



MASARYKOVA UNIVERZITA  
PŘÍRODOVĚDECKÁ FAKULTA  
«EXTRA@DEPARTMENTCS»

---



**«extra@titleCs»**

Bakalářská práce

**Vít Novotný**

Vedoucí práce: Doc. RNDr. Petr Sojka, Ph.D.

Brno 2019

## Bibliografický záznam

**Autor:** Vít Novotný  
Přírodovědecká fakulta, Masarykova univerzita  
«extra@departmentCs»

**Název práce:** «extra@titleCs»

**Studijní program:** «extra@programmeCs»

**Obor:** «extra@fieldCs»

**Vedoucí práce:** Doc. RNDr. Petr Sojka, Ph.D.

**Akademický rok:** 2019/2020

**Počet stran:** ix + 8

**Klíčová slova:** «extra@keywordsCs»

## Bibliographic record

**Author:** Vít Novotný  
Faculty of Science, Masaryk University  
Department of Computer Graphics and Design

**Title of Thesis:** A fibeamer user guide for the Faculty of Science

**Degree Programme:** Applied Informatics

**Field of study:** Typesetting

**Supervisor:** Doc. RNDr. Petr Sojka, Ph.D.

**Academic Year:** 2019/2020

**Number of Pages:** ix + 8

**Keywords:** thesis, typesetting, L<sup>A</sup>T<sub>E</sub>X

# Abstrakt

«extra@abstractCs»

## **Abstract**

Fibeamer is a theme for the beamer  $\text{\LaTeX}$  document class and is intended to be used for the preparation of thesis defense presentations across the faculties of the Masaryk University. This document describes the installation of the fibeamer theme, its configuration, and its use.



## **Prohlášení**

Prohlašuji, že jsem svoji bakalářskou práci vypracoval samostatně s využitím informačních zdrojů, které jsou v práci citovány.

Brno, 16. prosince 2019

---

Podpis autora



# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	<i>Installation</i> . . . . .	1
1.1.1	Installing a T <sub>E</sub> X distribution . . . . .	1
1.1.2	Installing packages . . . . .	2
1.2	<i>Picking a T<sub>E</sub>X engine</i> . . . . .	3
1.3	<i>Creating and typesetting a fibeamer document</i> . . . . .	4
<b>2</b>	<b>Configuration</b>	<b>7</b>



# 1 Introduction

To use the `fibeamer` beamer theme, you can use an online  $\text{\LaTeX}$  editor, such as Overleaf<sup>1</sup>, which allows you to skip the installation described in Section 1.1 completely.

Another way to avoid installation is to use the faculty  $\text{\TeX}$  Live installation by connecting to the Linux server at `▼yoda.math.muni.cz` or `▲vader.math.muni.cz` over SSH (through port 22222) or over the remote desktop protocol<sup>2</sup> (through port 13556), or to use any public-access computer at the Faculty of Science that runs Linux. If you choose this approach, you can also skip this entire section, although a certain degree of proficiency in working with a Unix operating system is required compared to the first method.

## 1.1 Installation

### 1.1.1 Installing a $\text{\TeX}$ distribution

If you decided not to use a public  $\text{\TeX}$  distribution, you will need to install one locally before proceeding further. A  $\text{\TeX}$  distribution contains tools and packages that are going to help you with preparing and typesetting your  $\text{\LaTeX}$  documents.

The two major  $\text{\TeX}$  distributions that you can install are  $\text{\MikTeX}$ <sup>3</sup>, which can be used with the Microsoft Windows operating system, and  $\text{\TeX Live}$ <sup>4</sup>, which can be installed on both Unix and Windows operating systems. The advantages of  $\text{\MikTeX}$  include refined graphical user interface and the ability to install new packages on the fly.

Along with  $\text{\MikTeX}$ , you will also need to install a Perl interpreter, such as Strawberry Perl<sup>5</sup>.  $\text{\TeX Live}$  installs a Perl interpreter by default.

