

The `aip` substytle 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 L^AT_EX Project Public License, the same license under which all the portions of L^AT_EX 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 T_EX installation equipped with L^AT_EX 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 L^AT_EX.

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

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1 Overview

REVT_{EX} is a L^AT_EX 2_ε document class, somewhat like a hybrid of the standard L^AT_EX `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 L^AT_EX via `tex aip.dtx`. The typeset documentation that you are now reading is generated from the same file by typesetting it with L^AT_EX 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 L^AT_EX 2_ε (and either `tex` or `pdftex`) on your computer, then carry out the following steps:

1. Within an otherwise empty directory, typeset `aip.dtx` with L^AT_EX 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 L^AT_EX twice, then `makeindex`, then L^AT_EX again in order to obtain a valid index and table of contents.

2. Now typeset `aip.dtx` with T_EX (not L^AT_EX), 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 L^AT_EX, 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 L^AT_EX 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 L^AT_EX:

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

3 Code common to all modules

The following may look a bit kloohty, 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 L^AT_EX 2_ε. An appropriate message is displayed if a different T_EX format is used.

```
1 %<*driver|package>
2 \NeedsTeXFormat{LaTeX2e}[1996/12/01]%
3 %</driver|package>
```

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

```
4 %<package>\ProvidesFile{aip4-1.rtx}%
5 %<*driver>
6 \expandafter\ProvidesFile\expandafter{\jobname.dtx}%
7 %</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.

```
8 %<*driver|package>
9 %<version>
10 [2020/09/30 4.1s AIP substyle for REVTeX]% \fileversion
11 %</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.

```
12 %<*driver>
```

4.1 The Preamble

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

```
13 \documentclass{ltxdoc}
14 \RequirePackage{ltxdocext}%
15 \let\url\undefined
16 \RequirePackage[colorlinks=true,linkcolor=blue]{hyperref}%
17 \expandafter\ifx\cename package@font\endcename\relax\else
18 \expandafter\expandafter
```

```

19 \expandafter\RequirePackage
20 \expandafter\expandafter
21 \expandafter{\csname package@font\endcsname}%
22 \fi
23 \gdef\lquote{'}\gdef\rquote{'}%
24 \CodelineIndex\EnableCrossrefs % makeindex -s gind.ist aip
25 \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.

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

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

```
27 \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 beginning 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.

```

28 \begin{filecontents*}[overwrite]{README}
29 \title{%
30 The \classname{aip} substyle for REV\TeX%
31 \protect\thanks{%
32 \fileversion\ \copyright 2009 American Institute of Physics
33 % For version number and date,
34 % search on "\fileversion" in the .dtx file,
35 % or see the end of the README file.
36 }%
37 }%
38
39 \author{%
40 Arthur Ogawa\thanks{mailto:arthur\_ogawa at sbcglobal.net}%
41 }%
42 \date{Version \fileversion, dated \filedate}%
43 \maketitle
44
45 This file embodies the implementation of the
46 AIP journal substyles for APS’s \revtex\ 4.1 document class

