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# L<sup>A</sup>T<sub>E</sub>X

## A software package for your articles and thesis

Natascha Niermann, Karsten Küpper  
University of Osnabrück  
Department of Physics

[karsten.kuepper@uos.de](mailto:karsten.kuepper@uos.de)

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Seminar PhD program



# 1. Outline

What does an author of an article or a talk want?

- produce scientific presentations or articles including mathematics, tables and figures in a high quality
- directly include figures produced by other software packages, i.e., IGOR or MATLAB
- the package should make it easy to produce an article or presentation with adequate style and structure
- the package should be free and available on every place
- the output files should be in an universal format which everyone can read

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## 1.1. Available software

- **PDF~~L~~TeX** can directly generate a PDF-document from a  $\text{\LaTeX}$ -file. PDF (*Portable Document Format*) is a near universal format, PDF viewer display PDF with a high quality. It is possible to switch into "full screen" display mode for a presentation on a screen or beamer.
- **pdfscreen** package helps to redesign the pdf output of your normal documents fit to be read in a computer monitor while retaining the freedom to format it for conventional printing. This has been brought about by redefining the margins and page height/width and related dimensions to fit into that of the computer screen.
- **seminar** is powerful package that enables authors to produce slides which can be printed onto foils or presented live.
- **REVTeX** package is a *compuscript* program developed by the *American Physical Society* (APS). A *compuscript* is an author prepared electronic file that adheres to specific editorial guidelines.



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## 2. PDF $\LaTeX$

This package is designed for converting  $\LaTeX$  source files directly into the PDF format without going through the intermediate DVI stage.

### 2.1. Getting started

- Get PDF $\LaTeX$  , on most systems the `pdf $\LaTeX$`  package is installed already, if not, it can be easy installed since `pdf $\LaTeX$`  is part of MiK $\TeX$  and Te $\TeX$
- Install some further packages and style files like `pdfslides`, `pdftricks`, `pdfscreen seminar` and `comment`
- Install further TrueType Fonts (optional)
- type `pdf $\LaTeX$  file.tex`
- use a PDF viewer to open `file.pdf`

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## Figures

- PDF $\LaTeX$  can use the `graphicx` package
- convert Your .eps-figures to pdf by using the `epstopdf` command or with help of a distiller.
- PDF $\LaTeX$  also supports some other formats, i.e., jpeg, tiff

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## Example:

```
\begin{tabular}{cc}  
\includegraphics [height=4cm]{structure.png} &  
\includegraphics [height=4cm]{fbgeb-30.jpg}  
\end{tabular}
```

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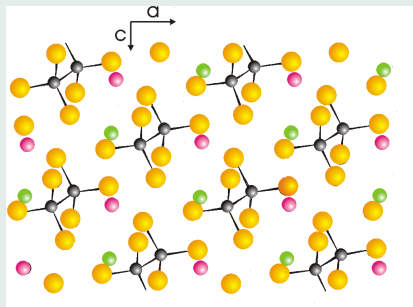


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## The hyperref package:

Using the `hyperref` package in  $\text{\LaTeX}$  allows to convert the usual label and reference to connection into a hyperlink in the finished document.

### Usage:

```
\usepackage[options]{hyperref}
```

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## The hyperref package:

Using the `hyperref` package in  $\text{\LaTeX}$  allows to convert the usual label and reference to connection into a hyperlink in the finished document.

### Usage:

```
\usepackage[options]{hyperref}
```

### Examples:

1. References in the document, i.e., sections:

`Section(\ref{outline})` → Section(1)

`\autoref{outline}` → section 1

`\hyperref[outline]{Outline}` → Outline

2. Jumping to other documents, e.g. web sites:

`\href{http://www.uos.de}{www.uos.de}` → [www.uos.de](http://www.uos.de)

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### 3. pdfscreen.sty

The `pdfscreen` package is based upon PDF $\LaTeX$  and the `hyperref` package. It mainly optimizes the output for a screen presentation which can be shown by using a PDF viewer.

Packages required to run `pdfscreen`:

`hyperref`, `comment`, `truncate`, `graphicx`, `color`, `calc`, `amssymb`, `amsbsy`, `shortvrb`

#### Features:

- navigation panel available
- different colour schemes available
- support of PDF page transitions
- you can optionally start new slides on structuring keywords (`\section`, `\subsection`, etc.)