---

1. Overleaf `fibeamer` templates are located at <http://www.overleaf.com/gallery/tagged/muni>.

2. For more information about connecting through the remote desktop protocol, see <http://www.math.muni.cz/aktuality/347-vzdaleny-pristup-yoda-vader.html>.

3.  $\text{\MikTeX}$  can be acquired from <http://miktex.org/2.9/setup>.

4.  $\text{\TeX Live}$  can be acquired from <http://www.tug.org/texlive>.

5. Strawberry Perl can be downloaded from <http://strawberryperl.com/>.

### 1.1.2 Installing packages

In order to function properly, `fibeamer` needs the following packages to be installed in your  $\text{\TeX}$  distribution: `ifthen`, `ifxetex`, `ifluatex`, `lm`, `carlito`, `arev`, `iwona`, `dejavu`, `setspace`, `fontenc`, `fontspec`, `beamer`, `fibeamer`.

If you performed a full installation of  $\text{\TeX}$  Live, you should already have all the required packages installed. If you are using a partial installation of  $\text{\TeX}$  Live, you can use the `tlmgr` command-line tool by executing `tlmgr install <pkgname>`, where `<pkgname>` is the name of the package you wish to install. In some cases,  $\text{\TeX}$  Live may assign a different name to a package. To find out the  $\text{\TeX}$  Live name of a package, open the <http://www.ctan.org/pkg/<pkgname>> webpage in a web browser. It should contain the following text:

Contained in  $\text{\TeX}$  Live as `<texlivename>`

where `<texlivename>` corresponds to the  $\text{\TeX}$  Live name of the package. Use this name instead of `<pkgname>` with `tlmgr`. Alternatively, you can download the packages manually from <http://www.ctan.org/pkg/<pkgname>> and extract them into the `texmf/` directory located in your user home directory. Mind that the packages themselves may depend on other packages; if you are using a partial installation of  $\text{\TeX}$  Live, you will have to resolve these dependencies manually by inspecting the documentation of each package.

If you use Mik $\text{\TeX}$  and you enabled the *over the air installation of packages* during the installation, Mik $\text{\TeX}$  will automatically download all the required packages, when you first typeset a `fibeamer` document. If you didn't enable this feature, you will need to enter the Mik $\text{\TeX}$  package manager by running

Start » Mik $\text{\TeX}$  » Mik $\text{\TeX}$  Package Manager (Admin)

and download the packages manually through the user interface. In some cases, Mik $\text{\TeX}$  may assign a different name to a package. To find out the Mik $\text{\TeX}$  name of a package, open the <http://www.ctan.org/pkg/<pkgname>> webpage in a web browser, where `<pkgname>` is the name of the package you wish to install. It should contain the following text:

Contained in Mik $\text{\TeX}$  as `<miktexname>`

where  $\langle miktexname \rangle$  corresponds to the MikTeX name of the package. If you still can't find the package, try synchronizing the package database by selecting

Repository » Synchronize

from the menu bar of the MikTeX package manager. Mind that the packages themselves may depend on other packages; if you disabled the over the air installation of packages, you will have to resolve these dependencies manually by inspecting the documentation of each package.

If you wish to use a newer version of fibeamer than the one that is available in your TeX distribution, you should download a file named `fibeamer.tds.zip` containing the version of the package you wish to use and place it in a root directory that is recognized by your TeX distribution. In TeX Live<sup>6</sup>, one of such directories is the `texmf/` folder in your user home directory. In MikTeX<sup>7</sup>, the list of recognized root directories can be gleaned by running

Start » MikTeX » MikTeX Options (Admin) » Roots

## 1.2 Picking a TeX engine

There are several programs, called TeX engines, that you can use to typeset fibeamer L<sup>A</sup>TeX source files into displayable PDF documents. The ones we will discuss are pdfTeX and LuaTeX.

pdfTeX is the more conservative choice and most TeX editors use pdfTeX as the default TeX engine. The main advantage LuaTeX over pdfTeX for a fibeamer user is the ability to use standard OpenType and TrueType fonts installed on your system, whereas pdfTeX is confined to the fonts installed in your TeX distribution.

