What’s New in REVTeX 4.1

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This document gives a brief summary of what’s new in REVTeX 4.1. The changes include bug fixes, improved functionality, and support for a wider range of journals, including those of the American Institute of Physics (AIP). REVTeX 4.1 was developed jointly by APS, AIP, and Arthur Ogawa. Additional work was done by Patrick Daly to incorporate our suggested improvements into \texttt{natbib} 8.3 to address many new features concerning bibliographies. \texttt{natbib} 8.31a or later is required to run REVTeX 4.1.


table
\begin{itemize}
\item Added support for APS journal \textit{Physical Review Special Topics – Physics Education Research}.
\item Added support for AIP journals. There is now an explicit \texttt{aip} society option along with support for AIP journals. Please see the \textit{Author’s Guide to AIP Substyles for REVTeX 4.1}. In addition, REVTeX 4.1 provides an extensible system for the easy addition of new collections of journals.
\item Endnotes now ordered correctly. Endnotes in the bibliography now appear in the correct order, interleaved with citations.
\item Multiple references in a single citation supported using a special starred (*) argument to the \texttt{\cite} command. One of the major new features in 4.1 made possible by the joint work on \texttt{natbib} 8.3. Multiple BibTeX entries can be combined into a single \texttt{\bibitem} command.
\item BibTeX style files can now display journal article titles in the bibliography. Use the \texttt{longbibliography} class option.
\item Free form text can be prepended and appended to a bibliographic entry using the special starred (*) argument to the \texttt{\cite} command. Often a citation in the bibliography will have explanatory text such as \textit{See also} or \textit{and references therein} before and after the actual citation. The new REVTeX 4.1 \texttt{\cite} command allows the specification of both text to precede and follow a citation.
\item Structured Abstracts. Use of the \texttt{description} environment in abstracts now provides for “structured” abstracts.
\item Figures referring to videos now supported. A “figure” may now be labeled as a \textit{Video} by using the \texttt{video} environment. A frame from the video may be included in the figure and a URL to link the caption’s label to the online video also may be included. There is also a \texttt{\listofvideos} command.
\item Better support for arXiv.org in BibTeX. Three more BibTeX fields have been added: SLACcitation, archivePrefix, and primaryClass in addition to the existing field eprint.
\end{itemize}

II. BUG FIXES IN REVTeX 4.1

One of the main goals of REVTeX 4.1 is, of course, to fix the bugs that were released in REVTeX 4. The following is a list of bugs that have been fixed.

\begin{itemize}
\item Improved BibTeX bst files. In addition to the new features above, numerous other improvements to the APS bst files have been made, including support for displaying journal article titles and many fixes for Reviews of Modern Physics. Also, long author lists are no longer automatically truncated.
\item \texttt{\footnote} in \texttt{\widetext} and \texttt{table*} environments improved. \texttt{\footnotes} in the \texttt{\widetext} or \texttt{table*} environments are now correctly placed and formatted.
\item Email addresses no longer print twice on papers less than one page long.
\item eqnarray alignment improved.
\item \texttt{\collaboration} can be used with the groupedaddress option now.
\item letterpaper now ensured as default paper size.
\item Table of Contents formatting improved.
\item Support for longtable and lscap packages improved.
\item reftest restored.
\end{itemize}
• Compatibility with the geometry, lineno, and colortbl packages improved. For line numbering, rather than using lineno.sty directly, the linenumbers class option should be used (this will call in lineno.sty with a proper set of default parameters).

• hyperref fixes. Improved compatibility between footnotes and the hyperref package. In particular, table footnotes were fixed. More anchors for hyperref were also added (titlepage, abstract, and acknowledgements).

• Documents can have more than 256 \cite commands now.

• \listoffigures and \listoftables fixed.

• Figure and table labels in captions now reflect proper APS style.

• RMP style files conform better to RMP style guidelines.

• Section heading upper-casing improved.

• Repeated characters at start of affiliation no longer disappear when using groupedaddress option.

