# LATEX 2ε SVMULT Document Class
## Author Instructions
## for
## – Contributed Books –

November 20, 2003

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# 1 Introduction

The documentation in the Springer SVMULT tool package is not intended to be a general introduction to LaTeX $2_\varepsilon$ or TeX. For this we refer you to [1, 2, 3] in the section "Further Reading".

Instead, the Springer SVMULT tool package has been set up for authors who are familiar with the basics of LaTeX. The SVMULT document class and its special features were designed to facilitate the preparation of scientific monographs for Springer according to Springer's style requirements.

If in this tool package we refer to standard tools or packages that are not installed on your system, please consult the *Comprehensive TeX Archive Network* (CTAN) at [4, 5, 6] in the section "Further Reading".

The components of the SVMULT tool package are:

- the *Springer LaTeX class* `svmult.cls` (major version 3) as well as the *template* with preset class options, packages and coding examples;

  *Tip*: Copy these files to your working directory, run LaTeX $2_\varepsilon$ and produce your own example *.dvi file; rename the template file as you see fit and use it for your own input.

- *Author Instructions* with style and coding instructions *specific* to – *Contributed Books* –;

  *Tip*: Follow these instructions to set up your files, to type in your text and to obtain a consistent formal style; use these pages as checklists before you submit your ready-to-print manuscript.

- the *Reference Guide* describing the SVMULT features independent of any specific style requirements.

  *Tip*: Use it as a reference if you need to alter or enhance the default settings of the SVMULT document class and the templates.

For *volume editors only* the SVMULT tool package is enhanced by

- the *editor instructions* for compiling multiple contributions into a single book.

# 2 Step-by-Step Instructions

The following sections give you detailed instructions on how to set up your files and meet Springer-Verlag's specific style and layout requirements. They are meant to assist authors through Springer-Verlag's optimum settings. Please try to adhere to these standards right from the start, however, if you have already begun, please use them as a checklist before you submit your ready-to-print manuscript printout or data.

## 2.1 Initializing the Class

To format a *document for a – Contributed Book –* enter

> `\documentclass{svmult}`

at the beginning of your root file. This will set the text area to a `\textwidth` of 11.8 cm or 4.65 in and a `\textheight` of 18.95 cm or 7.46 in with a `\headsep` of 12 pt (space between the running head and text).

*N.B.* Trim size (physical paper size) is $15.5 \times 23.5$ cm or $6\,^1/_8 \times 9\,^1/_4$ in.

Please refer to Sect. 2.6 for "overwide" floating objects.

For a description of all possible class options provided by SVMULT see the "New Class Options" section in the enclosed *Reference Guide*.

## 2.2 Required Packages

The following selection in the past has proved to be essential in preparing a fully formatted (i.e. ready-to-print) manuscript.

Invoke the required packages with the command

> `\usepackage{}`

| | |
|---|---|
| `graphicx.sty` | is a powerful tool for including, rotating, scaling and sizing graphics files (preferably *.eps files) |
| `makeidx.sty` | provides and interprets the command `\printindex` which "prints" the index file *.ind (compiled by an index processor) on a chosen page |
| `multicol.sty` | balances out the columns on the last page of, for example, your subject index, glossary or the like |
| `footmisc.sty` | together with style option `[bottom]` places all footnotes at the bottom of the page |

For a description of other useful packages tested with the SVMULT document class see Sects. 2.3 and 3.1 in the *Reference Guide*.

## 2.3 The Contribution Header

To format the header of your *contribution* enter

> `\title*{title of your contribution}`
> `\author{name of author}`
> `\institute{name(s) and address(es) of affiliation}`
> `\maketitle`

immediately after the `\begin{document}` command.

Normally the running heads are produced automatically by the `\maketitle` command using the contents of `\title` (for right hand or recto pages) and `\author` (on left hand or verso pages). If the result is too long for the page header (running head) the class will produce an error message and you will be asked to supply a shorter version. This is done using the syntax

```
\titlerunning{⟨text⟩}
\authorrunning{⟨first author et al.⟩}
```

These commands must be entered before `\maketitle`.