```

47 for electronic submissions to AIP journals.
48
49 The distribution point for this work is
50 `\url{http://authors.aip.org/REVTEX}`.
51 The archive contains ready-to-Install files, documentation, and full source.
52
53 This package is also distributed via CTAN:
54 `\url{http://www.ctan.org/pub/tex-archive/macros/latex/contrib/aip}`, and as a ready-to-install i
55 `\url{http://www.ctan.org/pub/tex-archive/install/macros/latex/contrib/aip.tds.zip}`.
56
57 The `\classname{aip}` package was commissioned by the American Institute of Physics
58 and is distributed under the terms of the `\LaTeX` Project Public License,
59 the same license under which all the portions of `\LaTeX` itself is distributed.
60 Please see `\url{http://ctan.tug.org/macros/latex/base/lppl.txt}` for details.
61
62 To use this document class, you must have a working
63 `\TeX` installation equipped with `\LaTeXe`
64 and possibly `pdftex` and Adobe Acrobat Reader or equivalent.
65
66 To install, retrieve the distribution,
67 unpack it into a directory on the target computer,
68 and move the file `\file{aip.rtx}`
69 into a location in your filesystem where it will be found by `\LaTeX`.
70
71 To use, read the user documentation `\file{auguide.pdf}`.
72
73 `\tableofcontents`
74
75 `\section{Overview}`%
76 `\revtex` is a `\LaTeXe` document class, somewhat like a hybrid of
77 the standard `\LaTeX` `\classname{book}` and `\classname{article}` classes.
78
79 This document class implements the AIP society and journal substyles:
80 the journals represent a set of mutually exclusive class options that, in this case, allow the
81 document class to address multiple journals within the AIP family.
82 This society is obtained with class option `\classoption{aip}`.
83
84 `\section{Processing Instructions}`
85
86 The package file `\file{aip.rtx}`
87 is generated from this file, `\file{aip.dtx}`,
88 using the `{\sc docstrip}` facility of `\LaTeX`
89 via `|tex aip.dtx|`.
90 The typeset documentation that you are now reading is generated from
91 the same file by typesetting it with `\LaTeX` or `pdftex`
92 via `|latex aip.dtx|` or `|pdflatex aip.dtx|`.
93
94 `\subsection{Build Instructions}`
95
96 You may bootstrap this suite of files solely from `\file{aip.dtx}`.

```

97 Prepare by installing \LaTeXe\ (and either tex or pdftex) on your computer,
98 then carry out the following steps:
99 \begin{enumerate}
100 \item
101 Within an otherwise empty directory,
102 typeset \file{aip.dtx} with \LaTeX\ or pdflatex;
103 you will obtain the typeset documentation you are now reading,
104 along with
105 the installer \file{aip.ins},
106 and the file \file{README}.
107
108 Note: you will have to run \LaTeX\ twice, then \file{makeindex}, then
109 \LaTeX\ again in order to obtain a valid index and table of contents.
110 \item
111 Now typeset \file{aip.dtx} with \TeX (not \LaTeX),
112 thereby generating the package file \file{aip.rtx}.
113 \item
114 Install \classname{aip.rtx}
115 by moving it to a location
116 in your filesystem where it will be found by \LaTeX,
117 like \file{tex/latex/aip}.
118 \item
119 Install \classname{aip.pdf}
120 by moving it to
121 \file{doc/latex/aip}.
122 \item
123 Using the \file{.dbj} information herein,
124 generate the needed \file{.bst} files and install them in
125 \file{bibtex/bst/aip}.
126 \end{enumerate}
127 \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.

```

128 \begin{document}%
129 \newcommand\revtex{REV\TeX}%
130 \expandafter\DocInput\expandafter{\jobname.dtx}%
131 % ^^A\PrintChanges
132 \end{document}
133 %</driver>

```


5 AIP: A set of journal-specific 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`.

```
134 %<*package>
```

6.1 Defend Against Forseeable Errors

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

```
135 \ifx\undefined\substyle@ext  
136 \def\@tempa{%  
137 \endinput  
138 \GenericWarning{I must be read in by REVTeX! (Bailing out)}%  
139 }%  
140 \expandafter\else  
141 \def\@tempa{%  
142 \expandafter\fi\@tempa  
143 \class@info{RevTeX society AIP selected}%
```

6.2 Substyle Options

Here are the class options relating to the AIP:

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

```

146 \DeclareOption{rsi}{\change@journal{rsi}}%
147 \DeclareOption{jap}{\change@journal{jap}}%
148 \DeclareOption{apl}{\change@journal{apl}}%
149 \DeclareOption{cha}{\change@journal{cha}}%
150 \DeclareOption{pof}{\change@journal{pof}}%
151 \DeclareOption{bmf}{\change@journal{bmf}}%
152 \DeclareOption{rse}{\change@journal{rse}}%
153 \DeclareOption{jmp}{\change@journal{jmp}}%

```

Option allowing for “numerical author-year” bibliography.

```

154 \DeclareOption{author-numerical}{%
155   \@booleantrue\authoryear@sw
156   \@booleantrue\authornum@sw
157 }%

```

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.

