

REVTEX from APS, Compuscripts with L^AT_EX

The American Physical Society (APS) has a macro package for use with L^AT_EX called REVTEX. This column will explain how to obtain a complete APS REVTEX toolbox by mail, how to get the REVTEX macro files through INTERNET or BITNET, and why this approach to the preparation of technical manuscripts is a good idea.

REVTEX was developed by APS for the electronic submission of manuscripts (compuscripts). However, an author can also use REVTEX to prepare ordinary (paper) technical manuscripts as part of a general document preparation system. The way that journals are published is now undergoing change.¹ Several journals have defined a set of elementary macros for use by authors to prepare articles for electronic submission. APS has REVTEX and OSA's Publications Department is preparing to adopt a modified version of this package. The American Mathematical Society (AMS) has A_{MS}-T_EX and A_{MS}-L^AT_EX.

In 1976, M.E. Lesk and B.W. Kernighan began a study of computer typesetting at Bell Labs. As a result, in 1977, APS began feasibility studies for producing full articles by computer-assisted photocomposition with **troff** in UNIX. By 1982, all APS journals were composed in this way. In 1983, a **troff** compuscript program was established. In 1987, APS began accepting T_EX-formatted author-prepared compuscripts in machine readable form. REVTEX was provided for authors who use L^AT_EX and has been used for compuscripts for *Physical Review A, B, C, and D*. In Spring 1991, APS introduced the most recent version of the T_EX macro package, REVTEX v2.0.

The Joint Society Task Force to Study Electronic Publishing has a subcommittee on REVTEX chaired by OSA Publications Director Jan Fleming. REVTEX v3, a new version, is expected to be available by Spring 1992 for summer

trials of a compuscript program for OSA.

Such a compuscript program is good for publishers because, by accepting author-prepared manuscripts in machine-readable form, the publication cost of the journals is decreased. Apparently, by using A_{MS}-T_EX, AMS can save enough money to pay for the technical advisors for A_{MS}-T_EX. Such a program is good for authors because it gives them more control over the manuscript and it reduces proofreading. Many of the rules of the journal for manuscript preparation are built into the macro package and do not have to concern the author when a manuscript is written.

Plain T_EX is the standard version of T_EX.² It consists of basic T_EX control sequences (primitives), plus higher-level control sequences in the **plain.tex** macro package. L^AT_EX is another macro package for T_EX that adds versatile, document-preparation, control sequences to **plain.tex**.^{3,4} It has easy-to-use commands so that an author does not have to become an expert in T_EX before a manuscript can be written. Standard L^AT_EX comes with the "main document styles" of **article**, **report**, **book**, and **letter**. These each have numerous "document-style options" for versatility. L^AT_EX has cross referencing, tables, indexes, bibliographies, simple diagrams, Sl_TE_X (for slides), and Bi_TE_X (for bibliographies). REVTEX is a collection of "style files" that can be added to standard L^AT_EX. This produces a new main document style—**aps**—and new document-style options—**revtex**, **reprint**, and **eqsecnum**. The default galley document-style option is for journal production purposes and the preprint document-style option is for the writing and reviewing process. The output from a laser printer for the galley document-style option looks remarkably like a part of an actual journal page from the *Physical Review*.

Some complain that T_EX is old fashioned and that software/hardware

that has WYSIWIG (What you see is what you get) is better (see *OPN*, July 1991, page 68.) Siegman clearly explained why T_EX is good for mathematical symbols and equations.² Also, this question involves the difference between *logical design* and *visual design* for document preparation. L^AT_EX uses logical design and has significant advantages. A discussion of this point is given in sections 1.4 and 1.5 of Lamport⁴ and I recommend it to the reader.

The "T_EX compuscript toolbox" can be requested from Chris Hamlin at:

- APS 516/576-2390;
- INTERNET: mis@aps.org; or
- BITNET: mis@apsedoff.bitnet.

The compuscript toolbox consists of a set of computer files (the REVTEX style files, testfiles, **apsguide.tex**, **README**), a hard copy of the input guide,⁵ and a hard copy of the style and notation guide.⁶ The input guide explains the REVTEX commands, describes the preparation of a compuscript, and has instructions for participating in the APS compuscript program. APS can supply the computer files on 5¼ and 3½ inch floppies for DOS. However, requests for hard copies of manuals and disks of the computer files are limited to those who are representing a department and will participate in the *Physical Review* compuscript program.

Another way to get the REVTEX computer files, without participating in the compuscript program, is through a computer network. Ask Chris Hamlin for an instruction sheet—"How to Obtain REVTEX v2 Macros"—that describes in detail how to get the files in the REVTEX toolbox from an appropriate site. The reader can get the files from four sites: (1) by FTP through INTERNET from Stuttgart, rusmv1.rus.uni-stuttgart.de (129.69.1.12), in directory soft/tex/latex-style/supported/REVTeX, (2) by FTP through INTERNET from Stanford University, labrea.stanford.edu (36.8.0.47), in directory pub/tex/contrib/aps, (3) by e-mail through BITNET from Sam Houston State University, FILESERV@SHSU, send

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message **SENDME REVTeX**, and (4) by e-mail through BITNET from Heidelberg, `LISTSERV@DHDURZ1.BITNET`. send message **GET README FIRST** (this procedure is complicated; see instruction sheet). These files are in **ascii** format. Getting such files by FTP has already been described by Beausoleil and Itano.^{7,8} The files can be moved to a PC from a UNIX server with KERMIT.

The set of computer files consists of **README** (brief instructions for installation and use of REVTeX), **apguide.tex** (the input guide⁵ in L^AT_EX), **aps.sty** (main document style file), **aps10.sty** (option style file for galley output), **revtex.sty** (REVTeX option style file), **preprint.sty** (option style for preprint output), **eqsecnum.sty** (option style file to number equations by section), **smplea.tex**, **smpleb.tex**, and **smplec.tex**. The last three files are sample compuscripts that illustrate features of REVTeX and L^AT_EX. These test files can act as templates and make it easy to get started preparing a manuscript using REVTeX.

It is easy to install the macro files in your computer, following the instructions in the **README** file. You must have L^AT_EX and Computer Modern fonts on your computer.^{3,8} Your computer can be anything from a PC to a mainframe. Copy the style files (files with a "sty" file name extension, ***.sty**) to the directory with the other style files (with PCT_EX³ it is `\PCTEX\TEXINPUT`). Put the other files in a work directory. You can immediately type "**latex smplea [CR]**" to get a brief, descriptive sample of REVTeX use, "**latex apguide [CR]**" to get an instruction manual for REVTeX, "**latex smpleb [CR]**" to get a complete *Physical Review* article in galley format, and "**latex smplec**" to get the article of **smpleb.tex** in preprint format. That's all there is to it.

In the Physics Department at SMU, we have successfully used the macro packages from APS to prepare manuscripts. We started using **troff** macros from APS in July 1987 to produce

manuscripts in the UNIX operating system on a AT&T 3B2/310 computer. In April 1991, we started to use REVTeX v2.0 with IBM PCs. We obtained the macro files from **labrea.stanford.edu** with FTP. REVTeX has proven to be an effective and versatile way to prepare manuscripts.

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