Slides and Course Notes*

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Abstract

We present a document class from which we can generate both course slides and course notes in a transparent way.

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^{*}Version ? (last revised ?)

1 Introduction

The mikoslides document class is derived from beamer.cls [Tana], it adds a "notes version" for course notes derived from the omdoc class [Kohlhase:smomdl] that is more suited to printing than the one supplied by beamer.cls.

2 The User Interface

The mikoslides class takes the notion of a slide frame from Till Tantau's excellent beamer class and adapts its notion of frames for use in the STEXand OMDoc. To support semantic course notes, it extends the notion of mixing frames and explanatory text, but rather than treating the frames as images (or integrating their contents into the flowing text), the mikoslides package displays the slides as such in the course notes to give students a visual anchor into the slide presentation in the course (and to distinguish the different writing styles in slides and course notes).

In practice we want to generate two documents from the same source: the slides for presentation in the lecture and the course notes as a narrative document for home study. To achieve this, the mikoslides class has two modes: *slides mode* and *notes mode* which are determined by the package option.

2.1 Package Options

The mikoslides class takes a variety of class options:¹

slides

• The options slides nd notes notes switch between slides mode and notes mode (see Section 2.2).

sectocframes

EdN:1

EdN:2

 \bullet If the option <code>sectocframes</code> is given, then special frames with section table of contents are produced headers 2

showmeta

• showmeta. If this is set, then the metadata keys are shown (see [Koh16] for details and customization options).

frameimages

• If the option frameimages is set, then slide mode also shows the \frameimage-generated frames.

2.2 Notes and Slides

frame note

Slides are represented with the frame just like in the beamer class, see [Tanb] for details. The mikoslides class adds the note environment for encapsulating the course note fragments.¹

¹EDNOTE: leaving out noproblems for the moment until we decide what to do with it.

²EDNOTE: document the functionality

¹MK: it would be very nice, if we did not need this environment, and this should be possible in principle, but not without intensive LaTeX trickery. Hints to the author are welcome.

⚠ Note that it is essential to start and end the notes environment at the start of the line – in particular, there may not be leading blanks – else IATEX becomes confused and throws error messages that are difficult to decipher.

```
\begin{note}
  We start this course with ...
\end{note}

\begin{frame}
  \frametitle{The first slide}
    ...
\end{frame}
\begin{note}
    ... and more explanatory text
\end{note}

\begin{frame}
  \frametitle{The second slide}
    ...
\end{frame}
    ...
\end{frame}
```

Example 1: A typical Course Notes File

By interleaving the frame and note environments, we can build course notes as shown in Figure 1.

Sometimes, we want to integrate slides as images after all – e.g. because we already have a PowerPoint presentation, to which we want to add $\mbox{ST}_{E}\mbox{X}$ notes. In this case we can use $\mbox{frameimage}[\langle opt \rangle] \{\langle path \rangle\}$, where $\langle opt \rangle$ are the options of $\mbox{includegraphics}$ from the graphicx package [CR99] and $\langle path \rangle$ is the file path (extension can be left off like in $\mbox{includegraphics}$).

If we want to transclude a the contents of a file as a note, we can use the \ninputref macro. \ninputref foo} is equivalent to

\begin{note}
\inputref{foo}
\end{note}

There are some environments that tend to occur at the top-level of note environments. We make convenience versions of these: e.g. the nomtext environment is just an omtext inside a note environment (but looks nicer in the source, since it avoids one level of source indenting). Similarly, we have the nomgroup environment.

\frameimage

\ninputref

nomtext

nomgroup

2.3 Header and Footer Lines

2.4 Colors and Highlighting

\textwarning The \textwarning macro generates a warning sign:

- 2.5 Front Matter, Titles, etc
- 2.6 Miscellaneous

3 Limitations

In this section we document known limitations. If you want to help alleviate them, please feel free to contact the package author. Some of them are currently discussed in the STEXGitHub repository [sTeX].

1. when option book which uses \pagestyle{headings} is given and semantic macros are given in the omgroup titles, then they sometimes are not defined by the time the heading is formatted. Need to look into how the headings are made. This is a problem of the underlying omdoc package.