```

158 \DeclareOption{article-title}{%
159   \@booleanfalse\aip@jtitx@sw
160 }%
161 \@booleantrue \aip@jtitx@sw

```

Establish default options for this society.

```

162 \@booleanfalse\authoryear@sw
163 \@booleanfalse\authornum@sw

```

`\@bibdataout@init` Procedure `\@bibdataout@aip` has the job of writing the control record into the job’s `\jobnameaip.dtx.bib` file, where it will adjust the options to `aip.dtx.bst` processing. It is installed into the initialization procedure `\@bibdataout@init`, and its meaning is set by the society (AIP) and journal.

```

164 \appdef\@bibdataout@rev{\@bibdataout@aip}%
165 \def\@bibdataout@aip{%
166   \immediate\write\@bibdataout{%

```

An entry that controls processing of the `aip.dtx.bst` file has entry type `@CONTROL`.

```

167   @CONTROL{%
168     aip41Control%

```

Say whether we want long bibliography style (the default), or the abbreviated style.

```

169   \longbibliography@sw{\true@sw}{\aip@jtitx@sw{\false@sw}{\true@sw}}%
170   {%
171     ,pages="1",title="0"%
172   }{%
173     ,pages="0",title=""%
174   }%
175 }%
176 }%

```

Place a `\citation` into the auxiliary file corresponding to this entry.

```
177 \if@filesw
178 \immediate\write\@auxout{\string\citation{aip41Control}}%
179 \fi
180 }%
```

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

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

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

```
182 \@booleantrue\showPACS@sw
183 \@booleantrue\showKEYS@sw
```

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

```
184 \appdef\setup@hook{%
185 \preprintsty@sw}{%
186 \let\refname\@empty
187 }%
188 }%
```

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?

```
189 \appdef\setup@hook{%
190 \preprintsty@sw{%
191 \ps@preprint
192 }{%
193 \ps@article
194 }%
195 }%
```

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

```
196 \def\ps@preprint{%
197 \def\@oddhead{\@runningtitle\hfil}%
198 \def\@evenhead{\@runningtitle\hfil}%
199 \def\@oddfoot{\hfil\thepage\quad\checkindate\hfil}%
200 \def\@evenfoot{\hfil\thepage\quad\checkindate\hfil}%
201 \let\@mkboth\@gobbletwo
```

```

202 \let\sectionmark@gobble
203 \let\subsectionmark@gobble
204 }%
205 \def\ps@article{%
206 \def@evenhead{\let\\heading@cr\thepage\quad\checkindate\hfil\@runningtitle}%
207 \def@oddhead{\let\\heading@cr\@runningtitle\hfil\checkindate\quad\thepage}%
208 \def@oddfoot{}%
209 \def@evenfoot{}%
210 \let@mkboth@gobbletwo
211 \let\sectionmark@gobble
212 \let\subsectionmark@gobble
213 }%
214 \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`

```

215 \renewenvironment{titlepage}{%
216 \let\wastwocol@sw\twocolumn@sw
217 \onecolumngrid
218 \newpage
219 \thispagestyle{titlepage}%
220 \c@page\z@% article sets this to one not zero???
221 }{%
222 \wastwocol@sw{\twocolumngrid}{\newpage}%
223 }%

```

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

```

224 \let\@fnsymbol@latex\@fnsymbol
225 \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.

```

226 \def\adjust@abstractwidth{%
227 \parindent1em\relax
228 \advance\leftskip.5in\relax
229 \@totalleftmargin\leftskip
230 \@afterheading\@afterindentfalse
231 }%

```

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

```

232 \def\frontmatter@abstractheading{}%

```

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

```

233 \def\frontmatter@abstractfont{}%

```

```

234 %\small
235 \adjust@abstractwidth
236 }%

```

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

```

237 \appdef\setup@hook{%
238 \preprintsty@sw{%
239 \@booleantrue\titlepage@sw
240 % \def\frontmatter@affiliationfont{\it}%
241 \let\section\section@preprintsty
242 % \let\@hangfrom@section\@hangfrom@section@preprintsty
243 \let\subsection\subsection@preprintsty
244 \let\subsubsection\subsubsection@preprintsty
245 }{ }%
246 }%

```

`\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.

