

Modern Beamer Presentations with the MTHEME package

Matthias Vogelgesang

matthias.vogelgesang@gmail.com

? from ?

1 Introduction

Beamer is an awesome way to make presentations with LaTeX. But the stock themes do not necessarily look particularly nice and the custom themes often scream “Beamer” at first sight. The goal of MTHEME is to provide a modern Beamer theme with minimal visual noise. It provides section slides with a neat progress bar and It is intended to be used with [Fira Sans](#), a gorgeous typeface commissioned by Mozilla and designed by [Carrois](#). Hence to get the best results you should have installed the Fira typeface and use XeTeX to typeset your slides. Nevertheless this is no hard dependency. The theme also works fine with pdfTeX and the Computer Modern typeface.

The codebase is maintained on [GitHub](#). So if you have issues, find mistakes in the manual or want to contribute – to make the theme even better – get in contact there.

2 Getting Started

To get started with the theme is very simple. The following code shows a minimal example of a Beamer presentation using the MTHEME.

```
\documentclass[10pt]{beamer}  
\usetheme{m} % load mtheme
```

```

\title{A modern beamer theme}           % define title
\date{\today}                           % define date
\author{Matthias Vogelgesang}           % define author
\institute{Institute}                   % define institute
\begin{document}
\maketitle                              % create titlepage
\section{First Section}                  % create section
\begin{frame}{First Frame}               % first frame
    Lorem ipsum dolor sit amet, ...
\end{frame}
\begin{frame}{Second Frame}              % second frame
    Lorem ipsum dolor sit amet, ...
\end{frame}
\end{document}

```

3 Implementation

3.1 Main Theme

Options

```

1
2 \newif\if@useTitleProgressBar
3 \@useTitleProgressBarfalse
4 \DeclareOptionBeamer{usetitleprogressbar}{
5   \@useTitleProgressBartrue
6 }
7
8 \newif\if@useTotalSlideIndicator
9 \@useTotalSlideIndicatorfalse
10 \DeclareOptionBeamer{usetotalslideindicator}{
11   \@useTotalSlideIndicatortrue
12 }
13
    usetotalslideindicator
    noslidenumbers

```

```

14 \newif\if@noSlideNumbers
15 \@noSlideNumbersfalse
16 \DeclareOptionBeamer{noslidenumbers}{
17   \@noSlideNumberstrue
18 }

    nosectionslide

19
20 \newif\if@noSectionSlide
21 \@noSectionSlidefalse
22 \DeclareOptionBeamer{nosectionslide}{
23   \@noSectionSlidetrue
24 }

    protectframetitle

25
26 \newif\if@protectFrameTitle
27 \@protectFrameTitlefalse
28 \DeclareOptionBeamer{protectframetitle}{
29   \@protectFrameTitetrue
30 }

    nooffset

31
32 \newlength{\@mtheme@voffset}
33 \setlength{\@mtheme@voffset}{2em}
34 \DeclareOptionBeamer{nooffset}{
35   \setlength{\@mtheme@voffset}{0em}
36 }

    blockbg

37
38 \DeclareOptionBeamer{blockbg}{
39   \PassOptionsToPackage{blockbg}{beamercolorthememetropolis}%
40 }

    Unknown option error handling

41
42 \DeclareOptionBeamer*{
43   \PackageWarning{beamerthemem}{Unknown option ``\CurrentOption'}%
44 }
45 \ProcessOptionsBeamer

```

mthemetitleformat

\mthemetitleformat

```
46
47 \def\mthemetitleformat#1{\scshape #1}

48
49 \mode<presentation>

    Packages

50
51 \RequirePackage{etoolbox}
52 \RequirePackage{tikz}
53 \RequirePackage{pgfplots}
54 \RequirePackage{ifxetex,ifluatex}
55 \newif\ifxetexorluatex
56 \ifxetex
57   \xetexorluatextrue
58 \else
59   \ifluatex
60     \xetexorluatextrue
61   \else
62     \xetexorluatexfalse
63   \fi
64 \fi
65 \usetikzlibrary{backgrounds}
66 \usetikzlibrary{calc}
67 \usecolortheme{metropolis}
68 \ifxetexorluatex
69   \usefonttheme{metropolis}
70 \else
71   \PackageWarning{beamerthemem}{You need to compile with XeLaTeX or Lu-
    aLaTeX for the Fira fonts.}
72 \fi

    Make Titlepage

\maketitle

73
74 \def\maketitle{\ifbeamer@inframe\titlepage\else\frame[plain]{\titlepage}\fi}

    Define Titlepage
```