4 The Implementation

4.1 Class and Package Options

We define some Package Options and switches for the mikoslides class and activate them by passing them on to beamer.cls and omdoc.cls and the mikoslides package. We pass the nontheorem option to the statements package when we are not in notes mode, since the beamer package has its own (overlay-aware) theorem environments.

```
1 \( *\cls \)
2 \newif\ifnotes\notesfalse
3 \DeclareOption\notes\{\notesfalse\PassOptionsToPackage\{\CurrentOption\\mikoslides\}\}
4 \DeclareOption\{slides\\notesfalse\PassOptionsToPackage\{\CurrentOption\\mikoslides\}\}
5 \DeclareOption*\{\PassOptionsToClass\{\CurrentOption\\mikoslides\}\}
6 \Quad \PassOptionsToClass\{\CurrentOption\\mikoslides\}\}
7 \Quad \PassOptionsToPackage\{\CurrentOption\\mikoslides\}\}
8 \ProcessOptions
9 \( /\cls \)
```

now we do the same for the mikoslides package. Note that we also have to define the same switches³, since we might use mikoslides.sty in a different class.

- 10 (*package)
- 11 \newif\if@mikoslides@mh@\@mikoslides@mh@false
- 12 \DeclareOption{mh}{\@mikoslides@mh@true
- 13 \PassOptionsToPackage{\CurrentOption}{stex}

 $^{^3\}mathrm{EdNote}\colon\thinspace \mathsf{MK}\colon \mathsf{we}$ may think about making all of them internal

```
\PassOptionsToPackage{\CurrentOption}{smglom}
    \PassOptionsToPackage{\CurrentOption}{tikzinput}}
16 \newif\ifnotes\notesfalse
17 \DeclareOption{notes}{\notestrue}
18 \DeclareOption{slides}{\notesfalse}
19 \ifnotes\else\PassOptionsToPackage{nontheorem}{statements}\fi
20 \newif\ifsectocframes\sectocframesfalse
21 \DeclareOption{sectocframes}{\sectocframestrue\PassOptionsToPackage{msection}{statements}}
22 \newif\ifframeimages\frameimagesfalse
23 \DeclareOption{frameimages}{\frameimagestrue}
24 \newif\if@part\@partfalse
25 \DeclareOption{report}{\@parttrue\PassOptionsToPackage{\CurrentOption}{omdoc}}
26 \DeclareOption{book}{\@parttrue\PassOptionsToPackage{\CurrentOption}{omdoc}}
27 \DeclareOption{bookpart}{\@parttrue\PassOptionsToPackage{\CurrentOption}{omdoc}}
28 \newif\ifproblems\problemstrue
29 \DeclareOption{noproblems}{\problemsfalse}
30 \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{stex}
                              \PassOptionsToPackage{\CurrentOption}{smglom}
31
                              \PassOptionsToPackage{\CurrentOption}{tikzinput}}
33 \ProcessOptions
34 (/package)
   Depending on the options, we either load the article-based omdoc or the
beamer class (and set some counters).
35 (*cls)
36 \ifnotes
   \LoadClass{omdoc}
    \LoadClass[10pt,notheorems]{beamer}
39
    \newcounter{Item}
40
    \newcounter{paragraph}
41
    \newcounter{subparagraph}
42
    \newcounter{Hfootnote}
43
44 \fi
now it only remains to load the mikoslides package that does all the rest.
45 \RequirePackage{mikoslides}
46 (/cls)
   In notes mode, we also have to make the beamer-specific things available
to article via the beamerarticle package. We use options to avoid loading
theorem-like environments, since we want to use our own from the STFX packages.
The first batch of packages we want are loaded on mikoslides.sty. These are the
general ones, we will load the STFX-specific ones after we have done some work
(e.g. defined the counters m*). Only the stex-logo package is already needed
now for the default theme.
47 (*package)
48 \ifnotes
49 \RequirePackage{a4wide}
```

50 \RequirePackage{marginnote}

```
56 \RequirePackage{etoolbox}
57 \RequirePackage{amssymb}
58 \RequirePackage{amsmath}
59 \RequirePackage{comment}
60 \RequirePackage{textcomp}
61 \RequirePackage{url}
62 \RequirePackage{graphicx}
63 \RequirePackage{stex-logo}
64 \RequirePackage{stex-logo}
65 \ifnotes
66 \RequirePackage[bookmarks,bookmarksopen,bookmarksnumbered,breaklinks,
67 linkcolor=black,citecolor=black,urlcolor=cyan,filecolor=cyan,colorlinks]{hyperref}
68 \fi
finally, we require the metakeys package from STEX, so that we can use the \addmetakey mechanism.
```