It may be appropriate, before the beginning of your text paper, to include an abstract, a list of keywords, a list (if applicable) of symbols and/or abbreviations: please ascertain from your volume editor which, if any, is expected. In any case it is recommended to start your contribution with a short introductory text to avoid a mere list of headings.

For long contributions such as summer school course notes, a table of contents of your chapter is likely to be useful.

For a description of the relevant commands, see Sect. 2.4 in the global *Reference Guide*.

## 2.4 Fine-Tuning Your Text

As a general rule, text, formulae, figures, and tables are typed using the standard LaTeX 2$_\varepsilon$ commands. The standard sectioning commands are also used.

Nevertheless, in the SVMULT document class we have newly defined and enhanced a few text mode commands (`\preface`; `description environment`). Please refer to Sect. 2.5 in the *Reference Guide*.

Always use the LaTeX commands `\label` and `\ref` for cross-referencing to chapters, sections, theorems, equations, figures, and tables. In contrast to any hardcoded references these soft-coded cross-references can automatically be converted to hyperlinks for any possible electronic version of your book.

*Headings.* In English texts all words of a heading have a leading capital letter except for articles (a, an, the), conjunctions and prepositions of up to four letters (e.g. on, of, at, to, by, and, or, but, from, with). If a heading needs more than one line please break the line at an appropriate place and position the binding word (conjunction, preposition, article, ...) at the beginning of the new line, rather than the end of the previous line.

It looks nicer if every heading is followed by at least a short passage of text in order to avoid simply listing headings of different levels.

If the *running heads* at the tops of the pages do not fit into the space allocated to them, a shorter version has to be specified with the commands `\authorrunning{}` and `\titlerunning{}`.

If a different version of your contribution title is to be used for the *table of contents* use the command `\toctitle{`⟨*title for table of contents*⟩`}`.

*Emphasizing Text.* Use the command `\emph{}` to emphasize (i.e. italicize) a selection of *individual* words.

*Theorem-Like Environments.* For individual text structures such as theorems, definitions, examples, etc., the SVMULT document class provides numerous predefined environments (*numbered* as well as *unnumbered*) which conform with the specific Springer layout requirements. Sections 2.7 and 3.3 of the *Reference Guide* give a complete list of the built-in environments as well as a description of the new SVMULT mechanism for defining your own environments.

*Special Expressions.* If a special, e.g. non-English, expression is used repeatedly, please spell it consistently throughout the book. Latin terms, e.g. "in situ", should not be italicized.

*List of Symbols.* Please add a list of symbols or short definitions or explanations. (Even if this is not to be included in the final book, it's a very useful tool for the copyeditor who may work on your manuscript.)

*Abbreviations.* Please set abbreviations such as "e.g.", "cf.", "et al." and "i.e." upright. Only abbreviations that can be found in a dictionary may be used without definition. Particular terminology that is often abbreviated should be defined on first usage.

*Dashes.* In Springer books we differentiate between three different types of dashes, which have to be coded individually:

(1) To produce a simple hyphen, used to connect or separate dependent parts of a word such as prefixes, or in compound adjectives, please enter a single keyboard hyphen without any space on either side (-).

(2) To produce the slightly longer 'Springer em-dash' – e.g. to denote an insertion within a sentence – please enter two hyphens with a space on either side (␣--␣). Acceptable in the US, three dashes (---) can be used although not part of Springer-Verlag's style.

(3) To produce an en-dash, enter two single hyphens with no space on either side (–), to stand in place of "to" in ranges, as in "1987–89", "Fig. 3a–c" or "... in the range 10–20 eV", or to connect two names or words that are independent of each other, such as "Hartree–Fock" or "... the electron–photon interaction". However, double-barrelled names like Levi-Civita are connected with simple hyphens, see (1).

*Quotation Marks.* Please use the following commands to create English-language quotation marks: `'word'` gives 'word' in the dvi file, and ` ``word" ` gives "word" in the dvi file.

*Page Breaks.* Please see to it that you always have at least two lines of the same paragraph at the foot or head of a page. So-called "orphans" or "widows" reduce the readability of your text.

*Cross-References Within Text.* Please always give a `\label` where possible and use `\ref` for cross-referencing. Such cross-references may then easily be converted to hyperlinks in any electronic version of your book.

