha 31
6.23.7 pof 31
6.23.8 bmf 32
6.23.9 rse 32
6.23.10 jmp 32
6.24 Establish AIP Defaults 32

Index **35**

1 Overview

REVTEX is a LATEX 2$_\varepsilon$ document class, somewhat like a hybrid of the standard LATEX `book` and `article` classes.

This document class implements the AIP society and journal substyles: the journals represent a set of mutually exclusive class options that, in this case, allow the document class to address multiple journals within the AIP family. This society is obtained with class option `aip`.

2 Processing Instructions

The package file `aip.rtx` is generated from this file, `aip.dtx`, using the DOCSTRIP facility of LATEXvia `tex aip.dtx`. The typeset documentation that you are now reading is generated from the same file by typesetting it with LATEX or pdftex via `latex aip.dtx` or `pdflatex aip.dtx`.

2.1 Build Instructions

You may bootstrap this suite of files solely from `aip.dtx`. Prepare by installing LATEX 2$_\varepsilon$ (and either tex or pdftex) on your computer, then carry out the following steps:

1. Within an otherwise empty directory, typeset `aip.dtx` with LATEX or pdflatex; you will obtain the typeset documentation you are now reading, along with the installer `aip.ins`, and the file `README`.

   Note: you will have to run LATEX twice, then `makeindex`, then LATEX again in order to obtain a valid index and table of contents.

2. Now typeset `aip.dtx` with TEX(not LATEX), thereby generating the package file `aip.rtx`.

3. Install `aip.rtx` by moving it to a location in your filesystem where it will be found by LaTeX, like `tex/latex/aip`.

4. Install `aip.pdf` by moving it to `doc/latex/aip`.

5. Using the `.dbj` information herein, generate the needed `.bst` files and install them in `bibtex/bst/aip`.

2.2 Bill of Materials

Following is a list of the files in this distribution arranged according to provenance.

2.2.1 Primary Source

One single file generates all.

```
%aip.dtx
%
```

2.2.2 Generated by `latex aip.dtx`

Typesetting the source file under LaTeX generates the readme and the installer.

```
%README   aip.ins
%
```

2.2.3 Generated by `tex aip.dtx`

Typesetting the installer generates the package files.

```
%aip.rtx
%
```

2.2.4 Documentation

The following are the online documentation:

```
%aip.pdf
%
```

2.2.5 Auxiliary

The following are auxiliary files generated in the course of running LaTeX:

```
%aip.aux aip.idx aip.ind aip.log aip.toc
%
```

3 Code common to all modules

The following may look a bit klootchy, but we want to require only one place in this file where the version number is stated, and we also want to ensure that the version number is embedded into every generated file.

Now we declare that these files can only be used with LaTeX 2_ε. An appropriate message is displayed if a different TeX format is used.

```
%<*driver|package>
\NeedsTeXFormat{LaTeX2e}[1996/12/01]%
%</driver|package>
```

As desired, the following modules all take common version information:

```
%<package>\ProvidesFile{aip4-1.rtx}%
%<*driver>
\expandafter\ProvidesFile\expandafter{\jobname.dtx}%
%</driver>
```

The following line contains, for once and for all, the version and date information. By various means, this information is reproduced consistently in all generated files and in the typeset documentation.

```
%<*driver|package>
%<version>
 [2009/10/25 4.1j AIP substyle for REVTeX]% \fileversion
%</driver|package>
```

4 The driver module `driver`

This module, consisting of the present section, typesets the programmer's documentation, generating the `.ins` installer and `README` as required.

Because the only uncommented-out lines of code at the beginning of this file constitute the `driver` module itself, we can simply typeset the `.dtx` file directly, and there is thus rarely any need to generate the "driver" DOCSTRIP module. Module delimiters are nonetheless required so that this code does not find its way into the other modules.

The `\end{document}` command concludes the typesetting run.

```
%<*driver>
```

4.1 The Preamble

The programmers documentation is formatted with the `ltxdoc` class with local customizations, and with the usual code line indexing.

```
\documentclass{ltxdoc}
\RequirePackage{ltxdocext}%
\let\url\undefined
\RequirePackage[colorlinks=true,linkcolor=blue]{hyperref}%
\expandafter\ifx\csname package@font\endcsname\relax\else
 \expandafter\expandafter
```

```
 \expandafter\RequirePackage
 \expandafter\expandafter
 \expandafter{\csname package@font\endcsname}%
\fi
\gdef\lquote{`}\gdef\rquote{'}%
\CodelineIndex\EnableCrossrefs % makeindex -s gind.ist aip
\RecordChanges % makeindex -s gglo.ist -o aip.gls aip.glo
```

4.1.1 Docstrip and info directives

We use so many DOCSTRIP modules that we set the `StandardModuleDepth` counter to 1.

```
\setcounter{StandardModuleDepth}{1}
```

The following command retrieves the date and version information from this file.

```
\expandafter\GetFileInfo\expandafter{\jobname.dtx}%
```

4.2 The "Read Me" File

As promised above, here is the contents of the "Read Me" file. That file serves a double purpose, since it also constitutes the beginining of the programmer's documentation. What better thing, after all, to have appear at the beginning of the typeset documentation?

A good discussion of how to write a ReadMe file can be found in Engst, Tonya, "Writing a ReadMe File? Read This" *MacTech* October 1998, p. 58.

Note the appearance of the `\StopEventually` command, which marks the dividing line between the user documentation and the programmer documentation.

The usual user will not be asked to do a full build, not to speak of the bootstrap. Instructions for carrying these processes begin the programmer's manual.

```
\begin{filecontents*}{README}
\title{%
 The \classname{aip} substyle for REV\TeX%
 \protect\thanks{%
  \fileversion\ \copyright 2009 American Institute of Physics
  % For version number and date,
  % search on "\fileversion" in the .dtx file,
  % or see the end of the README file.
 }%
}%

\author{%
Arthur Ogawa\thanks{mailto:arthur\_ogawa at sbcglobal.net}%
}%
\date{Version \fileversion, dated \filedate}%
\maketitle

This file embodies the implementation of the
AIP journal substyles for APS's \revtex\ 4.1 document class
```

```
for electronic submissions to AIP journals.

The distribution point for this work is
\url{http://authors.aip.org/REVTEX}.
The archive contains ready-to-Install files, documentation, and full source.

This package is also distributed via CTAN:
\url{http://www.ctan.org/pub/tex-archive/macros/latex/contrib/aip}, and as a ready-to-install i
\url{http://www.ctan.org/pub/tex-archive/install/macros/latex/contrib/aip.tds.zip}.

The \classname{aip} package was commissioned by the American Institute of Physics
and is distributed under the terms of the \LaTeX\ Project Public License,
the same license under which all the portions of \LaTeX\ itself is distributed.
Please see \url{http://ctan.tug.org/macros/latex/base/lppl.txt} for details.

To use this document class, you must have a working
\TeX\ installation equipped with \LaTeXe\
and possibly pdftex and Adobe Acrobat Reader or equivalent.

To install, retrieve the distribution,
unpack it into a directory on the target computer,
and move the file \file{aip.rtx}
into a location in your filesystem where it will be found by \LaTeX.

To use, read the user documentation \file{auguide.pdf}.

\tableofcontents

\section{Overview}%
\revtex\ is a \LaTeXe\ document class, somewhat like a hybrid of
the standard \LaTeX\ \classname{book} and \classname{article} classes.

This document class implements the AIP society and journal substyles:
the journals represent a set of mutually exclusive class options that, in this case, allow the
document class to address multiple journals within the AIP family.
This society is obtained with class option \classoption{aip}.

\section{Processing Instructions}

The package file \file{aip.rtx}
is generated from this file, \file{aip.dtx},
using the {\sc docstrip} facility of \LaTeX
via |tex aip.dtx|.
The typeset documentation that you are now reading is generated from
the same file by typesetting it with \LaTeX\ or pdftex
via |latex aip.dtx| or |pdflatex aip.dtx|.

\subsection{Build Instructions}

You may bootstrap this suite of files solely from \file{aip.dtx}.
```

```
Prepare by installing \LaTeXe\ (and either tex or pdftex) on your computer,
then carry out the following steps:
\begin{enumerate}
\item
Within an otherwise empty directory,
typeset \file{aip.dtx} with \LaTeX\ or pdflatex;
you will obtain the typeset documentation you are now reading,
along with
the installer \file{aip.ins},
and the file \file{README}.

Note: you will have to run \LaTeX\ twice, then \file{makeindex}, then
\LaTeX\ again in order to obtain a valid index and table of contents.
\item
Now typeset \file{aip.dtx} with \TeX (not \LaTeX),
thereby generating the package file \file{aip.rtx}.
\item
Install \classname{aip.rtx}
by moving it to a location
in your filesystem where it will be found by \LaTeX,
like \file{tex/latex/aip}.
\item
Install \classname{aip.pdf}
by moving it to
\file{doc/latex/aip}.
\item
Using the \file{.dbj} information herein,
generate the needed \file{.bst} files and install them in
\file{bibtex/bst/aip}.
\end{enumerate}
\end{filecontents*}
```