53 \RequirePackage[noxcolor,noamsthm]{beamerarticle}

55 \if@mikoslides@mh@\RequirePackage{mikoslides-mh}\fi

69 \RequirePackage{metakeys}

4.2 Notes and Slides

51 \RequirePackage{xcolor}
52 \RequirePackage{mdframed}

For the lecture notes cases, we also provide the \usetheme macro that would otherwise from the the beamer class. While the latter loads beamertheme $\langle theme \rangle$.sty, the notes version loads beamernotestheme $\langle theme \rangle$.sty.

```
70 \ifnotes 71 \renewcommand\usetheme[2][]{\usepackage[#1]{beamernotestheme#2}} 72 \fi
```

We define the sizes of slides in the notes. Somehow, we cannot get by with the same here.

```
73 \newcounter{slide}
74 \newlength{\slidewidth}\setlength{\slidewidth}{12.8cm}
75 \newlength{\slideheight}\setlength{\slideheight}{9cm}
```

The note environment is used to leave out text in the slides mode. It does not have a counterpart in OMDoc. So for course notes, we define the note environment to be a no-operation otherwise we declare the note environment as a comment via the comment package.

```
76 \ifnotes%
77 \renewenvironment{note}{\ignorespaces}{}%
78 \else%
79 \excludecomment{note}%
80 \fi%
```

 $^{^4\}mathrm{EdNote}\colon$ MK: This is not ideal, but I am not sure that I want to be able to provide the full theme functionality there.

\ninputref

81 \newcommand\ninputref[2][]{\ifnotes\inputref[#1]{#2}\fi}

We first set up the slide boxes in article mode. We set up sizes and provide a box register for the frames and a counter for the slides.

```
82 \setminus ifnotes
           \newlength{\slideframewidth}
            \setlength{\slideframewidth}{1.5pt}
       We first define the keys.
frame
            \addmetakey{frame}{label}
       86
            \addmetakey[yes]{frame}{allowframebreaks}
            \addmetakey{frame}{allowdisplaybreaks}
       87
       88
           \addmetakey[yes]{frame}{fragile}
       89
            \addmetakey[yes]{frame}{shrink}
            \addmetakey[yes]{frame}{squeeze}
       90
       We define the environment, read them, and construct the slide number and label.
            \renewenvironment{frame}[1][]{%
       91
       92
              \metasetkeys{frame}{#1}%
              \stepcounter{slide}%
       93
              \def\@currentlabel{\theslide}%
       94
              \ifx\frame@label\@empty%
       95
              \else%
       96
       97
                \label{\frame@label}%
              \fi%
       We redefine the itemize environment so that it looks more like the one in beamer.
              \def\itemize@level{outer}%
       99
      100
              \def\itemize@outer{outer}%
              \def\itemize@inner{inner}%
      101
      102
              \renewcommand\newpage{}%
              \renewcommand\metakeys@show@keys[2]{\marginnote{{\scriptsize ##2}}}%
      103
              \renewenvironment{itemize}{%
      104
                \ifx\itemize@level\itemize@outer%
      105
      106
                  \def\itemize@label{$\rhd$}%
      107
                \fi%
                \ifx\itemize@level\itemize@inner%
      108
                  \def\itemize@label{$\scriptstyle\rhd$}%
      109
      110
                \begin{list}%
      111
                {\itemize@label}%
      112
                {\setlength{\labelsep}{.3em}%
      113
                 \setlength{\labelwidth}{.5em}%
      114
      115
                 \setlength{\leftmargin}{1.5em}%
      116
                \edef\itemize@level{\itemize@inner}%
      117
      118
      119
                \end{list}%
```