```

247 \def\frontmatter@@indent{%
248 \skip@\@flushglue
249 \@flushglue\z@ plus.3\hsize\relax
250 \raggedright
251 \advance\leftskip.5in\relax
252 \@totalleftmargin\leftskip
253 \@flushglue\skip@
254 }%
255 \def\frontmatter@authorformat{%
256 \frontmatter@@indent
257 \sffamily
258 %\advance\baselineskip\p@
259 %\parskip11.5\p@\relax
260 }%
261 \renewcommand*\email[1][Electronic mail: ]{\begingroup\sanitize@url\@email{#1}}%

```

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

```

262 \def\frontmatter@above@affilgroup{%
263 }%

```

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

```

\frontmatter@above@affiliation@script 264 \def\frontmatter@above@affiliation@script{%
265 \frontmatter@@indent
266 %\advspace{3.5\p@}%
267 }%
268 \def\frontmatter@above@affiliation{%
269 }%

```

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

```

270 \def\frontmatter@affiliationfont{%

```

```

271 \frontmatter@@indent
272 \preprintsty@sw{}{\small}%
273 \it
274 }%

```

`\frontmatter@collaboration@above`

```

275 \def\frontmatter@collaboration@above{%
276 }%

```

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.

```

277 \def\frontmatter@setup{%
278 \normalfont
279 }%

```

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

```

\frontmatter@title@format 280 \def\frontmatter@title@above{\advvspace{6\p}}%
\frontmatter@title@below 281 \def\frontmatter@title@format{%
282 \preprintsty@sw{}{\Large}%
283 \sffamily
284 \bfseries
285 \raggedright
286 \parskip\z@skip
287 }%
288 \def\frontmatter@title@below{\advvspace{3\p}}%

```

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

```

289 \def\@author@parskip{3\p}%
290 \@booleantrue\altaffilletter@sw
291 \def\frontmatter@makefnmark{%
292 \@textsuperscript{%
293 \normalfont\@thefnmark%(
294 )%
295 }%
296 }%
297 \def\frontmatter@authorbelow{%
298 \advvspace{3\p}%
299 }%

```

`\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.

```

300 \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.

```
301 \def\frontmatter@RRAP@format{%
302   \addvspace{5\p@}%
303   \small
304   \raggedright
305   \advance\leftskip.5in\relax
306   \@totalleftmargin\leftskip
307 % \preprintsty@sw@{\parskip.5ex\relax}%
308   \everypar{%
309     \hbox\bgroup(\@gobble@leavemode@uppercase%)
310   }%
311   \def\par{%
312     \@ifvmode@{\%(
313       \unskip)\egroup\@par
314     }%
315   }%
316 }%
317 \def\punct@RRAP{;\egroup\ \hbox\bgroup}%
318 \def\@gobble@leavemode@uppercase#1#2{\expandafter\MakeTextUppercase}%
```

`\frontmatter@PACS@format`

```
319 \def\frontmatter@PACS@format{%
320   \addvspace{11\p@}%
321 % \footnotesize
322   \adjust@abstractwidth
323   \parskip\z@skip
324   \samepage
325 }%
```

`\frontmatter@keys@format`

```
326 \def\frontmatter@keys@format{%
327 % \footnotesize
328   \adjust@abstractwidth
329   \samepage
330 }%
```

`\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.

```
331 \def\ps@titlepage{%
332   \def\@oddhead{%
333     \@runningtitle
334     \hfill
335     \produce@preprints\@preprint
336   }%
337   \let\@evenhead\@oddhead
338   \def\@oddfoot{%
339     \hb@xt@\z@{\byrevtex\hss}%
```

```

340   \hfil
341   \preprintsty@sw{\thepage}{}%
342   \quad\checkindate
343   \hfil
344   }%
345   \let\@evenfoot\@oddfoot
346 }%
347 \def\byrevtex{\byrevtex@sw{Typeset by REV\TeX and AIP}{}}%