If the ability to use arbitrary fonts within your documents interests you, Chapter 3 of the fontspec package manual<sup>8</sup> should provide

6. For more information about the TeX Live root directories, see <http://www.tug.org/texlive/doc/texlive-en/texlive-en.html#x1-110002.3>, Chapter 2.3.

7. For more information about the TeX Live root directories, see <http://docs.miktex.org/manual/localadditions.html>.

8. The fontspec package manual is available at <http://mirrors.ctan.org/macros/latex/contrib/fontspec/fontspec.pdf>.

you with the relevant information. If you are only going to use the fonts present in the  $\TeX$  distribution or if you do not intend to change the preset fibeamer fonts at all, you can safely use pdf $\TeX$ , which is currently also considerably faster than Lua $\TeX$ .

### 1.3 Creating and typesetting a fibeamer document

Before using the fibeamer theme, it is useful to be familiar with the  $\LaTeX$  typesetting system. A good way to get started is to read one of the introductory texts in English [1–4] or in Czech [5, 6]. Taking one of the *FI:PB029*, *PřF:M5751*, or *FF:PLIN028* courses taught at the Masaryk University is also helpful.

To become familiar with fibeamer, you are encouraged to inspect the example fibeamer documents named `mu-sci-pdflatex.pdf` and `mu-sci-lualatex.pdf` as well as their  $\LaTeX$  source files that are named `mu-sci-pdflatex.tex` and `mu-sci-lualatex.tex`. These example documents are distributed along with the package inside the `example/` directory<sup>9</sup>. By modifying and by typesetting these  $\LaTeX$  source files using either the pdf $\TeX$  or the Lua $\TeX$  engine, you can quickly gain a working knowledge of  $\LaTeX$  and use these source files as the basis for your thesis.

If you are using an online editor, such as Overleaf<sup>10</sup>,  $\LaTeX$  source files will be typeset automatically, as you edit them. The  $\TeX$  engine can be selected inside the  project settings.

If you are using a graphical  $\TeX$  editor, such as  $\TeX$ works<sup>11</sup>, you can typeset a  $\LaTeX$  source file by opening the source file from within the editor and running either the pdf $\LaTeX$  or Lua $\LaTeX$  (depending on your choice of  $\TeX$  engine) command from the task bar. The command needs to be executed at least twice.

If you are using the command line, you can typeset  $\LaTeX$  source files by running either `pdflatex name.tex` or `lualatex name.tex`

---

9. The example fibeamer documents are also available online at <http://mirror.ctan.org/macros/latex/contrib/beamer-contrib/fibeamer/example/mu>. To typeset the example documents, you need to download the `resources/` directory as well, as it contains vector images used in the examples.

10. Overleaf fibeamer templates are located at <http://www.overleaf.com/gallery/tagged/muni>.

11.  $\TeX$ works can be downloaded from <http://www.tug.org/texworks/>.

(depending on your choice of  $\text{T}_{\text{E}}\text{X}$  engine), where *name.tex* corresponds to the name of a  $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$  source file. In the case of the two aforementioned example files, the corresponding commands would be:

```
pdflatex mu-sci-pdflatex.tex  
lualatex mu-sci-lualatex.tex
```

The command needs to be executed from within the directory, where the  $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$  source file is located. In Windows, the command line can be opened in a directory by holding down the `Shift` key and by clicking the right mouse button while hovering the cursor over a directory. Select the `Open Command Window Here` option in the context menu that opens shortly afterwards. The command also needs to be executed at least twice.

Beside Overleaf and  $\text{T}_{\text{E}}\text{X}$ works, any text editor can be used to modify  $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$  source files.