4.3 The Document Body

Here is the document body, containing only a `\DocInput` directive—referring to this very file. This very cute self-reference is a common `ltxdoc` idiom.

```
\begin{document}%
\newcommand\revtex{REV\TeX}%
\expandafter\DocInput\expandafter{\jobname.dtx}%
% ^^A\PrintChanges
\end{document}

%</driver>
```

5 AIP: A set of journal-specifc extensions to REVTEX

To create a journal substyle, you create a `.rtx` file, in our case `aip.rtx`. Within that file, you override procedures and parameter assignments as you see fit. Ideally they will be generally applicable to all of that society's journals (see the file `aps.rtx` for a realization of this scheme). Also within that file, you include a section of code for each journal, that for JMP looks like:

```
% \@ifx{\@journal\journal@jmp}{%
% ⟨code specific to the JMP⟩
% }{}%
%
```

6 The `aip` class option: the `aip` module

The file `aip.rtx` is read in by the `revtex4` document class if `\@society` has the value `aip`.

Here, code specific to AIP journals appears.

We first give some text entities (amounting to journal abbreviations), then some AIP-specific initialisations, then code for particular AIP journals. In the latter case, the choice is keyed off the macro `\@journal`.

Note on `\AtEndOfClass`: this file, like all journal substyles, is read in at `\AtEndOfClass` time, so you should not use this command in this file. Note for LaTeX developers: It would be an improvement in LaTeX to `\let\AtEndOfClass` to something like `\@firstofone`. This change would be effected in `\@onefilewithoptions`.

```
%<*package>
```

6.1 Defend Against Forseeable Errors

Protect this file from being read in by anything but REVTEX.

```
\ifx\undefined\substyle@ext
 \def\@tempa{%
  \endinput
  \GenericWarning{I must be read in by REVTeX! (Bailing out)}%
 }%
 \expandafter\else
  \def\@tempa{}%
 \expandafter\fi\@tempa
 \class@info{RevTeX society AIP selected}%
```

6.2 Substyle Options

Here are the class options relating to the AIP:

```
\DeclareOption{jcp}{\change@journal{jcp}}%
\DeclareOption{pop}{\change@journal{pop}}%
```

```
\DeclareOption{rsi}{\change@journal{rsi}}%
\DeclareOption{jap}{\change@journal{jap}}%
\DeclareOption{apl}{\change@journal{apl}}%
\DeclareOption{cha}{\change@journal{cha}}%
\DeclareOption{pof}{\change@journal{pof}}%
\DeclareOption{bmf}{\change@journal{bmf}}%
\DeclareOption{rse}{\change@journal{rse}}%
\DeclareOption{jmp}{\change@journal{jmp}}%
```

Option allowing for "numerical author-year" bibliography.

```
\DeclareOption{author-numerical}{%
  \@booleantrue\authoryear@sw
  \@booleantrue\authornum@sw
}%
```

Optionally allow article title in bibliography entries. A new switch is defined here: `\aip@jtitx@sw` signifies that the numbered style bibliography is to be prepared without article titles in @ARTICLE entries. Otherwise, such titles are incorporated if present in the `.bib` entry. By default, exclude the article titles.

```
\DeclareOption{article-title}{%
  \@booleanfalse\aip@jtitx@sw
}%
\@booleantrue \aip@jtitx@sw
```

Establish default options for this society.

```
\@booleanfalse\authoryear@sw
\@booleanfalse\authornum@sw
```

For AIP, the preprint style `preprint` is the default.

```
\@booleantrue\preprintsty@sw
```

`\showPACS@sw` `\showKEYS@sw` If `\showPACS@sw` is true, print the PACS information in the title block, otherwise not. Similarly for `\showKEYS@sw` and the keywords.

```
\@booleantrue\showPACS@sw
\@booleantrue\showKEYS@sw
```

`\refname` In reprint style only, we eliminate the head above the bibliography.

```
\appdef\setup@hook{%
 \preprintsty@sw{}{%
  \let\refname\@empty
 }%
}%
```

6.3 AIP Setup

Here we define the default procedures for AIP journals. Individual AIP journals may override these definitions.

6.3.1 Running header and footer

Page style for all AIP journals. We assert our own page style only if nobody else has done so. Users wishing to customize their documents will be able to invoke a `\pagestyle` command anywhere in the preamble. FIXME: `\preprintsty@sw` is defined?

```
\appdef\setup@hook{%
 \preprintsty@sw{%
  \ps@preprint
 }{%
  \ps@article
 }%
}%
```

The spc says: "Running title must be provided on title page", and that journal classes 1b and 2 have no running title.

```
\def\ps@preprint{%
  \def\@oddhead{\@runningtitle\hfil}%
  \def\@evenhead{\@runningtitle\hfil}%
  \def\@oddfoot{\hfil\thepage\quad\checkindate\hfil}%
  \def\@evenfoot{\hfil\thepage\quad\checkindate\hfil}%
  \let\@mkboth\@gobbletwo
  \let\sectionmark\@gobble
  \let\subsectionmark\@gobble
}%
\def\ps@article{%
  \def\@evenhead{\let\\\heading@cr\thepage\quad\checkindate\hfil\@runningtitle}%
  \def\@oddhead{\let\\\heading@cr\@runningtitle\hfil\checkindate\quad\thepage}%
  \def\@oddfoot{}%
  \def\@evenfoot{}%
  \let\@mkboth\@gobbletwo
  \let\sectionmark\@gobble
  \let\subsectionmark\@gobble
}%
\def\@runningtitle{\@shorttitle}%
```

6.3.2 Title block

The specifics of the title block. Apply to all AIP journals; individual journals may override these settings.

`\titlepage`

```
\renewenvironment{titlepage}{%
  \let\wastwocol@sw\twocolumn@sw
  \onecolumngrid
  \newpage
  \thispagestyle{titlepage}%
  \c@page\z@% article sets this to one not zero???
}{%
  \wastwocol@sw{\twocolumngrid}{\newpage}%
```

```
}%
```

`\@fnsymbol` On the title page, footnotes are lettered with right parenthesis: "a)".

```
\let\@fnsymbol@latex\@fnsymbol
\let\@fnsymbol\@alph
```

`\adjust@abstractwidth` This procedure is used by many titlepage elements to indent on the left by a particular amount. The author list uses `\frontmatter@authorformat` to accomplish the same.

```
\def\adjust@abstractwidth{%
 \parindent1em\relax
 \advance\leftskip.5in\relax
 \@totalleftmargin\leftskip
 \@afterheading\@afterindentfalse
}%
```

`\frontmatter@abstractheading` AIP Journals all set the abstract head the same way, with no head.

```
\def\frontmatter@abstractheading{}%
```

`\frontmatter@abstractfont` All AIP journals set the abstract body the same way.

```
\def\frontmatter@abstractfont{%
%\small
 \adjust@abstractwidth
}%
```

All AIP journal preprints use separate titlepage and full-width abstract.

```
\appdef\setup@hook{%
 \preprintsty@sw{%
  \@booleantrue\titlepage@sw
% \def\frontmatter@affiliationfont{\it}%
  \let\section\section@preprintsty
% \let\@hangfrom@section\@hangfrom@section@preprintsty
  \let\subsection\subsection@preprintsty
  \let\subsubsection\subsubsection@preprintsty
 }{}%
}%
```

`\frontmatter@authorformat` All AIP journals set the author list the same. The leading is 11.5 points, and there is 11.5 points of extra space above the first author line (which amounts to the same thing as 11.5 points extra below the title) for a total of 23 points base-to-base.

```
\def\frontmatter@@indent{%
 \skip@\@flushglue
 \@flushglue\z@ plus.3\hsize\relax
 \raggedright
 \advance\leftskip.5in\relax
 \@totalleftmargin\leftskip
 \@flushglue\skip@
}%
```

```
\def\frontmatter@authorformat{%
 \frontmatter@@indent
 \sffamily
%\advance\baselineskip\p@
%\parskip11.5\p@\relax
}%
\renewcommand*\email[1][Electronic mail: ]{\begingroup\sanitize@url\@email{#1}}%
```

`\frontmatter@above@affilgroup` The default amount of space above affiliation.

```
\def\frontmatter@above@affilgroup{%
}%
```

`\frontmatter@above@affiliation` `matter@above@affiliation@script` The default amount of space above affiliation.

```
\def\frontmatter@above@affiliation@script{%
 \frontmatter@@indent
%\addvspace{3.5\p@}%
}%
\def\frontmatter@above@affiliation{%
}%
```

`\frontmatter@affiliationfont` All AIP journals set the affiliation the same. Like the author, but in italic.

```
\def\frontmatter@affiliationfont{%
 \frontmatter@@indent
 \preprintsty@sw{}{\small}%
 \it
}%
```

`frontmatter@collaboration@above`

```
\def\frontmatter@collaboration@above{%
}%
```

Set up the default AIP style for title block authors and affiliations.