```

`\produce@preprints`

```

348 \def\produce@preprints#1{%
349   \preprint@sw{%
350     \vtop to \z@{%
351       \def\baselinestretch{1}%
352       \small
353       \let\preprint\preprint@count
354       \count@\z@#1\@ifnum{\count@>\tw@}{%
355         \hbox{%
356           \let\preprint\preprint@hlist
357           #1\setbox\z@\lastbox
358         }%
359       }{%
360         \let\preprint\preprint@cr
361         \halign{\hfil##\cr#1\crr}%
362         \par
363         \vss
364       }%
365     }%
366   }{%
367 }%
368 \def\preprint@cr#1{#1\cr}%
369 \def\preprint@count#1{\advance\count@\@ne}%
370 \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.

```

371 \newenvironment{Lead@inParagraph}{%
372   \par
373   \bfseries
374   \@afterheading\@afterindentfalse
375 }{%
376   \par
377   \hb@xt@\hsize{\hfil\leaders\hrule\hfil\leaders\hrule\hfil\hfil}%
378 }%

```

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


```

379 \appdef\frontmatter@init{%
380 \let@environment{quotation@ltx}{quotation}%
381 \let@environment{quotation}{Lead@inParagraph}%
382 }%
383 \appdef\@startsection@hook{%
384 \let@environment{quotation}{quotation@ltx}%
385 }%

```

6.3.4 Stacked Heads

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

```

386 \def\@secntformat#1{\csname the#1\endcsname.\quad}%
387 \def\@hangfrom#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.

```

388 \def\section{%
389 \@startsection
390 {section}%
391 {1}%
392 {\z@}%
393 {0.8cm \@plus1ex \@minus .2ex}%
394 {0.5cm}%
395 {}%
396 \normalfont
397 \small
398 \sffamily
399 \bfseries
400 \raggedright
401 }%
402 }%
403 \def\@hangfrom@section#1#2#3{\@hangfrom{#1#2}\MakeTextUppercase{#3}}%
404 \def\@hangfroms@section#1#2{#1\MakeTextUppercase{#2}}%

```

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

```

405 \def\subsection{%
406 \@startsection
407 {subsection}%
408 {2}%
409 {\z@}%
410 {.8cm \@plus1ex \@minus .2ex}%
411 {.5cm}%
412 {}%

```

```

413     \normalfont
414     \small
415     \sffamily
416     \bfseries
417     \raggedright
418     }%
419 }%
    See, e.g., BMF_044104_1 (1), JMP_123520_1 (48),
420 \def\subsubsection{%
421     \@startsection
422     {subsubsection}%
423     {3}%
424     {\z@}%
425     {.8cm \@plus1ex \@minus .2ex}%
426     {.5cm}%
427     {}%
428     \normalfont
429     \small
430     \sffamily
431     \bfseries
432     \itshape
433     \raggedright
434     }%
435 }%

```

6.3.5 Runin Heads

```

436 \def\paragraph{%
437     \@startsection
438     {paragraph}%
439     {4}%
440     {\parindent}%
441     {\z@}%
442     {-1em}%
443     {\normalfont\normalsize\itshape}%
444 }%
445 \def\subparagraph{%
446     \@startsection
447     {subparagraph}%
448     {5}%
449     {\parindent}%
450     {3.25ex \@plus1ex \@minus .2ex}%
451     {-1em}%
452     {\normalfont\normalsize\bfseries}%
453 }%

```

`\section@preprintsty` Here are the formatting procedures specific to the preprint style; the only difference
`\subsection@preprintsty` is that the heads are flush left instead of centered.
`\subsubsection@preprintsty` 454 \def\section@preprintsty{%

```

455 \startsection
456 {section}%
457 {1}%
458 {\z@}%
459 {0.8cm \@plus1ex \@minus .2ex}%
460 {0.5cm}%
461 {%
462 \normalfont
463 \bfseries
464 \raggedright
465 }%
466 }%
467 %\def\@hangfrom@section@preprintsty#1#2#3{\@hangfrom{#1#2}\MakeTextUppercase{#3}}%
468 \def\subsection@preprintsty{%
469 \startsection
470 {subsection}%
471 {2}%
472 {\z@}%
473 {.8cm \@plus1ex \@minus .2ex}%
474 {.5cm}%
475 {%
476 \normalfont
477 \bfseries
478 \raggedright
479 }%
480 }%
481 \def\subsubsection@preprintsty{%
482 \startsection
483 {subsubsection}%
484 {3}%
485 {\z@}%
486 {.8cm \@plus1ex \@minus .2ex}%
487 {.5cm}%
488 {%
489 \normalfont
490 % \small
491 \itshape\bfseries
492 \raggedright
493 }%
494 }%

```

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.

```
495 \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.