}%

120

```
We create the box with the mdframed environment from the equinymous package.
                   \begin{mdframed}[linewidth=\slideframewidth,skipabove=1ex,skipbelow=1ex,userdefinedwidth=\s
            121
                 }{%
            122
                   \medskip\miko@slidelabel\end{mdframed}%
            123
            124
                 }%
                Now, we need to redefine the frametitle (we are still in course notes mode).
\frametitle
                 \renewcommand{\frametitle}[1]{{\Large\bf\sf\color{blue}{#1}}\medskip}%
            126 \fi %ifnotes
            We have to make sure that the width is overwritten, for that we check the
\frameimage
             \Gin@ewidth macro from the graphicx package<sup>5</sup>
            127 \newrobustcmd\frameimage[2][]{%
            128
                 \stepcounter{slide}%
                 \ifframeimages%
            129
                   \def\Gin@ewidth{}\setkeys{Gin}{#1}%
            130
                   \ifnotes%
            131
            132
                   \else%
                     \vfill%
            133
            134
                    \fi%
                   \ifx\Gin@ewidth\@empty%
            135
                     136
            137
                    \par\strut\hfill{\footnotesize Slide \arabic{slide}}%
            138
            139
                    \ifnotes%
            140
                   \else%
                     \vfill%
            141
            142
                   \fi%
                 \fi%
            143
            144 }% ifframeimages
     \pause
            145 \ifnotes\newcommand\pause{}\fi
    nomtext
            146 \ifnotes\newenvironment{nomtext}[1][]{\begin{omtext}[#1]}{\end{omtext}}%
            147 \else\excludecomment{nomtext}\fi%
   nomgroup
            148 \ if notes \ length on more out from group \ [2] \ [] \ begin \{omgroup\} \ [#1] \ \#2\} \} \{\ end \{omgroup\} \} \% 
            149 \else\excludecomment{nomgroup}\fi%
```

EdN:5

EdN:6

 $^5\mathrm{EdNote}\colon\mathsf{MK@DG};$ we need to do that in the LaTeXML binding as well!

⁶EdNote: MK: fake it in notes mode for now

4.3 **Header and Footer Lines**

Now, we set up the infrastructure for the footer line of the slides, we use boxes for the logos, so that they are only loaded once, that considerably speeds up processing.

The default logo is the logo of Jacobs University. Customization can be done by \setslidelogo \setslidelogo{ $\langle logo \ name \rangle$ }. 150 \newlength{\slidelogoheight} 151 \ifnotes% 152\setlength{\slidelogoheight}{.4cm}% 153 \else% 154 \setlength{\slidelogoheight}{1cm}% 155 \fi% 156 \newsavebox{\slidelogo}% 157 \sbox{\slidelogo}{\sTeX}% 158 \newrobustcmd{\setslidelogo}[1]{% \sbox{\slidelogo}{\includegraphics[height=\slidelogoheight]{#1}}% 159 160 }%

\setsource

\source stores the writer's name. By default it is Michael Kohlhase since he is the main user and designer of this package. \setsource $\{\langle name \rangle\}$ can change the writer's name.

```
161 \def\source{Michael Kohlhase}% customize locally
162 \newrobustcmd{\setsource}[1]{\def\source{#1}}%
```

180

\ifx\@url\@empty%

\setlicensing Now, we set up the copyright and licensing. By default we use the Creative Commons Attribuition-ShareAlike license to strengthen the public domain. If package hyperref is loaded, then we can attach a hyperlink to the license logo. \setlicensing[$\langle url \rangle$] { $\langle logo\ name \rangle$ } is used for customization, where $\langle url \rangle$ is optional.

```
163 \def\copyrightnotice{\footnotesize\copyright:\hspace{.3ex}{\source}}%
164 \newsavebox{\cclogo}%
165 \sbox{\cclogo}{\includegraphics[height=\slidelogoheight]{cc_somerights}}%
166 \verb|\newif\ifcchref\cchreffalse%|
167 \AtBeginDocument{%
    \@ifpackageloaded{hyperref}{\cchreftrue}{\cchreffalse}
169 }%
170 \def\licensing{%
    \ifcchref%
171
      \href{http://creativecommons.org/licenses/by-sa/2.5/}{\usebox{\cclogo}}%
172
173
      {\usebox{\cclogo}}%
174
175
    \fi%
176 }%
177 \newrobustcmd{\setlicensing}[2][]{%
178
    \def\@url{#1}%
    179
```

```
\def\licensing{{\usebox{\cclogo}}}%
             181
                  \else%
             182
                     \def\licensing{%
             183
                       \ifcchref%
             184
                       \href{#1}{\usebox{\cclogo}}%
             185
             186
                       \else%
             187
                       {\usebox{\cclogo}}%
             188
                       \fi%
                    }%
             189
                  \fi%
             190
             191 }%
\slidelabel Now, we set up the slide label for the article mode.<sup>7</sup>
             192 \newrobustcmd\miko@slidelabel{%
                  \vbox to \slidelogoheight{%
                     \vss\hbox to \slidewidth%
                     {\licensing\hfill\copyrightnotice\hfill\arabic{slide}\hfill\usebox{\slidelogo}}%
             195
                 }%
             196
```