`\frontmatter@setup` All AIP journals set the title page using the same font and size. However, justification varies for the title block elements, so we assert none here.

```
\def\frontmatter@setup{%
 \normalfont
}%
```

`\frontmatter@title@above` `\frontmatter@title@format` `\frontmatter@title@below` All AIP journals set the article title 12 point Times Roman, bold, flush left.

```
\def\frontmatter@title@above{\addvspace{6\p@}}%
\def\frontmatter@title@format{%
 \preprintsty@sw{}{\Large}%
 \sffamily
 \bfseries
 \raggedright
 \parskip\z@skip
}%
\def\frontmatter@title@below{\addvspace{3\p@}}%
```

\frontmatter@makefnmark All AIP journals share this procedure for setting the titlepage footnote text: superior lowercase letter, with right parenthesis.

```
\def\@author@parskip{3\p@}%
\@booleantrue\altaffilletter@sw
\def\frontmatter@makefnmark{%
 \@textsuperscript{%
  \normalfont\@thefnmark%(
  )%
 }%
}%
\def\frontmatter@authorbelow{%
\addvspace{3\p@}%
}%
```

\affil@cutoff We override \affil@cutoff to enforce the rule that, if a single affiliation appears on the title page, then no affiliation superscript at all is produced.

```
\let\affil@cutoff\tw@
```

De awa.

\frontmatter@RRAP@format All AIP journals use the same format for the "Received, Revised, etc." block on the title page.

Change note: 11.5 points b-b from author/affiliation down to date.

```
\def\frontmatter@RRAP@format{%
  \addvspace{5\p@}%
  \small
  \raggedright
  \advance\leftskip.5in\relax
 \@totalleftmargin\leftskip
% \preprintsty@sw{}{\parskip.5ex\relax}%
  \everypar{%
   \hbox\bgroup(\@gobble@leavemode@uppercase%)
  }%
  \def\par{%
   \@ifvmode{}{%(
    \unskip)\egroup\@@par
   }%
  }%
}%
\def\punct@RRAP{;\egroup\ \hbox\bgroup}%
\def\@gobble@leavemode@uppercase#1#2{\expandafter\MakeTextUppercase}%
```

\frontmatter@PACS@format

```
\def\frontmatter@PACS@format{%
   \addvspace{11\p@}%
%  \footnotesize
   \adjust@abstractwidth
   \parskip\z@skip
   \samepage
}%
```

\frontmatter@keys@format

```
\def\frontmatter@keys@format{%
%  \footnotesize
   \adjust@abstractwidth
   \samepage
}%
```

\ps@titlepage Title page style. Currently empty except for preprint header, which consists of all the \preprint arguments, stacked flush right at the right margin.

```
\def\ps@titlepage{%
  \def\@oddhead{%
   \@runningtitle
   \hfill
   \produce@preprints\@preprint
  }%
  \let\@evenhead\@oddhead
  \def\@oddfoot{%
   \hb@xt@\z@{\byrevtex\hss}%
   \hfil
   \preprintsty@sw{\thepage}{}%
   \quad\checkindate
   \hfil
  }%
  \let\@evenfoot\@oddfoot
}%
\def\byrevtex{\byrevtex@sw{Typeset by REV\TeX and AIP}{}}%
```

\produce@preprints

```
\def\produce@preprints#1{%
 \preprint@sw{%
  \vtop to \z@{%
   \def\baselinestretch{1}%
   \small
   \let\preprint\preprint@count
   \count@\z@#1\@ifnum{\count@>\tw@}{%
    \hbox{%
     \let\preprint\preprint@hlist
     #1\setbox\z@\lastbox
    }%
   }{%
    \let\preprint\preprint@cr
    \halign{\hfil##\cr#1\crcr}%
    \par
    \vss
   }%
  }%
 }{}%
}%
\def\preprint@cr#1{#1\cr}%
```

```
\def\preprint@count#1{\advance\count@\@ne}%
\def\preprint@hlist#1{#1\hbox{, }}%
```

6.3.3 Lead-in paragraph

The `Lead-in paragraph` environment formats the AIP "lead paragraph". To avoid introducing new syntax, we take over the `quotation` environment until the first `\section` (or other sectioning command) appears.

```
\newenvironment{Lead@inParagraph}{%
 \par
 \bfseries
 \@afterheading\@afterindentfalse
}{%
 \par
 \hb@xt@\hsize{\hfil\leaders\hrule\hfil\leaders\hrule\hfil\hfil}%
}%
```

At the beginning of the document temporarily change the meaning of the `quotation` environment, restoring it once the first sectioning command is given.

```
\appdef\frontmatter@init{%
 \let@environment{quotation@ltx}{quotation}%
 \let@environment{quotation}{Lead@inParagraph}%
}%
\appdef\@startsection@hook{%
 \let@environment{quotation}{quotation@ltx}%
}%
```

6.3.4 Stacked Heads

All AIP journals put a period (.), followed by quad space, after the section number. Also, no hanging section number.

```
\def\@seccntformat#1{\csname the#1\endcsname.\quad}%
\def\@hang@from#1#2#3{#1#2#3}%
```

Note that in the following, we wish to set the section head uppercase, so we use David Carlisle's `\MakeTextUppercase`. However, because this procedure effectively parses its argument (looking for things to *not* translate), it has to be invoked in such a way that the argument of the `\section` command is passed to it as its own argument.

To accomplish this, we use the `\@hangfrom@` hook, which was developed for this purpose.

```
\def\section{%
  \@startsection
    {section}%
    {1}%
    {\z@}%
    {0.8cm \@plus1ex \@minus .2ex}%
    {0.5cm}%
    {%
```

```
     \normalfont
     \small
     \sffamily
     \bfseries
     \raggedright
    }%
}%
\def\@hangfrom@section#1#2#3{\@hangfrom{#1#2}\MakeTextUppercase{#3}}%
\def\@hangfroms@section#1#2{#1\MakeTextUppercase{#2}}%
```

See, e.g., BMF_044101_1 (1) or BMF_044103_1 (1)

```
\def\subsection{%
  \@startsection
    {subsection}%
    {2}%
    {\z@}%
    {.8cm \@plus1ex \@minus .2ex}%
    {.5cm}%
    {%
     \normalfont
     \small
     \sffamily
     \bfseries
     \raggedright
    }%
}%
```

See, e.g., BMF_044104_1 (1), JMP_123520_1 (48),

```
\def\subsubsection{%
  \@startsection
    {subsubsection}%
    {3}%
    {\z@}%
    {.8cm \@plus1ex \@minus .2ex}%
    {.5cm}%
    {%
     \normalfont
     \small
     \sffamily
     \bfseries
     \itshape
     \raggedright
    }%
}%
```

6.3.5 Runin Heads

```
\def\paragraph{%
  \@startsection
    {paragraph}%
```

```
    {4}%
    {\parindent}%
    {\z@}%
    {-1em}%
    {\normalfont\normalsize\itshape}%
}%
\def\subparagraph{%
  \@startsection
    {subparagraph}%
    {5}%
    {\parindent}%
    {3.25ex \@plus1ex \@minus .2ex}%
    {-1em}%
    {\normalfont\normalsize\bfseries}%
}%
```