```
496 \def\@pnumwidth{1.55em}
497 \def\@tocrmarg {2.55em}
498 \def\@dotsep{2}
499 \def\ltxu@dotsep{4.5pt}
500 \setcounter{tocdepth}{3}

501 \def\tableofcontents{%
502   \addtocontents{toc}{\string\tocdepth@munge}%
503   \print@toc{toc}%
504   \addtocontents{toc}{\string\tocdepth@restore}%
505 }%

506 \def\tocdepth@munge{%
507   \let\l@section@saved\l@section
508   \let\l@section\@gobble@tw@
509 }%
510 \def\@gobble@tw@#1#2{}%

511 \def\tocdepth@restore{%
512   \let\l@section\l@section@saved
513 }%

514 \def\l@part#1#2{\addpenalty{\@secpenalty}%
515   \begingroup
516   \set@tocdim@pagenum{#2}%
517   % \@tempdima 3em %
518   \parindent \z@
519   \rightskip\tocleft@pagenum plus 1fil\relax
520   \skip@\parfillskip\parfillskip\z@
521   \addvspace{2.25em plus\p@}%
522   \large \bf %
523   \leavevmode\ignorespaces#1\unskip\nobreak\hskip\skip@
524   \hb@xt@\rightskip{\hfil\unhbox\z@}\hskip-\rightskip\hskip\z@skip
525   \par
526   \nobreak %
527   \endgroup
528 }%
```

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

```
529 \def\tocleft@{\z@}%
530 \def\tocdim@min{5\p@}%
531 \def\l@section{%
532   \l@sections[]\section}% Implicit #3#4
533 }%
```

```

534 \def\l@f@section{%
535 \addpenalty{\@secpenalty}%
536 \addvspace{1.0em plus\p@}%
537 \bf
538 }%
539 \def\l@subsection{%
540 \l@sections{section}{subsection}% Implicit #3#4
541 }%
542 \def\l@subsubsection{%
543 \l@sections{subsection}{subsubsection}% Implicit #3#4
544 }%
545 \def\l@paragraph#1#2{%
546 \def\l@subparagraph#1#2{%

```

Activate the auto TOC processing.

```

547 \let\toc@pre\toc@pre@auto
548 \let\toc@post\toc@post@auto
549 \def\listoffigures{\print@toc{lof}}%
550 \def\l@figure{\@dottedtocline{1}{1.5em}{2.3em}}
551 \def\listoftables{\print@toc{lot}}%
552 \let\l@table\l@figure

```

6.3.7 Default column bottom

All AIP journal styles have flush bottoms.

```

553 \@booleanfalse\raggedcolumn@sw

```

6.3.8 Table alignment style

```

\tableleft@skip@float All AIP publications have the same table specification: Scotch rules above and
\tablemid@skip@float below, centered in column.
\tableleft@skip@float 554 \def\tableleft@skip@float{\z@ plus\hsize}%
\array@row@pre@float 555 \def\tablemid@skip@float{\@flushglue}%
\array@row@pst@float 556 \def\tableleft@skip@float{\z@ plus\hsize}%
557 \def\array@row@pre@float{\hline\hline\noalign{\vskip\doublerulesep}}%
558 \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
559 \def\@makefntext#1{%
560 \def\baselinestretch{1}%
561 \leftskip1em%
562 \parindent1em%
563 \noindent
564 \nobreak\hskip-\leftskip

```

```

565 \hb@xt@\leftskip{%
566 \hss\@makefnmark\ %
567 }%
568 #1%
569 \par
570 }%

```

6.3.10 Appendix