The `\cite` and `\bibitem` mechanism for bibliographic references is also obligatory.

Cross-references to particular figures, tables, sections and so on (always followed by a space and then a number, i.e. `Fig.␣1`) should be written in full when they stand at the beginning of a sentence, but in any other position within the text they should be abbreviated as follows:

(Chapter) Chap./Chaps.    (Section) Sect./Sects.    (Figure) Fig./Figs.
(Page) p./pp.    (Volume) Vol./Vols.

*Exceptions*:

(1) "Table" should always be written out in full – at the beginning of a sentence as well as within it, and please use "Tables" for the plural form.

(2) When referring to equations please do not use the abbreviations "Eq./Eqs." – it is sufficient to use the equation number set in round brackets, e.g. (1.45). Only at the beginning of a sentence should you write "Equation (1.45)".

(3) References are cited in the text simply as numbers in square brackets, e.g. [165], do not use the abbreviations "Ref./Refs." in the middle of a sentence. Only at the beginning of a sentence should you write "Reference [165]".

*Spelling Checker.* If possible, please use a computer program for verifying the spelling of your text prior to submitting your manuscript. Depending on your operating system you may choose from a number of freely available programs designed for LaTeX code. A list of such LaTeX-aware spelling checkers can be found at http://www.tex.ac.uk/cgi-bin/texfaq2html?label=spell

## 2.5 Fine-Tuning Mathematics

As a general rule, text, formulae, figures, and tables are typed using the standard LaTeX$2_\varepsilon$ commands. The standard sectioning commands are also used.

Nevertheless, in the SVMULT document class we have some newly defined and enhanced math mode commands. Please refer to Sect. 2.6 in the *Reference Guide.*

Always give a `\label` where possible and use `\ref` for cross-referencing. Such cross-references may then be converted to hyperlinks in any electronic version of your book.

Please set *mathematical expressions and formulae within the running text* in math mode, i.e. `$...$`, so that the desired spaces are set automatically. In text mode please put a small space `\,` between a number and its unit.

*Displayed Formulae* will automatically be centered. To set your formulae flush-left, please use the class option *fleqn*. If you need to emphasize an individual displayed formula you may put a simple box around it. Please do not use double-lined borders – this would just be over the top.

*Equation Arrays*. In order to get a readable layout for your equation arrays we recommend that you use the LaTeX environment `eqnarray`. This will automatically use optimal line spaces and line breaks. If an equation spans more than one line place the equals sign at the beginning of the second (or subsequent) line(s); binary operators such as $+$, $-$, $*$, etc. should also appear at the beginning of the second or subsequent lines of an array, and the line should be indented to the right of the equals sign in the line before.

If you want to *sub-number* individual lines of your equation array you may use the style `subeqnarray.sty`. For a description see Sect. 3.1 in the *Reference Guide*.

Please *punctuate* displayed equations in the same way as any other written statement and insert `\;` before the punctuation to add a little extra space.

*Multiplication*. Where a multiplication sign is essential use the command `\times` ($\times$), not `\cdot` ($\cdot$). The `\cdot` is reserved for vector dot products.

*Vectors*. Use the command `\vec{v}` to depict a vector. By default, vectors will be set bold face upright.

To set vectors bold face italic – as is common in physics texts – use the class option *vecphys*.

*Tensors*. Use the newly defined command `\tens{A}` to depict an ordinary second-order tensor (without indices).

*Chemical Symbols and Formulae* should be set upright. Where a "–" is used to combine parts of chemical compounds, please use an en-dash; see Sect. 2.4.

*Computer Code*. To display computer code in your book, we recommend the use of the `verbatim` environment.

*Abbreviations* such as Ord, Var, Ker, const., etc. should be set upright.

*Physical units* (and their prefixes) should correspond to the SI standards and be set upright. Always put a fixed space `\,` between a number and its unit, and between elements of units. Both the "... $3\,\mathrm{km\,s^{-1}}$ ..." (note space between different units; please do not use a middot) and "... $3\,\mathrm{km/s}$ ..." styles are acceptable, but please settle for one choice and use it consistently. In headers in tables please use the "$v$ (m/s)" or "$v$ ($\mathrm{m\,s^{-1}}$)" styles, i.e. use "(...)" not "[...]". Please use "%" without a space, e.g. "100%", and use the degree sign without a space, e.g. "19°". For Celsius use "100°C", i.e. no spaces.