\section@preprintsty
\subsection@preprintsty
\subsubsection@preprintsty

Here are the formatting procedures specific to the preprint style; the only difference is that the heads are flush left instead of centered.

```
\def\section@preprintsty{%
  \@startsection
    {section}%
    {1}%
    {\z@}%
    {0.8cm \@plus1ex \@minus .2ex}%
    {0.5cm}%
    {%
     \normalfont
     \bfseries
     \raggedright
    }%
}%
%\def\@hangfrom@section@preprintsty#1#2#3{\@hangfrom{#1#2}\MakeTextUppercase{#3}}%
\def\subsection@preprintsty{%
  \@startsection
    {subsection}%
    {2}%
    {\z@}%
    {.8cm \@plus1ex \@minus .2ex}%
    {.5cm}%
    {%
     \normalfont
     \bfseries
     \raggedright
    }%
}%
\def\subsubsection@preprintsty{%
  \@startsection
    {subsubsection}%
    {3}%
```

```
    {\z@}%
    {.8cm \@plus1ex \@minus .2ex}%
    {.5cm}%
    {%
     \normalfont
%    \small
     \itshape\bfseries
     \raggedright
    }%
}%
```

For examples of `theorem`, `proposition`, `lemma`, `remark`, `corollary`, `example`, and `proof` (with optional title), using independent numbering for each class, and with numbered and roman lists therein, see JMP_122901_1 (48).

For theorems, etc, numbered by section, (and with theorems in the appendix) but equations numbered throughout, see JMP_123301_1 (48).

For a (roman) list in text, theorem, and proof, see JMP_123514_1 (48).

For numbered list in text, and equations numbered by section, see JMP_123518_1 (48).

All AIP journals use frontmatter footnotes by default.

```
\let\frontmatter@footnote@produce\frontmatter@footnote@produce@footnote
```

6.3.6 Table of Contents

The toc will itself make an entry in the toc, but we temporarily turn off toc formatting for the duration.

```
\def\@pnumwidth{1.55em}
\def\@tocrmarg {2.55em}
\def\@dotsep{2}
\def\ltxu@dotsep{4.5pt}
\setcounter{tocdepth}{3}

\def\tableofcontents{%
 \addtocontents{toc}{\string\tocdepth@munge}%
 \print@toc{toc}%
 \addtocontents{toc}{\string\tocdepth@restore}%
}%

\def\tocdepth@munge{%
  \let\l@section@saved\l@section
  \let\l@section\@gobble@tw@
}%
\def\@gobble@tw@#1#2{}%

\def\tocdepth@restore{%
  \let\l@section\l@section@saved
}%

\def\l@part#1#2{\addpenalty{\@secpenalty}%
 \begingroup
  \set@tocdim@pagenum{#2}%
```

```
% \@tempdima 3em %
  \parindent \z@
  \rightskip\tocleft@pagenum plus 1fil\relax
  \skip@\parfillskip\parfillskip\z@
  \addvspace{2.25em plus\p@}%
  \large \bf %
  \leavevmode\ignorespaces#1\unskip\nobreak\hskip\skip@
  \hb@xt@\rightskip{\hfil\unhbox\z@}\hskip-\rightskip\hskip\z@skip
  \par
  \nobreak %
 \endgroup
}%
```

`\l@section` Determine which TOC elements are automatically indented.

```
\def\tocleft@{\z@}%
\def\tocdim@min{5\p@}%
\def\l@section{%
 \l@@sections{}{section}% Implicit #3#4
}%
\def\l@f@section{%
 \addpenalty{\@secpenalty}%
 \addvspace{1.0em plus\p@}%
 \bf
}%
\def\l@subsection{%
 \l@@sections{section}{subsection}% Implicit #3#4
}%
\def\l@subsubsection{%
 \l@@sections{subsection}{subsubsection}% Implicit #3#4
}%
\def\l@paragraph#1#2{}%
\def\l@subparagraph#1#2{}%
```

Activate the auto TOC processing.

```
\let\toc@pre\toc@pre@auto
\let\toc@post\toc@post@auto
\def\listoffigures{\print@toc{lof}}%
\def\l@figure{\@dottedtocline{1}{1.5em}{2.3em}}
\def\listoftables{\print@toc{lot}}%
\let\l@table\l@figure
```

6.3.7 Default column bottom

All AIP journal styles have flush bottoms.

```
\@booleanfalse\raggedcolumn@sw
```

6.3.8 Table alignment style

\tableft@skip@float
\tabmid@skip@float
\tabright@skip@float
\array@row@pre@float
\array@row@pst@float

All AIP publications have the same table specification: Scotch rules above and below, centered in column.

```
\def\tableft@skip@float{\z@ plus\hsize}%
\def\tabmid@skip@float{\@flushglue}%
\def\tabright@skip@float{\z@ plus\hsize}%
\def\array@row@pre@float{\hline\hline\noalign{\vskip\doublerulesep}}%
\def\array@row@pst@float{\noalign{\vskip\doublerulesep}\hline\hline}%
```

6.3.9 Footnote formatting

We customize the formatting of footnotes for all AIP journals.

\@makefntext

```
\def\@makefntext#1{%
 \def\baselinestretch{1}%
 \leftskip1em%
 \parindent1em%
 \noindent
 \nobreak\hskip-\leftskip
 \hb@xt@\leftskip{%
  \hss\@makefnmark\ %
 }%
 #1%
 \par
}%
```

6.3.10 Appendix

\appendix
\@hangfrom@appendix
\@hangfroms@appendix
\@appendixcntformat

```
\prepdef\appendix{%
 \par
 \let\@hangfrom@section\@hangfrom@appendix
%\let\@hangfroms@section\@hangfroms@appendix
 \let\@sectioncntformat\@appendixcntformat
}%
\def\@hangfrom@appendix#1#2#3{%
 #1%
 \@if@empty{#2}{%
  #3%
 }{%
  #2\@if@empty{#3}{}{:\ #3}%
 }%
}%
\def\@hangfroms@appendix#1#2{%
 #1#2%
}%
\def\@appendixcntformat#1{\appendixname\ \csname the#1\endcsname}%
```

6.3.11 Bibliography

Customize the REVTEX for the AIP society. this task requires three components: the BIBTEX `aipnum.bst` and `aipauth.bst` style files, customizing code for `natbib`, and customizations of the `thebibliography` environment.

`\@bibstyle` Define the argument of the `\bibliographystyle` command. The user must have installed a `.bst` file of the corresponding name. This file will then be used by BIBTEX when compiling the document's `.bbl` file.

The default bibliography style for the AIP journal substyles are `aipnum.bst` and `aipauth.bst`. To generate them, use `custom-bib` version 4.21 or later. Run the `.bst` generator, `makebst.tex`, and accept all defaults, with the following exceptions:

1. ORDERING OF REFERENCES: c: seq-no (references in order of Citation);
2. AUTHOR NAMES: i: nm-init,ed-au (Initials + surname);
3. NUMBER OF AUTHORS: l: max 12, min 12 (there will be three prompts total);
4. TYPEFACE FOR AUTHORS IN LIST OF REFERENCES: u: nmft,nmft-def (User defined author font);
5. FONT FOR FIRST NAMES: u: fnm-def (First names in user defined font);
6. EDITOR NAMES IN INCOLLECTION ETC: a: nmfted (Editors incollection like authors);
7. DATE FORMAT: p: yr-par (Date in parentheses);
8. SUPPRESS MONTH: x: xmth (Date is year only);
9. TITLE OF ARTICLE: i: tit-it (Title italic)
10. ARTICLE TITLE PRESENT: x: jtit-x (No article title);
11. JOURNAL NAME FONT: r: jttl-rm (Journal title normal);
12. TECHNICAL REPORT TITLE: b: trtit-b (Tech. report title like books);
13. JOURNAL VOLUME: b: vol-bf (Volume bold);
14. VOLUME PUNCTUATION: c: volp-com (Volume with comma);
15. PAGE NUMBERS: f: jpg-1 (Only start page number);
16. JOURNAL NAME PUNCTUATION: x: jnm-x (Space after journal);
17. PUBLISHER IN PARENTHESES: d: pub-date (Publisher and date in parentheses);
18. PUBLISHER POSITION: p: pre-pub (Publisher before chapter, pages);

