

# Saint Petersburg: L<sup>A</sup>T<sub>E</sub>X Beamer theme for SPbU

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## 1 Introduction

A small theme that incorporates university colours and fonts from [the official web-site](#).

### 1.1 Installation

On Linux/macOS clone [theme repository](#) and type `make install` to install everything to standard TeX Live locations. Alternatively, just copy all `*.sty` files into your project directory so that L<sup>A</sup>T<sub>E</sub>X can find them. In order to show university's logo in the background of the title slide, you need to download its medium size version from [the official web-site](#).

### 1.2 Usage

Saint Petersburg theme can be compiled by L<sup>A</sup>T<sub>E</sub>X or X<sub>Y</sub>L<sup>A</sup>T<sub>E</sub>X. Here is the minimal working example:

```

\documentclass[aspectratio=169]{beamer}
% add \usepackage{beamerposter} for the poster

% XeTeX
\usepackage{polyglossia}
\setdefaultlanguage{english}
% or \setdefaultlanguage{russian}

% LaTeX
% \usepackage[utf8]{inputenc}
% \usepackage[english]{babel}
% or \usepackage[english,russian]{babel}

\usetheme{SaintPetersburg}

\title{Saint Petersburg \LaTeX{} Beamer theme}
\author{Ivan Gankevich}
\institute{Saint Petersburg State University}
\date{21 Nov 2017}

\begin{document}
\frame{\titlepage}
\end{document}

```

An example of poster.

```

\documentclass[aspectratio=169]{beamer}
\usepackage{beamerposter} for the poster

% XeTeX
\usepackage{polyglossia}
\setdefaultlanguage{english}
% or \setdefaultlanguage{russian}

% LaTeX
% \usepackage[utf8]{inputenc}
% \usepackage[english]{babel}
% or \usepackage[english,russian]{babel}

\usetheme[poster]{SaintPetersburg}

\title{Saint Petersburg \LaTeX{} Beamer theme}
\author{Ivan Gankevich}
\institute{Saint Petersburg State University}
\date{21 Nov 2017}

\begin{document}

```

```
\frame{\titlepage}
\end{document}
```

## 1.3 Usage

### 1.3.1 Theme options

- `nologo` Disables display of the university coat of arms in the left top corner of the title page.
- `poster` Adapts the theme for poster presentation: enables section commands, increases font size and changes default font family to serif.

### 1.3.2 Theme macros

`\titlegraphic` Defines a code to include in the left (right) top corner of the poster. The following code places SPbU logo in both left and right corners.

`\othergraphic`

```
\titlegraphic{%
    \includegraphics[width=.7\linewidth]{spbu-CoA}}
\othergraphic{%
    \includegraphics[width=.7\linewidth]{spbu-CoA}}
```

Here the width equals to 70% of the left (right) column width. Any code can be specified instead of just including graphics.

`\leftcolumnwidth` Sets left, right, middle column widths respectively. The right and left columns contain logos and the middle column contains the title, authors and institute name.

`\rightcolumnwidth`

`\middlecolumnwidth` In the following example, the widths are set to 20%, 60% and 20% fractions of the total line width.

```
\leftcolumnwidth{.2\linewidth}
\middlecolumnwidth{.6\linewidth}
\rightcolumnwidth{.2\linewidth}
```

## 1.4 License

Saint Petersburg theme is licensed under the terms of the [L<sup>A</sup>T<sub>E</sub>X Project Public License version 1.3c](#).

## 2 Implementation

### 2.1 SaintPetersburg color theme

Define corporate and several additional colours.

```
1 \definecolor{spbuTerracotta}{cmyk}{.08,.91,.92,.33}
2 \definecolor{spbuGray}{cmyk}{.21,.11,.09,.22}
3 \definecolor{spbuWhite1}{RGB}{245,246,245}
4 \definecolor{spbuWhite2}{RGB}{230,231,230}
```

```

5 \definecolor{spbuWhite3}{RGB}{217,218,217}
6 \definecolor{spbuWhiteRed2}{RGB}{255,231,230}
7 \definecolor{spbuWhiteRed3}{RGB}{255,160,160}
8 \definecolor{spbuRed}{RGB}{200,40,40}
9 \definecolor{spbuDarkGray}{HTML}{404040}
10 \definecolor{spbuDarkGray2}{HTML}{5F7177}