`\titlepage`

```
75
76 \def\titlepage{\usebeamertemplate{title page}}

Set beamer title page template

77
78 \setbeamertemplate{title page}
79 {
80   \begin{minipage}[b][\paperheight]{\textwidth}
81     \vspace*{\@mtheme@voffset}
82
83     \ifx\inserttitlegraphic\@empty\else
84       {% \inserttitlegraphic is nonempty
85         \vbox to 0pt
86           {% display title graphic without changing the position of other el-
elements
87             \vspace*{2em}
88             \usebeamercolor[fg]{titlegraphic}%
89             \inserttitlegraphic%
90           }%
91         \nointerlineskip%
92       }
93     \fi
94
95     \vfill%
96
97     \ifx\inserttitle\@empty\else
98       {% \inserttitle is nonempty
99         \raggedright%
100        \linespread{1.0}%
101        \usebeamerfont{title}%
102        \usebeamercolor[fg]{title}%
103        \mthemetitleformat{\inserttitle}%
104        \vspace*{0.5em}
105      }}
106     \fi
107
108     \ifx\insertsubtitle\@empty\else
109       {% \insertsubtitle is nonempty
110        \usebeamerfont{subtitle}%
```

```

111     \usebeamercolor[fg]{subtitle}%
112     \insertsubtitle%
113     \vspace*{0.5em}%
114 }}
115 \fi
116
117 \begin{tikzpicture}
118     \usebeamercolor{title separator}
119     \draw[fg] (0, 0) -- (\textwidth, 0);
120 \end{tikzpicture}%
121 \vspace*{1em}%
122
123 \ifx\beamer@shortauthor\@empty\else
124 {% \insertauthor is always nonempty by beamer's definition, so we must
125     % test another macro which is initialized by \author{...}
126     % For details, see http://tex.stackexchange.com/questions/241306/
127     \usebeamerfont{author}%
128     \usebeamercolor[fg]{author}%
129     \insertauthor%
130     \par%
131     \vspace*{0.25em}
132 }}
133 \fi
134
135 \ifx\insertdate\@empty\else
136 {% \insertdate is nonempty
137     \usebeamerfont{date}%
138     \usebeamercolor[fg]{date}%
139     \insertdate%
140     \par%
141 }}
142 \fi
143
144 \ifx\insertinstitute\@empty\else
145 {% \insertinstitute is nonempty
146     \vspace*{3mm}
147     \usebeamerfont{institute}%
148     \usebeamercolor[fg]{institute}%
149     \insertinstitute%
150     \par%

```

```

151     }}
152     \fi
153
154     \vfill
155     \vspace*{\@mtheme@voffset}
156 \end{minipage}
157 }

```

Progressbar

```

158
159 \RequirePackage{calc}

```

\inserttotalframenum

```

160
161 \def\inserttotalframenum{100} % prevent \progressbar@percent from get-
    ting too big on first compile
162
163 \newlength{\progressbar@percent}

```

\progressbar

```

164
165 \newcommand{\progressbar}[1]{%
166   \setlength{\progressbar@percent}{%
167     #1 * \ratio{\insertframenum pt}{\inserttotalframenum pt}%
168   }%
169   \begin{tikzpicture}[tight background]
170     \usebeamercolor{progress bar}
171     \draw[bg, fill=bg] (0,0) rectangle (#1, 0.4pt);
172     \draw[fg, fill=fg] (0,0) rectangle (\progressbar@percent, 0.4pt);
173   \end{tikzpicture}%
174 }

```

Commands

\insertsectionHEAD

```

175
176 \newcommand{\insertsectionHEAD}{%
177   \expandafter\insertsectionHEADaux\insertsectionhead}

```

`\insertsectionHEADaux`

```
178
179 \newcommand{\insertsectionHEADaux}[3]{\mthemetitleformat{#3}}%
```

Create a plain frame with dark background

`\plain`

```
180
181 \newcommand{\plain}[2][]{%
182   \begin{group}
183     \setbeamercolor{background canvas}{use=palette primary,parent=palette pri-
184       mary}
185     \begin{frame}{#1}
186       \centering
187       \vfill
188       \vspace{1em}
189       \usebeamerfont{section title}
190       \mthemetitleformat{#2}
191       \vfill
192     \end{frame}
193   \end{group}
194 }
```