19. ISBN NUMBER: isbn: (Include ISBN for books, booklets)
20. ISSN NUMBER: issn: (Include ISSN for periodicals)
21. EDITOR IN COLLECTIONS: b: edby (Booktitle, edited by ...);
22. PUNCTUATION BETWEEN SECTIONS (BLOCKS): c: blk-com (Comma between blocks);
23. ABBREVIATE WORD 'PAGES': a: pp ('Page' abbreviated);
24. ABBREVIATE WORD 'EDITORS': a: ed ('Editor' abbreviated);
25. OTHER ABBREVIATIONS: a: abr (Abbreviations);
26. ABBREVIATION FOR 'EDITION': a: ednx ('Edition' abbreviated as 'ed');
27. EDITION NUMBERS: n: ord (Numerical editions);
28. STORED JOURNAL NAMES: a: jabr (Abbreviated journal names);
29. FONT OF 'ET AL': i: etal-it (Italic et al);
30. ADDITIONAL REVTeX DATA FIELDS: r: revdata, eprint, url, url-blk (Include REVTeX data fields collaboration, eid, eprint, numpages, url)
31. NEW FONT SELECTION SCHEME: n: nfss (NFSS);
32. ADDITIONAL REVTeX DATA FIELDS: y: revdata (additional data fields);
33. REFERENCE COMPONENT TAGS: y: reference component tags;
34. URL ADDRESS: n: URL as note;

A file `aipnum.dbj` file equivalent to the following should result:

```
%\input docstrip
%\preamble
%----------------------------------------
%*** REVTeX-compatible aipnum4-1.bst 2009-10-08 ***
%\endpreamble
%\postamble
%End of customized bst file
%\endpostamble
%\keepsilent
%\askforoverwritefalse
%\def\MBopts{\from{merlin.mbs}{%
%  head,\MBopta}
%\from{physjour.mbs}{\MBopta}
%\from{geojour.mbs}{\MBopta}
%\from{photjour.mbs}{\MBopta}
%\from{merlin.mbs}{tail,\MBopta}}
```

```
%\def\MBopta{%
%  lang,%: Use language field to switch hyphenation patterns for title
%  pres,pres-bf,%: Presentation, speaker bold face
%  seq-no,%: Citation order (unsorted, like unsrt.bst)
%  vonx,%: Sort without von part (de la Maire after Mahone)
%  nm-init,ed-au,%: Initials + surname (J. F. Smith)
%  nmft,nmft-def,%: User defined author font (\bibnamefont)
%  fnm-def,%: First names in user defined font (\bibfnamefont)
%  nmfted,%: Editors incollection like authors font
%  nmand-rm,%: 'And' in normal font (JONES and JAMES)
%  lab,lab-def,%: User defined citation font (\citenamefont)
%  and-rm,%: Cited 'and' in normal font
%  yr-par,%: Date in parentheses as (May 1993)
%  date-nil-x,%: If date is empty, then do not produce the surrounding punctuation (parens, bracke
%  tit-qq,%: Title and punctuation in double quotes (``Title,'' ..)
%  inproceedings-chapter,%: produce pages after chapter, just as in InBook
%  jtit-x,%: Title is ignored
%  inproceedings-chapter,%: produce pages after chapter just as in InBook
%  article-booktitle,%: format booktitle
%  article-series,%: article can has series
%  jttl-rm,%: Journal name normal font
%  journal-address,%: Include address field (in parentheses) along with journal name
%  book-bt,%: Field 'booktitle', or if absent field 'title', is book title
%  thesis-title-o,%: Title is optional: no warning issued if empty
%  techreport-institution-par,%: format tech report institution like book publisher
%  vol-bf,%: Volume bold as {\bf vol}(num)
%  vnum-x,%: Journal vol, without number as 34
%  volp-com,%: Volume with comma as vol(num), ppp
%  jpg-1,%: Only start page number
%  book-editor-booktitle,%: Book permits empty author, produces title before editor in this case
%  inbook-editor-booktitle,%: Allow using both title/booktitle, both author/editor
%  bookaddress,%: Italic booktitle followed by bookaddress in roman
%  num-xser,%: Allows number without series and suppresses word "number"
%  number-cap,%: Capitalize word 'number' as: "Number 123"
%  chapter-cap,%: Capitalize word 'chapter' as: 'Chapter 42'
%  series-number,%: Series number as: 'Springer Lecture Notes No. 125'
%  numser-booktitle,%: After book title and conference address, and before editors
%  ser-vol,%: Series, vol. 23
%  ser-rm,%: format series roman , even when used with volume
%  volume-cap,%: Capitalize word 'volume', as: 'Volume 7 in Lecture Series'
%  ser-ed,%: Series and volume after booktitle and before editors
%  jnm-x,%: Space after journal name
%  pg-bk,book-chapter-pages,%: As chapter and page: chapter 42, page 345
%  pub-date,%: Publisher with address and date in parentheses (Oxford, 1994)
%  ay-empty-pub-parens-x,%: eliminate parentheses altogether if nothing inside
%  pre-pub,%: Publisher before volume, chapter, pages
%  pre-edn,%: Edition before publisher
%  pre-pub,pre-edn,%: Edition, publisher, volume, chapter, pages
%  isbn,%: Include ISBN for books, booklets, etc.
%  issn,%: Include ISSN for periodicals
```

```
%  doi-link,doi,%: Doi forms a link to the publication, anchored to the volume or title
%  edby,%: In booktitle, edited by ..  (where .. is names)
%  blk-com,%: Comma between blocks
%  fin-endbibitem,%: Command at end instead of period
%  pp,%: 'Page' abbreviated as p. or pp.
%  ed,%: 'Editor' abbreviated as ed. or eds.
%  abr,%: Abbreviations of such words
%  ednx,%: 'Edition' abbreviated as 'ed'
%  ord,%: Numerical editions as 1st, 2nd, 3rd, etc
%  jabr,%: Abbreviated journal names
%  etal-it,%: Italic et al
%  revdata,eprint,url,url-blk,translation,%: Include REVTeX data fields collaboration, eid, eprint
%  SLACcitation,%: Produce SLACcitation field
%  numpages-x,%: Do not include numpages field
%  url,url-prefix-x,%: URL without prefix (default: 'URL ')
%  bibinfo,%: Reference component tags like \bibinfo in the content of \bibitem
%  bibfield,%: Element tags like \bibfield in the content of \bibitem
%  nfss,%: Use LaTeX commands which may not work with Plain TeX
%,{%
%  }}
%\generate{\file{aipnum4-1.bst}{\MBopts}}
%\endbatchfile
%
```

Between the two files `aipnum.dbj` and `aipauth.dbj`, the differences are limited: `aipnum.dbj` has two lines lacking in `aipauth.dbj`:

```
%  seq-no,%: Citation order (unsorted, like unsrt.bst)
%  nm-init,ed-au,%: Initials + surname (J. F. Smith)
%
```

thus, the "numbered citation" bibliography is sorted by citation order, and the names are give first inital, then last name.

Likewise, `aipauth.dbj` has one line lacking in `aipnum.dbj`:

```
%  nm-rev,%: Surname + comma + initials (Smith, J. F.)
%
```

Thus, the "author-year" bibliography is sorted by author name, and names are given last name first, followed by initials.

Note that `aipnumlong.dbj` is the same as `aipnum.dbj`, except:

- Remove `jtit-x`, `jpg-1`. This means article titles and full page range.
- Add `article-title-o`: article title is not required.

The differences between `aipauthlong.dbj` and `aipauth.dbj` are exactly the same as between `aipnumlong.dbj` and `aipnum.dbj`

We ensure that the journal substyle has the first word in the matter by installing the (default) AIP code later on (see Section 6.24).