```

Define base beamer color templates.

```

11 \setbeamercolor{normal text}{fg=spbuDarkGray,bg=spbuWhite1}
12 \setbeamercolor{frametitle}{bg=spbuWhite1,fg=spbuTerracotta}
13 \setbeamercolor{title}{bg=spbuWhite1,fg=spbuTerracotta}
14 \setbeamercolor{subtitle}{parent=title}
15 \setbeamercolor{date}{parent=normal text}
16 \setbeamercolor{author}{parent=normal text}
17 \setbeamercolor{institute}{parent=normal text}
18 \setbeamercolor{background canvas}{parent=normal text}
19 \setbeamercolor{background}{parent=background canvas}
20 \setbeamercolor{math text}{fg=spbuDarkGray,bg=spbuWhite1}
21 \setbeamercolor{item}{parent=normal text}
22 \setbeamercolor{block title}{fg=spbuDarkGray,bg=spbuWhite3}
23 \setbeamercolor{block body}{fg=spbuDarkGray,bg=spbuWhite2}
24 \setbeamercolor{block title alerted}{fg=spbuRed,bg=spbuWhiteRed3}
25 \setbeamercolor{block body alerted}{fg=spbuDarkGray,bg=spbuWhiteRed2}
26 \setbeamercolor{block title example}{bg=spbuWhite3}
27 \setbeamercolor{block body example}{fg=spbuDarkGray,bg=spbuWhite2}

```

Define part, section, subsection pages, table of contents page beamer colour templates.

```

28 \setbeamercolor{section in toc}{parent=normal text}
29 \setbeamercolor{part page}{parent=frametitle}
30 \setbeamercolor{section page}{parent=frametitle}
31 \setbeamercolor{subsection page}{parent=frametitle}
32 \setbeamercolor{part title}{parent=frametitle,fg=spbuDarkGray}

```

Define background colour template.

```

33 \beamertemplatesolidbackgroundcolor{spbuWhite1}

```

Define bibliography items.

```

34 \setbeamercolor{bibliography item}{parent=normal text}
35 \setbeamercolor*{bibliography entry title}{parent=normal text}
36 \setbeamercolor*{bibliography entry author}{parent=normal text}
37 \setbeamercolor*{bibliography entry location}{parent=normal text,fg=spbuDarkGray2}
38 \setbeamercolor*{bibliography entry journal}{parent=normal text,fg=spbuDarkGray2}
39 \setbeamercolor*{bibliography entry note}{parent=normal text}

```

Define abstract.

```

40 \setbeamercolor{abstract title}{parent=frametitle}
41 \setbeamercolor{abstract}{parent=normal text}

```

Define captions.

```

42 \setbeamercolor{caption name}{parent=frametitle}
43 \setbeamercolor{caption}{parent=normal text}

```

Define headline.

```
44 \setbeamercolor{title in head/foot}{parent=title}
45 \setbeamercolor{subtitle in head/foot}{parent=subtitle}
46 \setbeamercolor{author in head/foot}{parent=author}
47 \setbeamercolor{date in head/foot}{parent=date}
48 \setbeamercolor{institute in head/foot}{parent=institute}
```

Set white background for printing the poster.

```
49 \makeatletter%
50 \if@spbuPoster%
51 \beamertemplatesolidbackgroundcolor{white}
52 \fi%
53 \makeatother%
```

## 2.2 SaintPetersburg font theme

Use Fira Mono as typewriter font and Open Sans as sans serif font.

```
54 \RequirePackage{FiraMono}
55 \RequirePackage{opensans}
56 \RequirePackage{ifxetex}
```

Setup fonts using fontspec package.

```
57 \ifxetex%
58 \RequirePackage{fontspec}
```