Itemize tweaks

```
195
196 \setlength{\leftmargini}{1em}
197 \setlength{\leftmarginii}{1em}
198 \setlength{\leftmarginiii}{1em}
```

`\itemBullet`

```
199
200 \newcommand{\itemBullet}{\cdot}

201
202 \setbeamertemplate{itemize item}{\itemBullet}
203 \setbeamertemplate{itemize subitem}{\itemBullet}
204 \setbeamertemplate{itemize subsubitem}{\itemBullet}
205 \setlength{\parskip}{0.5em}
```


Sections

```
206
207 \setbeamertemplate{section page}
208 {
209   \vspace{2em}
210   \centering
211   \begin{minipage}{22em}
212     \usebeamercolor[fg]{section title}
213     \usebeamerfont{section title}
214     \insertsectionHEAD\[-1ex]
215     \progressbar{\textwidth}
216   \end{minipage}
217   \par
218 }
```

Insert frame with section title at every section start

```
219
220 \if@noSectionSlide\else%
221   \AtBeginSection[]
222   {
223     \ifbeamer@inframe
224       \sectionpage
225     \else
226       \frame[plain]{\sectionpage}
227     \fi
228   }
229 \fi
```

Captions

```
230
231 \setbeamertemplate{caption label separator}{: }
232 \setbeamertemplate{caption}[numbered]
```

Footline/footnote

```
233
234 \usenavigationsymbolstemplate{}
235 \setbeamertemplate{footline}
236 {%
237 \begin{beamercolorbox}[wd=\textwidth,ht=3ex,dp=3ex,leftskip=0.3cm,rightskip=0.3cm]{
238   \hfill\usebeamerfont{page number in head/foot}%

```

```

239 \if@noSlideNumbers%
240   %Purposefully left blank to display no slide number.%
241 \else%
242   \if@useTotalSlideIndicator%
243     \insertframenumbers/\inserttotalframenumbers%
244   \else%
245     \insertframenumbers%
246   \fi%
247 \fi%
248 \end{beamercolorbox}%
249 }
250 \setbeamertemplate{footnote}%
251 {%
252   \parindent 0em\noindent%
253   \raggedright
254   \usebeamerfont{footnote}\hbox to 0.8em{\hfil\insertfootnotemark}\insertfootnotetext
255 }

Frametitle

256
257 \setbeamertemplate{frametitle}{%
258 \nointerlineskip
259 \begin{beamercolorbox}[wd=\paperwidth, leftskip=0.3cm, rightskip=0.3cm, ht=2.5ex, dp=1.5ex]{
260 \usebeamerfont{frametitle}%
261 \if@protectFrameTitle%
262   \mthemeformat{\protect\insertframetitle}%
263 \else%
264   \mthemeformat{\insertframetitle}%
265 \fi%
266 \end{beamercolorbox}%
267 \if@useTitleProgressBar
268   \nointerlineskip
269   \begin{beamercolorbox}[wd=\paperwidth, ht=0.4pt, dp=0pt]{frametitle}
270     \progressbar{\paperwidth}
271   \end{beamercolorbox}
272 \fi
273 \vspace{\@mtheme@voffset}
274 }

pgfplots
Colors

```

TolColors from <http://www.r-bloggers.com/the-paul-tol-21-color-salute/>

```
275
276 \definecolor{TolColor1}{HTML}{332288} % dark purple
277 \definecolor{TolColor2}{HTML}{6699CC} % dark blue
278 \definecolor{TolColor3}{HTML}{88CCEE} % light blue
279 \definecolor{TolColor4}{HTML}{44AA99} % light green
280 \definecolor{TolColor5}{HTML}{117733} % dark green
281 \definecolor{TolColor6}{HTML}{999933} % dark brown
282 \definecolor{TolColor7}{HTML}{DDCC77} % light brown
283 \definecolor{TolColor8}{HTML}{661100} % dark red
284 \definecolor{TolColor9}{HTML}{CC6677} % light red
285 \definecolor{TolColor10}{HTML}{AA4466} % light pink
286 \definecolor{TolColor11}{HTML}{882255} % dark pink
287 \definecolor{TolColor12}{HTML}{AA4499} % light purple
```