Colors and Highlighting 4.4

We first specify sans serif fonts as the default.

```
198 \sffamily
```

197 }%

Now, we set up an infrastructure for highlighting phrases in slides. Note that we use content-oriented macros for highlighting rather than directly using color markup. The first thing to to is to adapt the green so that it is dark enough for most beamers

```
199 \AtBeginDocument{%
200 \definecolor{green}{rgb}{0,.5,0}%
201 \definecolor{purple}{cmyk}{.3,1,0,.17}%
202 }%
```

We customize the \defemph, \notemph, and \stDMemph macros with colors for the use in the statements package. Furthermore we customize the \@@lec macro for the appearance of line end comments in \lec.

```
203 % \def\STpresent#1{\textcolor{blue}{#1}}
204 \def\defemph#1{{\textcolor{magenta}{#1}}}
205 \def\notemph#1{{\textcolor{magenta}{#1}}}
206 \def\stDMemph#1{{\textcolor{blue}{#1}}}
207 \def\@@lec#1{(\textcolor{green}{#1})}
```

I like to use the dangerous bend symbol for warnings, so we provide it here.

EdN:7

\textwarning as the macro can be used quite often we put it into a box register, so that it is only loaded once.

208 \pgfdeclareimage[width=.8em] \{miko@small@dbend} \{dangerous-bend}

 $^{^7\}mathrm{EdNote}$: see that we can use the themes for the slides some day. This is all fake.

```
209 \def\smalltextwarning{%
     \pgfuseimage{miko@small@dbend}%
211
     \xspace%
212 }%
213 \pgfdeclareimage[width=1.2em] \{miko@dbend} \{dangerous-bend}
214 \newrobustcmd\textwarning{%
     \raisebox{-.05cm}{\pgfuseimage{miko@dbend}}%
216
     \xspace%
217 }%
218 \pgfdeclareimage[width=2.5em]{miko@big@dbend}{dangerous-bend}%
219 \newrobustcmd\bigtextwarning{%
     \raisebox{-.05cm}{\pgfuseimage{miko@big@dbend}}%
222 }%
223 \newrobustcmd\putgraphicsat[3]{%
     \begin{picture}(0,0)\put(#1){\includegraphics[#2]{#3}}\end{picture}%
226 \newrobustcmd\putat[2]{%
     \begin{picture}(0,0)\put(#1){#2}\end{picture}%
227
228 }%
```

4.5 Sectioning

If the sectocframes option is set, then we make section frames. We first define a set of counters⁸

```
229 \ifsectocframes%
230 \if@part%
231
       \newcounter{mpart}%
       \newcounter{mchapter}%
232
       \newcounter{msection} [mchapter]%
233
234
     \else%
235
       \newcounter{msection}%
     \fi%
236
     \newcounter{msubsection} [msection] %
237
     \newcounter{msubsubsection}[msubsection]%
238
     \newcounter{msubsubsection}[msubsubsection]%
240 \fi% ifsectocframes
```

Now that we have defined the counters, we can load the STEX-specific packages (in particular statements that needs these counters).

```
241 \RequirePackage{stex}
242 \RequirePackage{smglom}
243 \RequirePackage{tikzinput}
```

Now STEXis loaded, we redefine the omgroup environment to produce section toc frames (if the option sectocframes is specified.)⁹

⁸EdNote: I forget: why not use the counters from beamer/article? –¿ document this.