Use serif font for posters and sans serif font for slides.

```
59 \makeatletter%
60 \if@spbuPoster%
61 \setmainfont[
62 Extension=.otf,
63 UprightFont=*-Regular,
64 BoldFont=*-Bold,
65 ItalicFont=*-Italic,
66 Mapping=tex-text
67 ]{OldStandard}
68 \newfontfamily\cyrillicfont[
69 Extension=.otf,
70 UprightFont=*-Regular,
71 BoldFont=*-Bold,
72 ItalicFont=*-Italic,
73 Mapping=tex-text
74 ]{OldStandard}
75 \else%
76 \setmainfont[
77 Extension=.ttf,
78 UprightFont=*-Regular,
79 BoldFont=*-Bold,
80 ItalicFont=*-Italic,
81 BoldItalicFont=*-BoldItalic,
82 Mapping=tex-text
```

```

83 ]{OpenSans}
84 \newfontfamily\cyrillicfont[
85 Extension=.ttf,
86 UprightFont=*-Regular,
87 BoldFont=*-Bold,
88 ItalicFont=*-Italic,
89 BoldItalicFont=*-BoldItalic,
90 Mapping=tex-text
91 ]{OpenSans}
92 \fi%
93 \makeatother%
Load other fonts.
94 \setromanfont[
95 Extension=.otf,
96 UprightFont=*-Regular,
97 BoldFont=*-Bold,
98 ItalicFont=*-Italic,
99 Mapping=tex-text
100 ]{OldStandard}
101 \setsansfont[
102 Extension=.ttf,
103 UprightFont=*-Regular,
104 BoldFont=*-Bold,
105 ItalicFont=*-Italic,
106 BoldItalicFont=*-BoldItalic,
107 Mapping=tex-text
108 ]{OpenSans}
109 \setmonofont[
110 Extension=.otf,
111 UprightFont=*-Regular,
112 BoldFont=*-Bold
113 ]{FiraMono}
114 \newfontfamily\cyrillicfontrm[
115 Extension=.otf,
116 UprightFont=*-Regular,
117 BoldFont=*-Bold,
118 ItalicFont=*-Italic,
119 Mapping=tex-text
120 ]{OldStandard}
121 \newfontfamily\cyrillicfontsf[
122 Extension=.ttf,
123 UprightFont=*-Regular,
124 BoldFont=*-Bold,
125 ItalicFont=*-Italic,
126 BoldItalicFont=*-BoldItalic,
127 Mapping=tex-text
128 ]{OpenSans}
129 \newfontfamily\cyrillicfonttt[
130 Extension=.otf,

```

```

131 UprightFont=*-Regular,
132 BoldFont=*-Bold
133 ]{FiraMono}
134 \newfontfamily\rmfamily[
135 Extension=.otf,
136 UprightFont=*-Regular,
137 BoldFont=*-Bold,
138 ItalicFont=*-Italic,
139 Mapping=tex-text
140 ]{OldStandard}
141 \newfontfamily\sffamily[
142 Extension=.ttf,
143 UprightFont=*-Regular,
144 BoldFont=*-Bold,
145 ItalicFont=*-Italic,
146 BoldItalicFont=*-BoldItalic,
147 Mapping=tex-text
148 ]{OpenSans}
149 \newfontfamily\ttfamily[
150 Extension=.otf,
151 UprightFont=*-Regular,
152 BoldFont=*-Bold
153 ]{FiraMono}
154 \fi%

```

Define common font styles.

```

155 \setbeamerfont{note page}{size=\small}
156 \setbeamerfont{tiny structure}{family=\sffamily}
157 \setbeamerfont{structure}{family=\sffamily}
158 \setbeamerfont{section in toc}{family=\sffamily}
159 \setbeamerfont{subsection in toc}{family=\sffamily}
160 \setbeamerfont{subsubsection in toc}{family=\sffamily}
161 \setbeamerfont{block title}{series=\mdseries}
162 \setbeamerfont{block body}{series=\mdseries}
163 \setbeamerfont{block body example}{series=\mdseries}
164 \setbeamerfont{block title alerted}{series=\bfseries}
165 \setbeamerfont{abstract}{size=\normalsize}
166 \setbeamerfont{title}{size=\Large}
167 \setbeamerfont{subtitle}{size=\Large}
168 \setbeamerfont{author}{size=\large}
169 \usefonttheme{professionalfonts}