Color cycles

```
288
289 \pgfplotscreateplotcyclelist{mbarplot cycle}{%
290   {draw=TolColor2, fill=TolColor2!70},
291   {draw=TolColor7, fill=TolColor7!70},
292   {draw=TolColor4, fill=TolColor4!70},
293   {draw=TolColor11, fill=TolColor11!70},
294   {draw=TolColor1, fill=TolColor1!70},
295   {draw=TolColor8, fill=TolColor8!70},
296   {draw=TolColor6, fill=TolColor6!70},
297   {draw=TolColor9, fill=TolColor9!70},
298   {draw=TolColor10, fill=TolColor10!70},
299   {draw=TolColor12, fill=TolColor12!70},
300   {draw=TolColor3, fill=TolColor3!70},
301   {draw=TolColor5, fill=TolColor5!70},
302 }
303 \pgfplotscreateplotcyclelist{mlineplot cycle}{%
304   {TolColor2, mark=*, mark size=1.5pt},
305   {TolColor7, mark=square*, mark size=1.3pt},
306   {TolColor4, mark=triangle*, mark size=1.5pt},
307   {TolColor6, mark=diamond*, mark size=1.5pt},
308 }
```

Styles

```
309
```

```

310 \pgfplotsset{
311   compat=1.9,
312   mbaseplot/.style={
313     legend style={
314       draw=none,
315       fill=none,
316       cells={anchor=west},
317     },
318     x tick label style={
319       font=\footnotesize
320     },
321     y tick label style={
322       font=\footnotesize
323     },
324     legend style={
325       font=\footnotesize
326     },
327     major grid style={
328       dotted,
329     },
330     axis x line*=bottom,
331   },
332   mlineplot/.style={
333     mbaseplot,
334     xmajorgrids=true,
335     ymajorgrids=true,
336     major grid style={dotted},
337     axis x line=bottom,
338     axis y line=left,
339     legend style={
340       cells={anchor=west},
341       draw=none
342     },
343     cycle list name=mlineplot cycle,
344   },
345   mbarplot base/.style={
346     mbaseplot,
347     bar width=6pt,
348     axis y line*=none,
349   },

```

```

350 mbarplot/.style={
351     mbarplot base,
352     ybar,
353     xmajorgrids=false,
354     ymajorgrids=true,
355     area legend,
356     legend image code/.code={%
357         \draw[#1] (0cm,-0.1cm) rectangle (0.15cm,0.1cm);
358     },
359     cycle list name=mbarplot cycle,
360 },
361 horizontal mbarplot/.style={
362     mbarplot base,
363     xmajorgrids=true,
364     ymajorgrids=false,
365     xbar stacked,
366     area legend,
367     legend image code/.code={%
368         \draw[#1] (0cm,-0.1cm) rectangle (0.15cm,0.1cm);
369     },
370     cycle list name=mbarplot cycle,
371 },
372 disable thousands separator/.style={
373     /pgf/number format/.cd,
374     1000 sep={}
375 },
376 }

377
378 \mode<all>

    misc

379
380 \let\otp\titlepage

\titlepage

381
382 \renewcommand{\titlepage}{\otp\addtocounter{framenum}{-1}}

\mreducelistspacing

383

```

```

384 \newcommand{\mreducelistspacing}{\vspace{-\topsep}}
385
386 \linespread{1.15}

```

3.2 Font Theme

Font Definitions

```

387
388 \RequirePackage[no-math]{fontspec}
389 \defaultfontfeatures{Mapping=tex-text}
390 \setsansfont[BoldItalicFont={Fira Sans Italic},%
391             ItalicFont={Fira Sans Light Italic},%
392             BoldFont={Fira Sans}]{Fira Sans Light}
393 \setmonofont{Fira Mono}
394 \newfontfamily\ExtraLight{Fira Sans ExtraLight}
395 \newfontfamily\Light{Fira Sans Light}
396 \newfontfamily\Book{Fira Sans}
397 \newfontfamily\Medium{Fira Sans Medium}
398 \AtBeginEnvironment{tabular}{%
399     \setsansfont[BoldFont={Fira Sans},%
400                 Numbers={Monospaced}]{Fira Sans Light}%
401 }