```

\appendix
\@hangfrom@appendix 571 \prepdef\appendix{%
\@hangfroms@appendix 572 \par
\@appendixcntformat 573 \let\@hangfrom@section\@hangfrom@appendix
574 %\let\@hangfroms@section\@hangfroms@appendix
575 \let\@sectioncntformat\@appendixcntformat
576 }%
577 \def\@hangfrom@appendix#1#2#3{%
578 #1%
579 \@ifempty{#2}{%
580 #3%
581 }{%
582 #2\@ifempty{#3}{\ #3}%
583 }%
584 }%
585 \def\@hangfroms@appendix#1#2{%
586 #1#2%
587 }%
588 \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: jtitt-x (No article title);
11. JOURNAL NAME FONT: r: jtll-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 PARENTHESSES: 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 (\bibnamefont)
% nmfted,%: Editors in collection like authors font
% nmand-rm,%: 'And' in normal font (JONES and JAMES)
% lab,lab-def,%: User defined citation font (\citenamfont)
% 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, brack
% tit-qq,%: Title and punctuation in double quotes (''Title,') ..)
% inproceedings-chapter,%: produce pages after chapter, just as in InBook
% jtitt-x,%: Title is ignored
% inproceedings-chapter,%: produce pages after chapter just as in InBook
% article-booktitle,%: format booktitle
% article-series,%: article can has series
% jtittl-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 initial, 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.

We ensure that the journal substytle 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.

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

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

```
590 \def\refname{References}%
591 \def\rtx@bibsection{%
592   \@ifx@empty\refname{%
593     \par\vspace{6\p@ plus 6\p@}%
594   }{%
```

The following line has been commented out:

```
% \let\@hangfroms@section\@hang@froms
%
```

```
595 \expandafter\section\expandafter*\expandafter{\refname}%
596 \@nobreaktrue
597 }%
598 }%
```

`\bibpreamble`

```
\bibsep 599 \let\bibpreamble\@empty
\newblock 600 \appdef\setup@hook{%
601   \bibsep\z@\relax
602 }%
603 \def\newblock{\ }
```

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

```
604 \appdef\setup@hook{%
605 \def\bibfont{%
606 \preprintsty@sw}{\footnotesize}%
607 \@clubpenalty\clubpenalty
608 \labelsep\z@
609 }%
610 }%
611 \let\place@bibnumber\place@bibnumber@sup
```

6.3.12 Index

```
612 \newenvironment{theindex}{%
613 \columnseprule \z@
614 \columnsep 35\p@
615 \c@secnumdepth-\maxdimen
616 \onecolumngrid@push
617 \section{\indexname}%
618 \thispagestyle{plain}%
619 \parindent\z@
620 \parskip\z@ plus.3\p@\relax
621 \let\item\@idxitem
622 \onecolumngrid@pop
623 }{%
624 }%
625 %
626 \def\@idxitem{\par\hangindent 40\p@}
627 %
628 \def\subitem{\par\hangindent 40\p@ \hspace*{20\p@}}
629 %
630 \def\subsubitem{\par\hangindent 40\p@ \hspace*{30\p@}}
631 %
632 \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.

```
633 \expandafter\def\csname rtx@aip10pt\endcsname{%
634 \let\@currname@class\@currname
635 \def\@currname{aps10pt\substyle@post}%
636 \class@info{Reading file \@currname.\substyle@ext}%
637 \input{\@currname.\substyle@ext}%
638 \let\@currname\@currname@class
639 \class@info{Overriding 10pt}%
```

```

640 \aipreprint
641 }%
642 \expandafter\def\csname rtx@aip11pt\endcsname{\csname rtx@aip12pt\endcsname}%
643 \expandafter\def\csname rtx@aip12pt\endcsname{%
644 \let\@currname@class\@currname
645 \def\@currname{aps12pt\substyle@post}%
646 \class@info{Reading file \@currname.\substyle@ext}%
647 \input{\@currname.\substyle@ext}%
648 \let\@currname\@currname@class
649 \class@info{Overriding 12pt}%
650 \aippreprint
651 }%

```

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

```

652 \def\today{%
653 \number\day\space
654 \ifcase\month
655 \or January\or February\or March\or April\or May\or June%
656 \or July\or August\or September\or October\or November\or December%
657 \fi\space
658 \number\year
659 }%

```

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.