```

Define poster font styles.

```

170 \makeatletter%
171 \if@spbuPoster%

```

Set roman font as the default.

```

172 \usefonttheme{serif}

```

Set small font for bibliography items.

```

173 \setbeamerfont{bibliography item}{size=\small}
174 \setbeamerfont{bibliography entry author}{size=\small}

```

Set large font size for headings, blocks and captions.

```
175 \setbeamerfont{section in head/footer}{series=\bfseries}
176 \setbeamerfont{block title}{series=\bfseries}
177 \setbeamerfont{block alerted title}{series=\bfseries}
178 \setbeamerfont{frametitle}{series=\bfseries,size=\Large}
179 \setbeamerfont{caption}{size=\normalsize}
180 \setbeamerfont{caption name}{size=\normalsize}
```

End of poster font styles.

```
181 \fi%
182 \makeatother%
```

## 2.3 SaintPetersburg theme

Define theme options.

```
183 \newif\if@spbuPoster
184 \newif\if@spbuLogo
185 \@spbuPosterfalse
186 \@spbuLogotrue
187 \DeclareOption{poster}{\@spbuPostertrue}
188 \DeclareOption{nologo}{\@spbuLogofalse}
189 \ProcessOptions
```

Load corresponding font theme.

```
190 \mode<presentation>
191
192 \usefonttheme{SaintPetersburg}
```

Define slide background template.

```
193 \RequirePackage{graphicx}
194 \RequirePackage{tikz}
195 \makeatletter%
196 \usebackgroundtemplate{%
197 \ifnum\thepage=1\relax%
198 \hspace{\beamer@leftmargin}%
199 \begin{beamercolorbox}[wd=\paperwidth,ht=\paperheight,dp=0pt]{background canvas}%
200 \begin{tikzpicture}[remember picture,overlay]%
201 % background CoA
202 \node[anchor=south east,opacity=0.1] at (current page.south east) {%
203 \IfFileExists{\detokenize{CoA_Medium.eps}}%
204 {\includegraphics[width=0.7\paperwidth,trim=0 55 10 0,clip]{CoA_Medium.eps}}%
205 {}
206 };%
207 \end{tikzpicture}%
208 \end{beamercolorbox}%
209 \else%
210 \usebeamercolor[bg]{background canvas}\rule{\paperwidth}{\paperheight}%
211 \fi%
212 }
```

```

213 \makeatother%
    Define helper macro to insert a field using theme colors and font.
214 \newcommand*{\spbuInsertField}[1]{%
215 \usebeamerfont{#1}%
216 \usebeamercolor[fg]{#1}%
217 \expandafter\relax\csname insert#1\endcsname%
218 \par%
219 }
    Show every field on the title page.
220 \setbeamertemplate{title page}{%
221 \centering%
222 \vspace{0.2\textheight}\spbuInsertField{title}%
223 \vskip0.5\baselineskip\ifx\insertsubtitle\empty\else%
224 \spbuInsertField{subtitle}%
225 \fi%
226 \vskip\baselineskip\spbuInsertField{author}%
227 \vfill\spbuInsertField{institute}%
228 \vfill\inserttitlegraphic%
229 \vfill\spbuInsertField{date}%
230 }
    Show simple frame title without a background.
231 \setbeamertemplate{frametitle}{%
232 \spbuInsertField{frametitle}
233 \ifx\insertframesubtitle\empty\else%
234 \spbuInsertField{framesubtitle}
235 \fi%
236 }
    Disable navigation symbols.
237 \setbeamertemplate{navigation symbols}{}
238 \beamertemplatenavigationsymbolsempty
    Set black-on-white speaker notes
239 \setbeamertemplate{note page}{%
240 % TODO fix textwidth
241 \begin{minipage}{0.85\paperwidth}%
242 \spbuInsertField{note}%
243 \end{minipage}%
244 }
    Define block environment. Here and in al other blocks we use flushright to
    properly align columns inside blocks.
245 \setbeamertemplate{block begin}{
246 \vspace{-\baselineskip}%
247 \begin{flushright}
248 \begin{beamercolorbox}[colsep*=.75ex]{block title}%
249 \usebeamerfont*{block title}\insertblocktitle
250 \end{beamercolorbox}%
251 {\parskip0pt\nointerlineskip\par}%