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## 3.1. Typical document, including preamble

A typical structure of a document is given below:

```
\documentclass[a4paper]{article}
\usepackage{xspace,colortbl}

\usepackage[screen,panelright,bluelace,paneltoc,sectionbreak]{pdfscreen}
\margins{.75in}{.75in}{.75in}{.75in}
\screensize{6.25in}{8in}
\overlay{lightsteelblue.pdf}

\begin{document}

\section{Introduction}
Introduction ...

\begin{slide}
Hello world!
\end{slide}

\begin{slide}
\section{Usage of slides}
\end{slide}

\end{document}
```



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## 3.2. Variable options

- screen - generates a screen presentation
- print - good for producing a handout
- panelleft - navigation panel in the left
- panelright - navigation panel in the right
- nopanel - no navigation panel
- paneltoc - generates table of contents in the panel
- `\margins{left}{right}{top}{bottom}`
- `\screensize{height}{width}`
- `\backgroundcolor{color}` - alternative to `\overlay{filename}`
- `\emblema{graphic file name}` - adds an emblema to the navigation panel
- `\bottombuttons` - generates small navigation panel at the bottom
- One may create an own pdfscreen.cfg file

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### 3.3. Page Transitions

You can choose between a variety of page transitions. The command to do is:

```
\pagedissolve{transition options}
```

#### Examples

```
\pagedissolve{Wipe /Di 0}
```

One line moves over the screen and the next page occurs.  
*/Di* - (direction), specifies the direction of the line. Possible values are: 0 (from left to right), 270 (from top to bottom).

```
\pagedissolve{dissolve}
```

The actual page dissolves and the next one becomes visible. No options are available.

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## 4. The seminar package

- The seminar package provides the documentclass seminar.cls.
- This package is an extremely powerful set with which you are able to generate presentations in PostScript and/or PDF, a very large number of commands and options is available.
- A good support by means of documentation is available and bugs are being fixed.

### 4.1. Basic document structure

```
\documentclass[a4paper]{seminar}
\usepackage{semcolor}
\input{seminar.bug}
\input{seminar.bg2}

\begin{document}
\begin{slide}
Hello world!
\end{slide}
\end{document}
```

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## 4.2. Features

- Backgrounds: solid backgrounds, gradient backgrounds, external pictures . . .
- Personalization of sections, frames, headers, footers . . .
- Page transitions (based upon the `pdfpagetransition` parameter of the `hyperref` package)
- Professional overlay options
- Possibility to create personalized navigation bars and panels
- Generation of animated graphics including the possibility of external files inclusion
- Possibility to launch external applications, i.e., audio files or movies with help of the PDF viewer



## 5. REVTeX 4

REVTeX 4 is the compuscript package of the American Physical Society (APS). A compuscript program supports the author of an article to follow the required editorial guidelines, the manuscript has to fit into a standard of style and notation, a crucial point for an efficient processing and review of papers. Such style instructions affect all parts of an article:

- Title
- Author
- Abstract
- Main Body
- Conclusions
- References

A complete description of the requirements and the software package can be found at the homepage of the [APS](#)

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## 5.1. A typical document structure

A typical structure of a REVTeX document is given below:

```
\documentclass[prb,twocolumn,groupscriptaddress,amsmath,amssymb]{revtex4}
%\documentclass[prb,preprint,groupscriptaddress,amsmath,amssymb]{revtex4}

\usepackage{graphicx}
\usepackage{dcolumn}
\usepackage{bm}

\begin{document}
\preprint{APS/123-QED}
\title{title}
\author{list of authors}
\affiliation{addresses}

\begin{abstract}
\end{abstract}
\maketitle

section{Name of section}
Main body ...

\end{document}
```

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## 6. Documentation

### $\text{\LaTeX}$

[TeX Users Group](#) - almost everything

[www.dante.de](http://www.dante.de) - Download of MikTeX and other packages, links to Documentation in English and German

[Homepage Prof. Dr. P. Hertel](#) - lecture notes "Preparing documents with  $\text{\LaTeX}$ "

### $\text{\PDFLaTeX}$

Brief introduction to  $\text{\PDFLaTeX}$

### $\text{\pdfscreen}$

[www.river-valley.com](http://www.river-valley.com) - Download of  $\text{\pdfscreen}$  and infos

### $\text{\seminar}$

[www.tug.org/applications/Seminar/](http://www.tug.org/applications/Seminar/) - a lot of documentation and demonstration of the seminar package

### $\text{\REVTeX}$

[American Physical Society](#) - Infos and downloads for authors

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