• There have been many other bug fixes and improvements to the internal ltxgrid package as well.

III. REV\LaTeX{} 4 BACKWARDS COMPATIBILITY

The vast majority of documents prepared under REV\LaTeX{} 4 should process correctly under REV\LaTeX{} 4.1. However, the formatting of the pages and, if using Bib\LaTeX{}, the references may change. Also, the behavior of some macros may be different. For instance, the title macro now requires the use of protect for fragile arguments. This may cause some documents prepared under REV\LaTeX{} 4 to fail under 4.1. Some macro packages that depend on the internals of REV\LaTeX{} 4 may also no longer work. Documents using those packages will, of course, also will not process under 4.1.

IV. ADDITIONAL DETAILS

IV.1. Multiple references in a single bibliography entry

One of the most frequently requested features since the release of REV\LaTeX{} 4 has been to allow more than one reference to appear in a single bibliography entry when using Bib\LaTeX{}. This can now be done in REV\LaTeX{} 4.1 by using a starred (*) argument to the \cite command. This requires the latest version of natbib, developed in conjunction with REV\LaTeX{} 4.1, and the new bst files that come with REV\LaTeX{} 4.1. To combine multiple references into a single \bibitem, precede the second, third, etc. citation keys in the \cite command with an asterisk (*). For example \cite{bethe, *feynman, *bohr} will combine the \bibitem with keys bethe, feynman, and bohr into a single entry in the bibliography separated by semicolons.

IV.2. Prepending and/or appending text to a citation

The expanded syntax for the \cite command argument can also be used to specify text before and/or after a citation. For instance, a citation such as:

[19] A similar expression was derived in A. V. Andreev, Phys. Rev. Lett. 99, 247204 (2007) in the context of carbon nanotube p-n junctions. The only difference is that no integration over ky is present there.

may be created by the following \cite command:

\cite{*[{A similar expression was derived in }] [{ in the context of carbon nanotube p-n junctions. The only difference is that no integration over ky is present there.}]andreev2007}

Please note the use of curly braces to enclose the text within the square brackets.

IV.3. Structured Abstracts

A “structured” abstract is an abstract divided into labeled sections. For instance, Physical Review C would like authors to provide abstracts with sections summarizing the paper’s Background, Purpose, Method, Results, and Conclusions. This can be accomplished by using the description environment within the abstract environment. For example:

\begin{abstract}
\begin{description}
\item[Background] This part would describe the context needed to understand what the paper is about.
\item[Purpose] This part would state the purpose of the present paper.
\item[Method] This part describe the methods used in the paper.
\item[Results] This part would summarize the results.
\item[Conclusions] This part would state the conclusions of the paper.
\end{description}
\end{abstract}
IV.4. Video Environment

Papers often refer to multimedia videos. The video environment is identical to the figure environment, but the caption will be labeled as a Video (with its own counter independent of figures). A URL can also be specified so that the caption label can be linked to the online video (if using the hyperref package). The included graphic (using \includegraphics from the graphics or graphicx package) would be a representation frame from the video. A \listofvideos is also provided. For example:

\begin{video}
\includegraphics{videoframe.jpg}
\setfloatlink{http://some.video.com/fun.mov}
\caption{\label{vid:interest}This is a video of something fun.}
\end{video}

IV.5. Better arXiv.org support in Bib\TeX

There have been substantial improvements in the \REVTEX Bib\TeX style files. For instance, the .bib entry
@Unpublished{Ginsparg:1988ui,
author = "Ginsparg, Paul H.",
title = "\{APPLIED CONFORMAL FIELD THEORY\}",
year = "1988",
eprint = "hep-th/9108028",
archivePrefix = "arXiv",
SLACcitation = "\%\%CITATION = HEP-TH/9108028;\%"
}
will include the arXiv.org e-print identifier as arXiv:hep-th/9108028 and hyperlink it (if using hyperref). The newer format for arXiv identifiers with primary classifications will produce output such as arXiv:0905.1949 [hep-ph].

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