```

```

252 \usebeamerfont{block body}%
253 \begin{beamercolorbox}[colsep*=.75ex,vmode]{block body}%
254 }
255 \setbeamertemplate{block end}{
256 \end{beamercolorbox}
257 \end{flushright}
258 }

    Define alert block environment.
259 \setbeamertemplate{block alerted begin}{
260 \vspace{-\baselineskip}%
261 \begin{flushright}
262 \begin{beamercolorbox}[colsep*=.75ex]{block title alerted}%
263 \usebeamerfont*{block title alerted}\insertblocktitle
264 \end{beamercolorbox}%
265 {\parskip0pt\nointerlineskip\par}%
266 \usebeamerfont{block body alerted}%
267 \begin{beamercolorbox}[colsep*=.75ex,vmode]{block body alerted}%
268 }
269 \setbeamertemplate{block alerted end}{
270 \end{beamercolorbox}
271 \end{flushright}
272 }

    Define example block environment.
273 \setbeamertemplate{block example begin}{
274 \vspace{-\baselineskip}%
275 \begin{flushright}
276 \begin{beamercolorbox}[colsep*=.75ex]{block title example}%
277 \usebeamerfont*{block title example}\insertblocktitle
278 \end{beamercolorbox}%
279 {\parskip0pt\nointerlineskip\par}%
280 \usebeamerfont{block body example}%
281 \begin{beamercolorbox}[colsep*=.75ex,vmode]{block body example}%
282 }
283 \setbeamertemplate{block example end}{
284 \end{beamercolorbox}
285 \end{flushright}
286 }

    Define QED symbol
287 \setbeamertemplate{qed symbol}{{\blacksquare}}

    Theorem/corollary etc. and proof environments are simply blocks.
288 \setbeamertemplate{theorem begin}{%
289 \inserttheoremheadfont%
290 \begin{\inserttheoremblockenv}{%
291 \inserttheoremname%
292 \ifx\inserttheoremaddition\empty\else\ (\inserttheoremaddition)\fi%
293 }%
294 }

```

```

295 \setbeamertemplate{theorem end}{\end{\inserttheoremblockenv}}
296
297 \setbeamertemplate{proof begin}{%
298 \inserttheoremheadfont%
299 \begin{\inserttheoremblockenv}{%
300 \proofname%
301 }%
302 }
303 \setbeamertemplate{proof end}{\end{\inserttheoremblockenv}}
    Remove bibliography item marker.
304 \setbeamertemplate{bibliography item}{}
    Define abstract template (mainly for poster).
305 \setbeamertemplate{abstract title}{%
306 \usebeamerfont{abstract title}%
307 \usebeamercolor[fg]{abstract title}%
308 \abstractname.%
309 }
    Define additional poster templates.
310 \makeatletter%
311 \if@spbuPoster%
    Make abstract text justified.
312 \setbeamertemplate{abstract begin}{%
313 \begin{minipage}{\linewidth}%
314 \justifying%
315 }
316 \setbeamertemplate{abstract end}{%
317 \end{minipage}%
318 }
    Define a commands for the logo on the right hand side.
319 \newcommand*\@othergraphic[1]{\gdef\@othergraphic{#1}}%
320 \newcommand*\@othergraphic[1]{}%
321 \newcommand*\insertothergraphic{\@othergraphic{}}%
    Define a command for each headline column width. Left column width.
322 \newcommand*\@leftcolumnwidth[1]{\gdef\@leftcolumnwidth{#1}}%
323 \newcommand*\@leftcolumnwidth[1]{.2\linewidth}%
324 \newcommand*\insertleftcolumnwidth{\@leftcolumnwidth{}}%
    Right column width.
325 \newcommand*\@rightcolumnwidth[1]{\gdef\@rightcolumnwidth{#1}}%
326 \newcommand*\@rightcolumnwidth[1]{.2\linewidth}%
327 \newcommand*\insertrightcolumnwidth{\@rightcolumnwidth{}}%
    Middle column width.
328 \newcommand*\@middlecolumnwidth[1]{\gdef\@middlecolumnwidth{#1}}%
329 \newcommand*\@middlecolumnwidth[1]{.6\linewidth}%
330 \newcommand*\insertmiddlecolumnwidth{\@middlecolumnwidth{}}%