*Greek Letters*. By default the SVMULT document class depicts Greek letters as italics because they are mostly used to symbolize variables. However, when used as operators, abbreviations, physical units, etc., they should be set upright. For

example, when $\Delta$ (\varDelta) is used to refer to an infinitesimal amount or $\mu$ (\umu) is used to denote micro.

All upper-case Greek letters have been defined in the document class in an *upright* version. The fonts are taken from the TEX alphabet. Use the command prefix \var... followed by the upper-case name of the Greek letter to obtain an upright upper-case Greek letter.

A number of lower-case Greek letters have been defined in the document class in an *upright* version: $\alpha$, $\beta$, $\chi$, $\delta$, $\gamma$, $\mu$, $\nu$, $\pi$, $\tau$. The letters are taken from the PostScript Symbol font. Use the command prefix \u... with the lower-case name of the Greek letter to set it upright. Please refer to Sect. 2.6 in the *Reference Guide*.

*Variables* should be represented by a unique single character and always, i.e. in math mode as well as in the text, be set in italics. If possible please use \varepsilon for $\epsilon$ and \varrho for $\rho$.

*Exponential terms* with long exponents or with exponents containing subscripts or superscripts should be set as "exp(...)".

*Subscripts and superscripts* should always appear upright (use \mathrm{ } in math mode) when they are abbreviations. If you need to depict a vector, please also use the syntax \vec{ }. The font size will automatically be adjusted.

The *Differential* d, *exponential* e and *imaginary* i should be set upright in Springer books. Use the newly defined commands \D, \E or \eul and \I or \imag.

*Fractions* in displayed equations should be coded with \frac. When they appear within exponents, running text or narrow tables, they should be set with a slash. Otherwise the font size will be too small to be easily read.

*Delimiters* should be large enough to completely enclose their content – but no larger. We recommend using dynamic LATEX input commands, e.g.\left[ or \right}, \langle or \rangle, \left|, \right|, etc.

## 2.6 Figures, Tables and Their Captions

In general, text, formulae, figures and tables are typed using the standard LATEX $2_\varepsilon$ commands. The standard sectioning commands are also used.

Nevertheless, in the SVMULT document class we have defined new commands and enhanced the figure environment. Please refer to Sects. 2.8 and 3.2 in the enclosed *Reference Guide*.

Always give a \label where possible and use \ref for cross-referencing. Such cross-references may then be converted to hyperlinks in any possible electronic version of your book.

*Figures.* By default figure captions are centered. Please use the declaration \centering inside the figure environment to *center* your figures.

N.B.: If you use the class option *fleqn*, figure captions will automatically be set flushleft. In this case you should not use the \centering declaration for the figures themselves.

"Overwide" figures should be reduced to the normal page width, or if this is not possible, should not exceed the page width by more than 5 mm or 1 pica.

*Color Figures.* Despite the fast technical progress in digital printing the reproduction of color figures still is very costly in the field of scientific publishing. In general please use b/w figures or graytones. Only in exceptional cases will Springer-Verlag accept color figures. Please talk to your editor prior to including color figures in your manuscript.

*Digital Illustrations.* If you can supply illustrations (photos and drawings) in digital form, this will simplify production, provided you follow a few basic rules.

For *scanned line figures* the minimum resolution in the final print size is 800 dpi. For *scanned photos*, 400 dpi in the final size is sufficient.

*Image Processing.* If illustrations are to appear in *grayscale* or *black and white*, do not produce them in color. Color fields often convert to screens that are almost indistinguishable from one another. Instead of screens, whenever possible please use cross-hatching, stippling, and other dot and line patterns to differentiate among elements in an illustration. If screens must be used, they must be between 15% and 60%. Screens must be differentiated from one another by at least 15%. The lowest *line weight* is 0.5 pt in the final print size (approx. 0.15 mm).

*Grids and details* within the figures must be clearly readable and may not overlap.