```

660 \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.

```
661 \def\@journal@default{cha}%  
662 \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.

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

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

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

End of jcp code.

```
666 }%
```

6.23.2 pop

A member of the journal class 1a.

```
667 \def\rtx@aipop{%  
668 \typeout{Using journal substyle \@journal.}%
```

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

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

End of pop code.

```
670 }%
```

6.23.3 rsi

A member of the journal class 1a.

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

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

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

End of rsi code.

```
674 }%
```

6.23.4 jap

Sole member of the journal class 1b.

No running title.

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

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

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

```
678 \let\@runningtitle\@empty
```

End of jap code.

```
679 }%
```

6.23.5 apl

Sole member of the journal class 2.

No running title.

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

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

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

```
683 \let\@runningtitle\@empty
```

End of apl code.

```
684 }%
```

6.23.6 cha

Sole member of the journal class 3a.

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

Article titles are allowed.

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

End of cha code.

```
688 }%
```

6.23.7 pof

Sole member of the journal class 3b.

```
689 \def\rtx@aippof{%  
690 \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.

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

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

End of pof code.

```
693 }%
```

6.23.8 bmf

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

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

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

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

```
697 \@booleanfalse\twocolumn@sw
```

End of bmf code.

```
698 }%
```

6.23.9 rse

A member of the journal class 4a.

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

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

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

End of rse code.

```
702 }%
```


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).

```
703 \def\rtx@aipjmp{%
704 \typeout{Using journal substyle \@journal.}%
Article titles are allowed. Journal is formatted in a single column.
705 \@booleanfalse\aip@jtitx@sw
706 \@booleanfalse\twocolumn@sw
End of jmp code.
707 }%
```

6.24 Establish AIP Defaults

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

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

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

`\@bibstyle`
`\bibpunct`

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`.

```
709 \let\place@bibnumber\place@bibnumber@sup
710 \appdef\setup@hook{%
711 \authoryear@sw{%
712 \aip@jtitx@sw{%
713 \def\@bibstyle{aipauth\substyle@post}%
714 }{%
715 \def\@bibstyle{aipauth\substyle@post}%
716 }%
717 \authornum@sw{%
718 \bibpunct{}{}{}{s}{}{\textsuperscript{,}}%
719 \let\onlinecite\rev@citealpnum
720 }{%
721 \bibhang10\p@
722 \bibpunct{(%
723 )}{; }{a}{,}{,}%
724 \@booleanfalse\footinbib@sw
```

```

726 \let\NAT@mcite\@ne
727 \let\NAT@sort\z@
728 \def\NAT@cmprs{\z@}%
729 \let\NAT@def@citea\rtx@def@citea
730 \let\NAT@def@citea@close\rtx@def@citea@close
731 }%
732 }{%
733 \aip@jtitx@sw{%
734 \def\@bibstyle{aipnum\substyle@post}%
735 }{%
736 \def\@bibstyle{aipnum\substyle@post}%
737 }%
738 \bibpunct{}{}{,}{s}{}{\textsuperscript{,}}%
739 \let\onlinecite\rev@citealphanumeric
740 }%
741 }%
742 \def\make@footnote@endnote{%
743 \footinbib@sw{%
744 \authoryear@sw{\authornum@sw{\false@sw}{\true@sw}}{\false@sw}%
745 }{%
746 \ltx@footnote@push
747 \def\thempfn{Note\thefootnote}%
748 \let\ltx@footmark\rev@citemark
749 \let\ltx@foottext\rev@endtext
750 \appdef\class@enddocumenthook{\auto@bib}%
751 \let\printendnotes\relax
752 }%
753 }{}%
754 }%

```

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

```

755 \def\aipreprint{%
756 }%

```

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

```

757 \def\aippreprint{%
758 }%

```

```

759 %</package>

```

Here ends the programmer's documentation.

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