 $^{^9\}mathrm{EdNote}\colon$ MK: we should probably just redefine omgroup@num and omgroup@nonum, since they do the actual work so that we can add the sectocframes behavior here without having to copy the

```
244 \in \ only in slides
     \renewenvironment{omgroup}[2][]{%
245
       \metasetkeys{omgroup}{#1}\sref@target%
246
       \advance\section@level by 1%
247
       \ifsectocframes%
248
249
       \stepcounter{slide}
250
       \begin{frame}[noframenumbering]%
       \vfill\Large\centering%
251
       \red{%}
252
         \ifcase\section@level\or
253
         \stepcounter{mpart}
254
255
         \def\@@label{Part \Roman{mpart}}
256
         \def\currentsectionlevel{part}
257
         \or%
         \stepcounter{mchapter}
258
         \def\@@label{Chapter \arabic{mchapter}}
259
         \def\currentsectionlevel{chapter}
260
261
         \or
^{262}
         \stepcounter{msection}
263
         \def\@@label{\if@part\arabic{mchapter}.\fi\arabic{msection}}
         \def\currentsectionlevel{section}
264
265
         \or
266
         \stepcounter{msubsection}
         \def\@@label{\if@part\arabic{mchapter}.\fi\arabic{msection}.\arabic{msubsection}}
267
268
         \def\currentsectionlevel{subsection}
269
         \or
         \stepcounter{msubsubsection}
270
         \def\@Qlabel{\if@part\arabic{mchapter}.\fi\arabic{msection}.\arabic{msubsection}.\arabic{
271
         \def\currentsectionlevel{subsubsection}
272
273
         \or
         \stepcounter{msubsubsection}
274
275
         \def\@Qlabel{\if@part\arabic{mchapter}.\fi\arabic{msection}.\arabic{msubsection}.\arabic{
276
         \def\currentsectionlevel{subsubsection}
         \fi% end ifcase
277
278
         \@@label\sref@label@id\@@label
         \quad #2%
279
       }%
280
281
       \vfill%
282
       \end{frame}%
       \fi %ifsectocframes
283
284
     {\advance\section@level by -1}%
285
286 \fi% ifnotes
```

internals. Then there is less material that can get out of sync. Additionally, we should have a hook in the original code of those so that we can increment the slides counter in notes node (to keep slides in sync)

4.6 Miscellaneous

We set up a beamer template for theorems like ams style, but without a block environment.

```
287 \def\inserttheorembodyfont{\normalfont}
288 \defbeamertemplate{theorem begin}{miko}
289 {\inserttheoremheadfont\inserttheoremname\inserttheoremnumber
290 \ifx\inserttheoremaddition\@empty\else\ (\inserttheoremaddition)\fi%
291 \inserttheorempunctuation\inserttheorembodyfont\xspace}
292 \defbeamertemplate{theorem end}{miko}{{}}
and we set it as the default one.
293 \setbeamertemplate{theorems}[miko]
```

The following fixes an error I do not understand, this has something to do with beamer compatibility, which has similar definitions but only up to 1.

```
294 \expandafter\def\csname Parent2\endcsname{}
```

We need to disregard the columns macros introduced by the beamer class in the notes.

```
295 \ifnotes%
     \renewenvironment{columns}[1][]{%
296
297
        \par\noindent%
298
        \begin{minipage}%
299
        \slidewidth\centering\leavevmode%
300
     }{%
        \end{minipage}\par\noindent%
301
     }%
302
     \newsavebox\columnbox%
303
     \renewenvironment<>{column}[2][]{%
304
        \begin{lrbox}{\columnbox}\begin{minipage}{#2}%
305
     }{%
306
        \end{minipage}\end{lrbox}\usebox\columnbox%
307
     }%
308
309 \fi% ifnotes
310 \ifproblems%
     \newenvironment{problems}{}{}%
312 \else%
     \excludecomment{problems}%
314 \fi%
315 \langle /package \rangle
```

Change History

v0.1		done by beamer.cls $\dots \dots 1$	
Gener	cal: Initial Version 1	v0.9	
	ral: course notes back on	General: basic options handling for the frame environment in notes	
v0.3	minar 1	mode	
Gener v0.4	cal: changing to Jacobs logo . 1	this is almost done 1 v1.0	
	ral: moving line-end-comment omdoc.dtx 1	General: adding $\frameimage \dots 1$ v1.1	
v0.5	pasing the whole thing on earner	General: moving MathHub support out to separate package 1 reinterpreting omgroup 1 Removing the old title macros	
	ytwocolumns, this is better	(use the regular ones instead) . 1	
\mathbf{Refer}	ences		
[CR99]	David Carlisle and Sebastian Rathz. <i>The</i> graphicxl <i>package</i> . Part of the TEX distribution. The Comprehensive TEX Archive Network. 1999. URL: https://www.tug.org/texlive/devsrc/Master/texmf-dist/doc/latex/graphics/graphicx.pdf.		
[Koh16]	Michael Kohlhase. metakeys.	sty: A generic framework for extensible	

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