*Lettering.* To add lettering, it is best to use a sans serif font; Helvetica is preferred. The font size should be approx. 2–3 mm (8–10 pt) in final print. Avoid effects such as shading, outline letters, etc. Lettering should not be added until after scanning, i.e. it should be added to the graphics file. Please do not insert any figure legends or figure headings in your illustration file.

*Further Instructions.* Please find more detailed instructions about figure and graphic sizing, placement, labeling, screenshots, halftones, shading, etc. at http://www.springer-ny.com/authors/index.html and view the link to illustrations.

Save your figures in *eps format* with fonts embedded. Please save without preview and with the so-called bounding box adjusted to the actual content of the figure. Use the standard LaTeX "graphicx" package to include your graphics files.

*Tables.* By default, table captions are centered. Please use the declaration \centering inside the table environment to *center* your tables with their captions.

N.B.: If you use the class option *fleqn*, table captions will automatically be set flushleft. In this case you should not use the `\centering` declaration for the tables themselves.

Please make sure that every table is *preceded* by a caption.

The layout of your tables should not contain any vertical lines. The header of the table should not contain any extra lines. "Overwide" tables should be reduced to the normal page width, or, if this is not possible, should not exceed the page width by more than 5 mm. Please find coding examples in the enclosed sample files.

*Captions.* Do not put a period at the end of the last sentence of a figure or table caption.

Should a figure consist of several parts, please set the names of the parts bold face within round brackets inside the caption, e.g. **Fig. 1.1.** General explanation: (**a**) individual description; (**b**) individual description ...

Should you want to explain special line formats, etc. used in the figure, then please set their description in italics within round brackets, e.g. **Fig. 1.1.** In the upper edge you find xyz (*dashed line*) ...

## 2.7 References

By default, references are cited as numbers in square brackets, e.g. "as found in [9]". Please do not use any other system, e.g. name/date system. The references themselves may be listed sequentially in order of citation or in alphabetical order. If alphabetical order is used the references are numbered in that order and are cited out of sequence. Please find coding examples in the sample files.

In mathematical texts references are often labelled as author-year acronyms. In order to achieve this simply give an optional argument to the `\bibitem` command. Always use `\bibitem` and `\cite` for cross-referencing.

When producing your bibliography please make sure that the data is complete (name and initial of author, year of publication, book title, publisher's name and place, journal name, volume number, page numbers) and up to date (e.g. edition number).

For style matters, please see the reference section in the enclosed sample pages *example.pdf.* For your own input follow the syntax of the pre-set template.

*Tip*: Use the pre-set templates

Please make sure that, in the individual reference citations, the initials of names do not stand alone. Please connect them to their surname with the help of the tilda ~ so that they will not be separated from each other when LaTeX breaks the line. The same applies to volume or page numbers.

For a description of SVMULT enhancements to the bibliography environment refer to Sect. 3.4 of the enclosed *Reference Guide.*

## 2.8 Index

Please make sure that your entries for the book's general subject index are coded with the command \index{} and please check the output for any redundancy before submitting your manuscript files.

For more information on generating an index see [1].

## 3 Submitting your Manuscript

As soon as you have decided on the content and structure of your contribution and have set up a representative portion of text, send this material including figures for evaluation to the *volume editor*. Please check whether the source files (i.e. *.tex, *.eps, *.cls, *.sty) are needed besides a printout.

Please direct any queries concerning the layout, LaTeX coding, figures or the contract side of your contribution to your contact person at Springer-Verlag. He or she will be happy to respond directly or pass on your query to the expert in charge.

## Further Reading

[1] Lamport L.: LaTeX – A Document Preparation System. 2nd ed. Addison-Wesley, Reading, MA (1994)

[2] Goossens M., Mittelbach F., Samarin A.: The LaTeX Companion. Addison-Wesley, Reading, MA (1994)

[3] Knuth D.E.: The TeX book. Addison-Wesley, Reading, MA (1986) and revised to cover TeX3 (1991)

[4] TeX Users Group (TUG), http://www.tug.org

[5] Deutschsprachige Anwendervereinigung TeX e.V. (DANTE), Heidelberg, Germany, http://www.dante.de

[6] UK TeX Users' Group (UK-TuG), http://uk.tug.org

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