```

Define headline template with three columns: left and right are for logos and a large middle column for the title and the authors.

```

331 \setbeamertemplate{headline}{%
332 \vskip2cm%
333 \begin{columns}%
334 \begin{column}{\insertleftcolumnwidth}%
335 \centering%
336 \inserttitlegraphic%
337 \end{column}%
338 \begin{column}{\insertmiddlecolumnwidth}%
339 \centering%
340 {\usebeamercolor[fg]{title in head/foot}\textbf{\huge{\inserttitle}}}%
341 \vskip 1.5cm%
342 {\usebeamercolor{author in head/foot}\Large{\insertauthor}}%
343 \vskip\baselineskip%
344 {\usebeamercolor{institute in head/foot}\large{\insertinstitute}}%
345 \vskip2cm%
346 \end{column}%
347 \begin{column}{\insertrightcolumnwidth}%
348 \centering%
349 \insertothergraphic%
350 \end{column}%
351 \vspace{1cm}%
352 \end{columns}%
353 }

```

Define footline template with a horizontal line and a short title.

```

354 \setbeamertemplate{footline}{
355 \vskip2cm%
356 \begin{center}%
357 \begin{minipage}[c][3cm][c]{0.95\textwidth}%
358 \centering%
359 \begin{flushleft}%
360 \vskip-1cm%
361 \begin{tikzpicture}[remember picture,overlay]%
362 \fill [spbuTerracotta] (0,0) rectangle (\textwidth,0.1cm);%
363 \end{tikzpicture}%
364 \end{flushleft}%
365 \vskip1cm%
366 {\usebeamercolor{normal text}\textbf{\large{\insertshorttitle}}}%
367 \end{minipage}%
368 \end{center}%
369 \vskip1cm%
370 }

```

Define section and subsection commands.

```

371 \renewcommand{\section}[1]{%
372 \vskip\baselineskip%
373 \begin{center}%
374 {\textcolor{spbuTerracotta}\textbf{\Large #1}}}%

```

```

375 \vskip0.4\baselineskip%
376 \end{center}%
377 \justifying%
378 \setlength{\parindent}{1.5cm}%
379 }
380
381 \renewcommand{\subsection}[1]{%
382 \vskip0.8\baselineskip%
383 \begin{center}%
384 {\textcolor{srbuTerracotta}\textbf{\textsl{\large #1}}}%
385 \vskip0.3\baselineskip%
386 \end{center}%
387 \justifying%
388 \setlength{\parindent}{1.5cm}%
389 }

    Set numbered bibliography.
390 \setbeamertemplate{bibliography item}[text]
    End of poster-specific definitions.
391 \fi%
392 \makeatother%

    Load corresponding color theme.
393 \usecolortheme{SaintPetersburg}
    Provide string translations to Russian.
394 \newtranslation[to=russian]{Part}{Часть}
395 \newtranslation[to=russian]{Section}{Раздел}
396 \newtranslation[to=russian]{Subsection}{Подраздел}
397 \newtranslation[to=russian]{Theorem}{Теорема}
398 \newtranslation[to=russian]{Proof}{Доказательство}
399 \newtranslation[to=russian]{Corollary}{Следствие}
400 \newtranslation[to=russian]{Definition}{Определение}
401 \newtranslation[to=russian]{Definitions}{Определения}
402 \newtranslation[to=russian]{Fact}{Утверждение}
403 \newtranslation[to=russian]{Lemma}{Лемма}
404 \newtranslation[to=russian]{Example}{Пример}
405 \newtranslation[to=russian]{Examples}{Примеры}
406
407 \mode<all>

```