```

Font Assignment

```

402
403 \setbeamerfont{title}{family=\Book, size=\Large}
404 \setbeamerfont{author}{family=\ExtraLight, size=\small}
405 \setbeamerfont{date}{family=\ExtraLight, size=\small}
406 \setbeamerfont{section title}{family=\Book, size=\Large}
407 \setbeamerfont{block title}{family=\Book, size=\normalsize}
408 \setbeamerfont{block title alerted}{family=\Book, size=\normalsize}
409 \setbeamerfont{subtitle}{family=\Light, size=\fontsize{12}{14}}
410 \setbeamerfont{frametitle}{family=\Book, size=\large}
411 \setbeamerfont{caption}{size=\small}
412 \setbeamerfont{caption name}{family=\Book}
413 \setbeamerfont{description item}{family=\Book}
414 \setbeamerfont{page number in head/foot}{size=\scriptsize}

```

Bibliography

```

415
416 \setbeamerfont{bibliography entry author}{family=\Light, size=\normalsize}
417 \setbeamerfont{bibliography entry title}{family=\Book, size=\normalsize}
418 \setbeamerfont{bibliography entry location}{family=\Light, size=\normalsize}
419 \setbeamerfont{bibliography entry note}{family=\Light, size=\small}
420 \linespread{1.15}

```

3.3 Color Theme

Options

```

421
422 \newif\ifa@beamer@metropolis@blockbg
423 \a@beamer@metropolis@blockbgfalse
424 \DeclareOptionBeamer{blockbg}{
425     \a@beamer@metropolis@blockbgtrue
426 }

Unknown option error handling

427
428 \DeclareOptionBeamer*{%
429     \PackageWarning{beamercolorthememetropolis}{Unknown option `\'CurrentOption'}%
430 }
431 \ProcessOptionsBeamer

```

Colors

```

432
433 \definecolor{mDarkBrown}{HTML}{604c38}
434 \definecolor{mDarkTeal}{HTML}{23373b}
435 \definecolor{mLightBrown}{HTML}{EB811B}
436 \definecolor{mLightGreen}{HTML}{14B03D}

```

Base Colors

```

437
438 \setbeamercolor{normal text}{%
439     fg=mDarkTeal,
440     bg=black!2
441 }
442 \setbeamercolor{alerted text}{%
443     fg=mLightBrown
444 }

```

```

445 \setbeamercolor{example text}{%
446   fg=mLightGreen
447 }

```

Derived Colors

```

448
449 \setbeamercolor{titlelike}{use=normal text, parent=normal text}
450 \setbeamercolor{structure}{%
451   fg=normal text.fg
452 }

```

Frame titles and plain slides

```

453
454 \setbeamercolor{frametitle}{use=palette primary, parent=palette pri-
    mary}

```

The “primary” palette should be used for the most important navigational elements, and possibly of other elements. The metropolis color theme uses it for frame titles and slides.

```

455
456 \setbeamercolor{palette primary}{%
457   use=normal text,
458   fg=normal text.bg,
459   bg=normal text.fg
460 }

```

Progress bar and title separator

```

461
462 \setbeamercolor{title separator}{use=progress bar, parent=progress bar}
463 \setbeamercolor{progress bar}{%
464   use=alerted text,
465   fg=alerted text.fg,
466   bg=normal text.bg!50!fg
467 }

```

Blocks

```

468
469 \if@beamer@metropolis@blockbg
470   \setbeamercolor{block title}{%
471     use=normal text,
472     fg=normal text.fg,

```



```

473     bg=normal text.bg!80!fg
474 }
475 \else
476   \setbeamercolor{block title}{use=normal text, parent=normal text}
477 \fi
478 \setbeamercolor{block title alerted}{%
479   use={block title, alerted text},
480   bg=block title.bg,
481   fg=alerted text.fg
482 }
483 \setbeamercolor{block title example}{%
484   use={block title, example text},
485   bg=block title.bg,
486   fg=example text.fg
487 }
488 \setbeamercolor{block body alerted}{use=block body, parent=block body}
489 \setbeamercolor{block body example}{use=block body, parent=block body}
490 \setbeamercolor{block body}{
491   use={block title, normal text},
492   bg=block title.bg!50!normal text.bg
493 }

Footnotes

494
495 \setbeamercolor{footnote}{fg=normal text.fg!90}
496 \setbeamercolor{footnote mark}{fg=..}
497 \mode<all>

```