\pre@bibdata Set up to write endnotes to a .bib file; its data will be incorporated into the bibliography.

```
\def\pre@bibdata{\jobname\bibdata@app}%
```

\bibsection We define the sectioning command to use when starting the bibliography (we use \refname).

```
\def\refname{References}%
\def\rtx@bibsection{%
 \@ifx@empty\refname{%
  \par\vspace{6\p@ plus 6\p@}%
 }{%
% \let\@hangfroms@section\@hang@froms
  \expandafter\section\expandafter*\expandafter{\refname}%
  \@nobreaktrue
 }%
}%
```

\bibpreamble
\bibsep
\newblock

```
\let\bibpreamble\@empty
\appdef\setup@hook{%
 \bibsep\z@\relax
}%
\def\newblock{\ }%
```

\bibfont We define the font switch that applies to the body of the bibliography.

```
\appdef\setup@hook{%
 \def\bibfont{%
  \preprintsty@sw{}{\footnotesize}%
  \@clubpenalty\clubpenalty
  \labelsep\z@
 }%
}%
\let\place@bibnumber\place@bibnumber@sup
```

6.3.12 Index

```
\newenvironment{theindex}{%
 \columnseprule \z@
 \columnsep 35\p@
 \c@secnumdepth-\maxdimen
 \onecolumngrid@push
 \section{\indexname}%
 \thispagestyle{plain}%
 \parindent\z@
 \parskip\z@ plus.3\p@\relax
 \let\item\@idxitem
 \onecolumngrid@pop
}{%
}%
```

```
%
\def\@idxitem{\par\hangindent 40\p@}
%
\def\subitem{\par\hangindent 40\p@ \hspace*{20\p@}}
%
\def\subsubitem{\par\hangindent 40\p@ \hspace*{30\p@}}
%
\def\indexspace{\par \vskip 10\p@ plus5\p@ minus3\p@\relax}
```

6.3.13 Typesize Processing

The formatting specification for the preprint option is: Times Roman 12 pt, double spacing, with 1-inch margins on letter paper. Paragraphs indented "five spaces". Display math on standard indent, with equation number flush right in parenthesis, with subequations roman.

That for reprint option is to format similar to the printed journal; with most journals set (approximately analyzed) 10-point, 2-column grid, letter paper.

```
\expandafter\def\csname rtx@aip10pt\endcsname{%
 \let\@currname@class\@currname
 \def\@currname{aps10pt\substyle@post}%
 \class@info{Reading file \@currname.\substyle@ext}%
 \input{\@currname.\substyle@ext}%
 \let\@currname\@currname@class
 \class@info{Overriding 10pt}%
 \aipreprint
}%
\expandafter\def\csname rtx@aip11pt\endcsname{\csname rtx@aip12pt\endcsname}%
\expandafter\def\csname rtx@aip12pt\endcsname{%
 \let\@currname@class\@currname
 \def\@currname{aps12pt\substyle@post}%
 \class@info{Reading file \@currname.\substyle@ext}%
 \input{\@currname.\substyle@ext}%
 \let\@currname\@currname@class
 \class@info{Overriding 12pt}%
 \aippreprint
}%
```

`\today` Procedure `\today` is used in the article class, but not in this document class.

```
\def\today{%
  \number\day\space
  \ifcase\month
   \or January\or February\or March\or     April\or   May\or      June%
   \or July\or    August\or   September\or October\or November\or December%
  \fi\space
  \number\year
}%
```

6.4 A. Running Title

User-provided running title `\@shorttitle` to be set.

6.5 B. Equation numbering, figure and table numbering

Equations can be numbered throughout, or by section, with appendix equations prepended by the appendix label. Figures and tables are numbered throughout.

6.6 C. Title

Title page may break above abstract, within author list. Title notes are signified by superior letter followed by right parenthesis.

6.7 D. Author footnote

Set short line above these footnotes.

6.8 E. Author

Class option `superscriptaddress` is standard.

```
644 \clo@superscriptaddress
```

6.9 F. Affiliations

Set italic.

6.10 G. Received date

6.11 H. Abstract

Single paragraph, no indent.

6.12 J. Lead Paragraph

Set boldface, flush left before main text, single paragraph. Separated from text by a short centered rule.

6.13 K. Headings

Use labels: ROMAN, LETTER, arabic, letter. Set ALLCAPS, boldface; Initial cap, boldface; Initial cap, bold-italic; Initial cap, italic.

Theorem, proof title followed by colon. Follow author.

6.14 L. Text Footnotes

Not permitted; use endnotes.

6.15 M. Citations and Bibliography

Numerical aip.dtxaipnum.bst, author-year aip.dtxaipauth.bst, and numbered author-year aip.dtxaipnumauth.bst are the available choices. Numerical is standard, with all styles permitted in journal classes 3a and 4b.

6.16 N. References

Article Title usage:

Article title required in all journals with "unpublished", "to be published", "in press" and "submitted" refs.

Exceptions:

Journal classes 1a,1b,2,4a:

Article title not allowed in published references, except in the case of "in press" or submitted" (see sample references below).

Journal class 3a:

Article title allowed but not required in author-year references (use must be consistent within a single manuscript).

Journal class 3b:

Article title required in all journal references and report references.

Journal class 4b:

Article title allowed in journal references in author-year mode.

6.17 O. Examples of Numerical References

6.18 P. References in Author-year mode

6.19 Q. Numbered Author-year References

6.20 R. Tables

Placed within text (floated), labeled with Roman numeral.

Table caption placed above table, followed by space, two double lines, space, table column headings, space, single line, table contents, two double lines.

Footnotes labeled with superior lower-case letter, set below table contents.

6.21 S. Figures

Placed within text (floated), labeled with arabic numbers.

Caption set below figure. A citation to be set inline, not superscripted.

6.22 Society defaults

After this society file is read in, we will process the `\@journal-` and `\@pointsize-` specific code. Here we define the defaults.

We select **Chaos** as the default journal substyle, because it is the most permissive in terms of bibliography and citation style, and it is formatted in two column in the reprint style.

```
\def\@journal@default{cha}%
\def\@pointsize@default{12}%
```

6.23 Journal-Specific Code

For AIP journals, we supply code specific to JCP, POP, RSI, JAP, APL, CHA, POF, BMF, RSE, JMP.

6.23.1 jcp

A member of the journal class 1a.

```
\def\rtx@aipjcp{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 1a uses the (superscript) numerical citation style by default.

```
 \@booleanfalse\authoryear@sw
```

End of `jcp` code.

```
}%
```

6.23.2 pop

A member of the journal class 1a.

```
\def\rtx@aippop{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 1a uses the (superscript) numerical citation style by default.

```
 \@booleanfalse\authoryear@sw
```

End of `pop` code.

```
}%
```

6.23.3 rsi

A member of the journal class 1a.

```
\def\rtx@aiprsi{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 1a uses the (superscript) numerical citation style by default.

```
 \@booleanfalse\authoryear@sw
```

End of `rsi` code.

```
}%
```

6.23.4 jap

Sole member of the journal class 1b.

No running title.

```
\def\rtx@aipjap{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 1b uses the (superscript) numerical citation style by default.

```
 \@booleanfalse\authoryear@sw
 \let\@runningtitle\@empty
```

End of `jap` code.

```
}%
```

6.23.5 apl

Sole member of the journal class 2.

No running title.

```
\def\rtx@aipapl{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 2 uses the (superscript) numerical citation style by default.

```
 \@booleanfalse\authoryear@sw
 \let\@runningtitle\@empty
```

End of `apl` code.

```
}%
```

6.23.6 cha

Sole member of the journal class 3a.

```
\def\rtx@aipcha{%
 \typeout{Using journal substyle \@journal.}%
```

Article titles are allowed.

```
 \@booleanfalse\aip@jtitx@sw
```

End of `cha` code.

```
}%
```

6.23.7 pof

Sole member of the journal class 3b.

```
\def\rtx@aippof{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 3b uses the (superscript) numerical citation style by default. Article titles are required, so we include them if available, but if absent, we can do no more than make a warning in the `.blg`.

```
 \@booleanfalse\authoryear@sw
 \@booleanfalse\aip@jtitx@sw
```

End of pof code.

```
}%
```

6.23.8 bmf

A member of the journal class 4a, the Biomicrofluidics journal is single column.

```
\def\rtx@aipbmf{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 4a uses the (superscript) numerical citation style by default. Journal is formatted in a single column.

```
 \@booleanfalse\authoryear@sw
 \@booleanfalse\twocolumn@sw
```

End of bmf code.

```
}%
```

6.23.9 rse

A member of the journal class 4a.

```
\def\rtx@aiprse{%
 \typeout{Using journal substyle \@journal.}%
```

Journal class 4a uses the (superscript) numerical citation style by default.

```
 \@booleanfalse\authoryear@sw
```

End of rse code.

```
}%
```

6.23.10 jmp

Sole member of the journal class 4b, Journal of Mathematical Physics is single column. For an example of itemize, see JMP_122901_1 (48).

```
\def\rtx@aipjmp{%
 \typeout{Using journal substyle \@journal.}%
```

Article titles are allowed. Journal is formatted in a single column.

```
 \@booleanfalse\aip@jtitx@sw
 \@booleanfalse\twocolumn@sw
```

End of jmp code.