## 2 Configuration

A fibeamer L<sup>A</sup>T<sub>E</sub>X source file should begin as follows:

```
\documentclass{beamer}
\usetheme[option1, option2, ..., optionN]{fibeamer}
```

The following list summarizes the options that are recognized by the fibeamer theme and their meaning. Options that are enabled by default are *set in italics*.

**faculty=***<name>* This option changes the color theme based on the selected faculty. To choose the color theme of the Faculty of Science, use *sci* as the *<name>*.

**fonts** This option sets up the combination of the font families of Carlito, Arev, Iwona, Dsfont, and DejaVu for the typesetting of text and mathematics.

**nofonts** This option prevents fibeamer from setting up the fonts. The user must set the fonts manually in the preamble of the document.

If you are typesetting your thesis on a public-access computer at the Faculty of Science that runs Linux or on either the ▼*yoda.math.muni.cz* or ▲*vader.math.muni.cz* Linux server, you can also use the commercial Math Time mathematical font family, which goes well with the T<sub>E</sub>X Gyre Termes text font family. To use Math Time and T<sub>E</sub>X Gyre Termes within your thesis, the preamble of your document should look as follows:

```
\documentclass{beamer}
\usetheme[nofonts, ...]{fibeamer}
\usepackage[utf8]{inputenc}
\usepackage{cmap}
\usepackage[T1]{fontenc}
\usepackage{tgtermes}
\usepackage{mathtime}
%% Here goes the rest of the document.
```

## 2. CONFIGURATION

---

***microtype*** This option sets up microtypographic extensions<sup>1</sup>, which results in visually more pleasing paragraphs of text.

***nomicrotype*** This option prevents fibeamer from setting up microtypographic extensions.

The complete list of the package options can be found in Section 2 of the technical documentation of the fibeamer class [7].

---

1. For more information about the TeX engine microtypographic extensions, see <http://mirrors.ctan.org/macros/latex/contrib/microtype/microtype.pdf>.

## Bibliography

- [1] *The very short guide to typesetting with L<sup>A</sup>T<sub>E</sub>X*. Silmaril Consultants, Jan. 2013. URL: <http://tug.ctan.org/info/latex-veryshortguide/veryshortguide.pdf> (visited on 05/03/2015).
- [2] Allin Cottrell. *A short introduction to L<sup>A</sup>T<sub>E</sub>X*. Dec. 1995. URL: [http://ricardo.ecn.wfu.edu/~cottrell/ecn297/latex\\_tut.pdf](http://ricardo.ecn.wfu.edu/~cottrell/ecn297/latex_tut.pdf) (visited on 05/03/2015).
- [3] Tobias Oetiker et al. *The Not So Short Introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> or L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> in 157 minutes*. Oct. 2014. URL: <http://tobi.oetiker.ch/lshort/lshort.pdf> (visited on 05/03/2015).
- [4] *L<sup>A</sup>T<sub>E</sub>X*. Wikibooks.org, Mar. 2013. URL: <http://en.wikibooks.org/wiki/LaTeX> (visited on 05/03/2015).
- [5] Jiří Rybička. *L<sup>A</sup>T<sub>E</sub>X pro začátečníky*. 3rd ed. Konvoj, 2003. ISBN: 80-7302-049-1.
- [6] Pavel Satrapa. *L<sup>A</sup>T<sub>E</sub>X pro pragmatiky*. June 2011. URL: <http://mirror.ctan.org/info/czech/latex-pro-pragmatiky/latex-pro-pragmatiky.pdf> (visited on 05/03/2015).
- [7] Vít Novotný. *The beamer theme for the typesetting of thesis defense presentations at the Masaryk University in Brno*. 2015. URL: <http://mirrors.ctan.org/macros/latex/contrib/beamer-contrib/fibeamer/fibeamer.pdf> (visited on 11/20/2015).