```
}%
```

6.24 Establish AIP Defaults

\footinbib@sw All AIP journals invoke the footinbib option.

```
\@booleantrue\footinbib@sw
```

\place@bibnumber
\@bibstyle
\bibpunct

We install code that will govern the style in which \cite commands are formatted, select the presentation for \bibitems and control the BibTeX processing.

Note that a journal substyle may override these settings. Likewise, document preamble may itself invoke \bibpunct or \bibliographystyle, thereby overriding these settings and those of the journal substyle.

The numbered citations of aipnum and aipauthnum are compatible with footinbib and the compression and coalescing features of natbib, while aipauth's author-year citations are not. Therefore, we de-select such options if we are selecting author-year citations.

Note on natbib presets: aipnum and aipauthnum uses the Chicago \bibpunct style; while aipauth uses that of Nature.

Note on \NAT@mcite: if not using numerical citations, we set \NAT@mcite to a lower value, to turn off the mcite semantics of natbib.

```
\let\place@bibnumber\place@bibnumber@sup
\appdef\setup@hook{%
 \authoryear@sw{%
  \aip@jtitx@sw{%
   \def\@bibstyle{aipauth\substyle@post}%
  }{%
   \def\@bibstyle{aipauth\substyle@post long}%
  }%
  \authornum@sw{%
   \bibpunct{}{}{,}{s}{}{\textsuperscript{,}}%
   \let\onlinecite\rev@citealpnum
  }{%
   \bibhang10\p@
   \bibpunct{(%)
               }{%(
                 )}{; }{a}{,}{,}%
   \@booleanfalse\footinbib@sw
   \let\NAT@mcite\@ne
   \let\NAT@sort\z@
   \def\NAT@cmprs{\z@}%
   \let\NAT@def@citea\rtx@def@citea
   \let\NAT@def@citea@close\rtx@def@citea@close
  }%
 }{%
  \aip@jtitx@sw{%
   \def\@bibstyle{aipnum\substyle@post}%
  }{%
   \def\@bibstyle{aipnum\substyle@post long}%
  }%
  \bibpunct{}{}{,}{s}{}{\textsuperscript{,}}%
  \let\onlinecite\rev@citealpnum
 }%
}%
\def\make@footnote@endnote{%
 \footinbib@sw{%
```

```
  \authoryear@sw{\authornum@sw{\false@sw}{\true@sw}}{\false@sw}%
  {}{%
   \ltx@footnote@push
   \def\thempfn{Note\thefootnote}%
   \let\ltx@footmark\rev@citemark
   \let\ltx@foottext\rev@endtext
   \appdef\class@enddocumenthook{\auto@bib}%
   \let\printendnotes\relax
  }%
 }{}%
}%
```

`\aipreprint` We want to override aip.dtxaps10pt.rtx.

```
\def\aipreprint{%
}%
```

`\aippreprint` We want to override aip.dtxaps12pt.rtx.

```
\def\aippreprint{%
}%
```

```
%</package>
```

Here ends the programmer's documentation.

Index

Symbols

.bbl 22
.bib 10
.blg 31
.bst 4, 22
.dbj 4
.dtx 5
.ins 5
.rtx 9
\@@par 296
\@afterheading 213, 357
\@afterindentfalse . . . 213, 357
\@appendixcntformat 554
\@author@parskip 272
\@bibstyle 572, 693
\@booleanfalse . . . 159, 162, 163, 536, 649, 653, 657, 661, 666, 671, 675, 676, 680, 681, 685, 689, 690, 709
\@booleantrue 155, 156, 161, 164–166, 222, 273, 692
\@clubpenalty 591
\@currname . . . 618–622, 628–632
\@currname@class . 618, 622, 628, 632
\@dottedtocline 533
\@email 244
\@evenfoot 183, 192, 328
\@evenhead 181, 189, 320
\@firstofone 9
\@flushglue . . 231, 232, 236, 538
\@fnsymbol 207
\@fnsymbol@latex 207
\@gobble@leavemode@uppercase 292, 301
\@gobble@tw@ 491, 493
\@hang@from 370
\@hang@froms 578
\@hangfrom 386, 450
\@hangfrom@ 16
\@hangfrom@appendix 554
\@hangfrom@section 225, 386, 556
\@hangfrom@section@preprintsty 225, 450
\@hangfroms@appendix 554
\@hangfroms@section . 387, 557, 578
\@idxitem 605, 610
\@if@empty 562, 565
\@ifnum 337
\@ifvmode 295
\@ifx@empty 575
\@journal 9, 29
\@journal 648, 652, 656, 660, 665, 670, 674, 679, 684, 688
\@journal@default 645
\@makefnmark 549
\@makefntext 542
\@nobreaktrue 580
\@oddfoot 182, 191, 321, 328
\@oddhead 180, 190, 315, 320
\@onefilewithoptions 9
\@pnumwidth 479
\@pointsize 29
\@pointsize@default 646
\@preprint 318
\@runningtitle . . . 180, 181, 189, 190, 197, 316, 662, 667
\@seccntformat 369
\@secpenalty 497, 518
\@sectioncntformat 558
\@shorttitle 27
\@shorttitle 197
\@society 9
\@startsection . . . 372, 389, 404, 420, 429, 438, 452, 465
\@startsection@hook 366
\@tempa 136, 141, 142
\@textsuperscript 275
\@thefnmark 276
\@tocrmarg 480
\@totalleftmargin 212, 235, 289
_ 40

\␣ . . 32, 46, 58, 59, 63, 76, 77, 91, 97, 102, 108, 109, 300, 549, 565, 571, 587

A

\addtocontents 485, 487
\adjust@abstractwidth 209, 218, 305, 311
\affil@cutoff 14
\affil@cutoff 283
aip document class 1
aip document class option . 2, 3, 9
aip.dtx 3
aip.ins 3
aip.pdf document class 4
aip.rtx 1, 3, 9
aip.rtx document class 4
\aip@jtitx@sw 10
\aip@jtitx@sw 159, 161, 671, 676, 689, 696, 717
aipauth 33
aipauth.bst 22
aipauth.dbj 25
aipauthlong.dbj 25
aipauthnum 33
aipnum 33
aipnum.bst 22
aipnum.dbj 23, 25
aipnumlong.dbj 25
\aippreprint 634, 741
\aipreprint 624, 739
\altaffilletter@sw 273
apl document class option . . 3, 31
\appdef . . 167, 172, 220, 362, 366, 584, 588, 694, 734
\appendix 554
\appendixname 571
aps.rtx 9
\array@row@pre@float 537
\array@row@pst@float 537
article document class 3
\AtEndOfClass 9
auguide.pdf 1
\author 39
\authornum@sw . 156, 163, 701, 728
\authoryear@sw . . . 155, 162, 649, 653, 657, 661, 666, 675, 680, 685, 695, 728
\auto@bib 734

B

\baselineskip 241
\baselinestretch 334, 543
\bf 505, 520
\bibdata@app 572
\bibfont 588
\bibhang 705
\bibitem 33
\bibliographystyle 22, 33
\bibpreamble 583
\bibpunct 33
\bibpunct 693
\bibsection 573
\bibsep 583
bibtex/bst/aip 4
bmf document class option . . 3, 32
book document class 3
\byrevtex 322, 330
\byrevtex@sw 330

C

\c@page 203
\c@secnumdepth 599
cha document class option . . 3, 31
\change@journal 144–153
\checkindate 182, 183, 189, 190, 325
\cite 33
\class@enddocumenthook . . . 734
\class@info . 143, 620, 623, 630, 633
\classname . . 30, 57, 77, 114, 119
\classoption 82
\clo@superscriptaddress . . 644
\clubpenalty 591
⟨*code specific to the JMP*⟩ placeholder 9
\columnsep 598
\columnseprule 597
\copyright 32
corollary environment 19

\count@ 337, 352
\crcr 344
\csname 17, 21, 369, 571, 617, 626, 627
custom-bib document class . . . 22

D

\date 42
doc/latex/aip 4
\DocInput 8
document class
aip 1
aip.pdf 4
aip.rtx 4
article 3
book 3
custom-bib 22
ltxdoc 5, 8
natbib 33
revtex4 9
document class option
aip 2, 3, 9
apl 3, 31
bmf 3, 32
cha 3, 31
footinbib 32, 33
jap 3, 31
jcp 3, 30
jmp 3, 32
pof 3, 31, 32
pop 3, 30
preprint 10
rse 3, 32
rsi 3, 30
superscriptaddress 28
document environment 5
\doublerulesep 540, 541
driver 5

E

\email 244
\endcsname 17, 21, 369, 571, 617, 626, 627
\endinput 137
environment
corollary 19
document 5
example 19
itemize 32
Lead-in␣paragraph 16
lemma 19
proof 19
proposition 19
quotation 16
remark 19
thebibliography 22
theorem 19
example environment 19

F

\false@sw 728
file
.bbl 22
.bib 10
.blg 31
.bst 4, 22
.dbj 4
.dtx 5
.ins 5
.rtx 9
aip.dtx 3
aip.ins 3
aip.rtx 1, 3, 9
aipauth 33
aipauth.bst 22
aipauth.dbj 25
aipauthlong.dbj 25
aipauthnum 33
aipnum 33
aipnum.bst 22
aipnum.dbj 23, 25
aipnumlong.dbj 25
aps.rtx 9
auguide.pdf 1
bibtex/bst/aip 4
doc/latex/aip 4
driver 5
makebst.tex 22
makeindex 3
natbib 22
README 3, 5
tex/latex/aip 4

\file 68, 71, 86, 87, 96, 102, 105, 106, 108, 111, 112, 117, 121, 123–125
footinbib document class option 32, 33
\footinbib@sw 692, 709, 727
\footnotesize 304, 310, 590
\frontmatter@@indent 230, 239, 248, 254
\frontmatter@above@affilgroup 245
\frontmatter@above@affiliation 247
\frontmatter@above@affiliation@script 247
\frontmatter@abstractfont 216
\frontmatter@abstractheading 215
\frontmatter@affiliationfont 223, 253
\frontmatter@authorbelow . 280
\frontmatter@authorformat . 12
\frontmatter@authorformat 230
\frontmatter@collaboration@above 258
\frontmatter@footnote@produce 478
\frontmatter@footnote@produce@footnote 478
\frontmatter@init 362
\frontmatter@keys@format . 309
\frontmatter@makefnmark . . 272
\frontmatter@PACS@format . 302
\frontmatter@RRAP@format . 284
\frontmatter@setup 260
\frontmatter@title@above . 263
\frontmatter@title@below . 263
\frontmatter@title@format 263

G

\GenericWarning 138
\GetFileInfo 27

H

\hb@xt@ 322, 360, 507, 548
\heading@cr 189, 190
\hline 540, 541

I

\ignorespaces 506
\indexname 601
\indexspace 616
\it 223, 256
\item . 100, 110, 113, 118, 122, 605
itemize environment 32
\itshape 415, 426, 474

J

jap document class option . . 3, 31
jcp document class option . . 3, 30
jmp document class option . . 3, 32

L

\l@@sections 515, 523, 526
\l@f@section 517
\l@figure 533, 535
\l@paragraph 528
\l@part 497
\l@section . . . 490, 491, 495, 512
\l@section@saved 490, 495
\l@subparagraph 529
\l@subsection 522
\l@subsubsection 525
\l@table 535
\labelsep 592
\Large 265
\large 505
\lastbox 340
\LaTeX . 58, 59, 69, 77, 88, 91, 102, 108, 109, 111, 116
\LaTeXe 63, 76, 97
Lead-in␣paragraph environment 16
\leaders 360
\leftskip 211, 212, 234, 235, 288, 289, 544, 547, 548
lemma environment 19
\let 9
\let@environment . 363, 364, 367
\listoffigures 532
\listoftables 534
\lquote 23

\ltx@footmark 732
\ltx@footnote@push 730
\ltx@foottext 733
ltxdoc document class 5, 8
\ltxu@dotsep 482

M

\make@footnote@endnote . . . 726
makebst.tex 22
makeindex 3
\MakeTextUppercase 16
\MakeTextUppercase . . 301, 386, 387, 450
\maketitle 43
\maxdimen 599

N

\NAT@cmprs 712
\NAT@def@citea 713
\NAT@def@citea@close 714
\NAT@mcite 33
\NAT@mcite 710
\NAT@sort 711
natbib 22
natbib document class 33
\newblock 583
\noalign 540, 541
\normalfont . 261, 276, 379, 396, 411, 426, 435, 445, 459, 472
\normalsize 426, 435

O

\onecolumngrid 200
\onecolumngrid@pop 606
\onecolumngrid@push 600
\onlinecite 703, 723

P

\pagestyle 11
\parindent . . 210, 423, 432, 501, 545, 603
\parskip . 242, 269, 290, 306, 604
\place@bibnumber 595, 693
\place@bibnumber@sup . 595, 693
placeholder
⟨*code specific to the JMP*⟩ . . 9
pof document class option 3, 31, 32
pop document class option . . 3, 30
\pre@bibdata 572
\prepdef 554
\preprint 15
\preprint 336, 339, 343
preprint document class option 10
\preprint@count 336, 352
\preprint@cr 343, 351
\preprint@hlist 339, 353
\preprint@sw 332
\preprintsty@sw 11
\preprintsty@sw . . 164, 168, 173, 221, 255, 265, 290, 324, 590
\print@toc 486, 532, 534
\printendnotes 735
\produce@preprints . . . 318, 331
proof environment 19
proposition environment 19
\ProvidesFile 4, 6
\ps@article 176, 188
\ps@preprint 174, 179
\ps@titlepage 314
\punct@RRAP 300

Q

\quad . 182, 183, 189, 190, 325, 369
quotation environment 16

R

\raggedcolumn@sw 536
README 3, 5
\RecordChanges 25
\refname 26
\refname 167, 573, 575, 579
remark environment 19
\renewenvironment 198
\RequirePackage 14, 16, 19
\rev@citealpnum 703, 723
\rev@citemark 732
\rev@endtext 733
\revtex 46, 76, 129
revtex4 document class 9
\rquote 23
rse document class option . . 3, 32
rsi document class option . . 3, 30

\rtx@aipapl 664
\rtx@aipbmf 678
\rtx@aipcha 669
\rtx@aipjap 659
\rtx@aipjcp 647
\rtx@aipjmp 687
\rtx@aippof 673
\rtx@aippop 651
\rtx@aiprse 683
\rtx@aiprsi 655
\rtx@bibsection 574
\rtx@def@citea 713
\rtx@def@citea@close 714

S

\samepage 307, 312
\sanitize@url 244
\sc 88
\section 16
\section 75, 84, 224, 371, 579, 601
\section@preprintsty . 224, 437
\sectionmark 185, 194
\set@tocdim@pagenum 499
\setup@hook . 167, 172, 220, 584, 588, 694
\sffamily 240, 266, 381, 398, 413
\showKEYS@sw 10
\showKEYS@sw 165
\showPACS@sw 10
\showPACS@sw 165
\skip@ 231, 236, 503, 506
\small . . . 217, 255, 286, 335, 380, 397, 412, 473
\StopEventually 6
\string 485, 487
\subitem 612
\subparagraph 428
\subsection 94, 226, 388
\subsection@preprintsty . . 226, 437
\subsectionmark 186, 195
\substyle@ext 135, 620, 621, 630, 631
\substyle@post . . . 619, 629, 697, 699, 718, 720
\subsubitem 614
\subsubsection 227, 403
\subsubsection@preprintsty 227, 437
superscriptaddress document class option 28

T

\tableft@skip@float 537
\tableofcontents 73, 484
\tabmid@skip@float 537
\tabright@skip@float 537
\TeX 30, 63, 111, 129, 330
tex/latex/aip 4
\textsuperscript 702, 722
\thanks 31, 40
thebibliography environment 22
\thefootnote 731
\thempfn 731
theorem environment 19
\thepage . 182, 183, 189, 190, 324
\thispagestyle 202, 602
\title 29
\titlepage 198
\titlepage@sw 222
\toc@post 531
\toc@post@auto 531
\toc@pre 530
\toc@pre@auto 530
\tocdepth@munge 485, 489
\tocdepth@restore 487, 494
\tocdim@min 513
\tocleft@ 512
\tocleft@pagenum 502
\today 27
\today 636
\true@sw 728
\twocolumn@sw 199, 681, 690
\twocolumngrid 205

U

\unhbox 507
\unskip 296, 506
\url 15, 50, 54, 55, 60

V

\vss 346

\vtop 333

W

\wastwocol@sw 199, 205

Z

\z@skip 269, 306, 507

Change History

4.1b
General: Beta candidate b 6