

Getting Started with the BJT Beamer Class

A Quick Introduction and User Guide

BAIJAYANTA

Department of Physics

IIT Kharagpur

baijayantabhattacharyya2021@gmail.com

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Introduction

WHAT IS THE BJT CLASS?

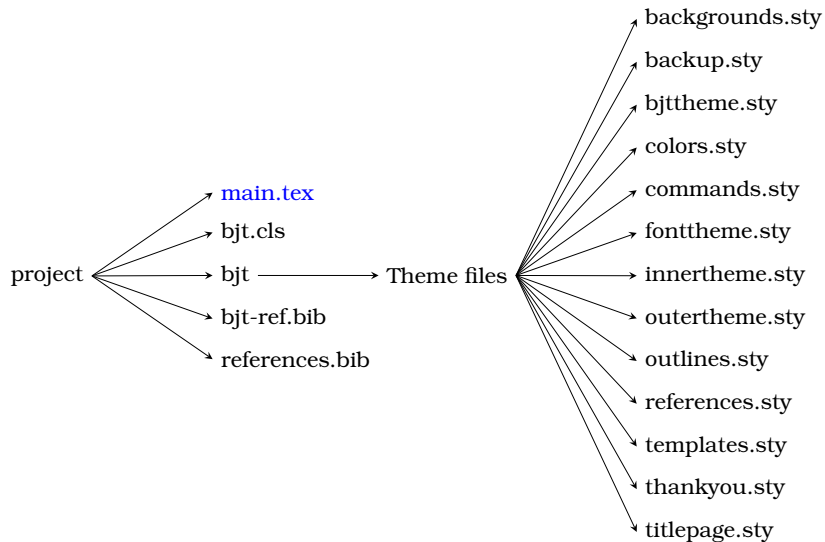
The `bjt` class is a personal Beamer class built on top of the **Metropolis** theme.

It provides :

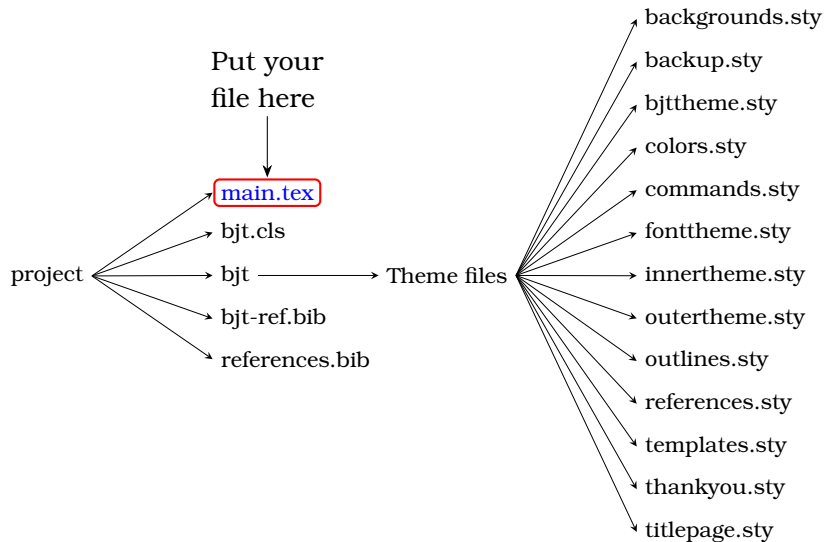
- ▶ A modern scientific presentation style
- ▶ Modular theme architecture
- ▶ Custom colors and typography
- ▶ Physics-oriented shortcuts
- ▶ Custom title and background pages
- ▶ Backup slide management
- ▶ Bibliography support
- ▶ Easy customization

Installation

DIRECTORY STRUCTURE



DIRECTORY STRUCTURE



Using the Class

CREATING A PRESENTATION

Creating a presentation with the `bjt` class is straightforward.

```
1 \documentclass{bjt}
2
3 % Presentation information
4 \newcommand{\Title}{Title}
5 \newcommand{\Subtitle}{Subtitle}
6 \newcommand{\AuthorName}{Name}
7 \newcommand{\InstituteName}{University}
8 \newcommand{\PresentationDate}{Today}
9
10 % Beamer metadata
11 \title{\Title}
12 \subtitle{\Subtitle}
13 \author{\AuthorName}
14 \institute{\InstituteName}
15 \date{\PresentationDate}
16
17 \begin{document}
18 \titlepage
19 \end{document}
```

The `bjt` class automatically loads the theme and the required packages, so no additional setup is necessary.

Backgrounds

TITLE BACKGROUND

A custom title background can be added:

```
1 \titlebackground[0.15]{image.jpg}  
2 \maketitleframe
```

- ▶ The first argument controls opacity.
- ▶ Second one is the file name which you want to select as title-background.
- ▶ The opacity argument is optional.
- ▶ `\maketitleframe` command makes the titleframe.

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Background images can also be applied globally:

```
1 \slidebackground[0.15]{wallpaper.jpg}
```

The first argument controls opacity. The opacity argument is optional.

Note

Using `\slidebackground{}` resets the previously applied background.

Typography

DESIGN PHILOSOPHY

The class follows a modular structure.

Core Theme

Controls global appearance:

- ▶ Colors
- ▶ Fonts
- ▶ Inner theme
- ▶ Outer theme

Templates

Provides reusable components:

- ▶ Title page
- ▶ Backgrounds
- ▶ References
- ▶ Backup slides

Fonts

This theme uses

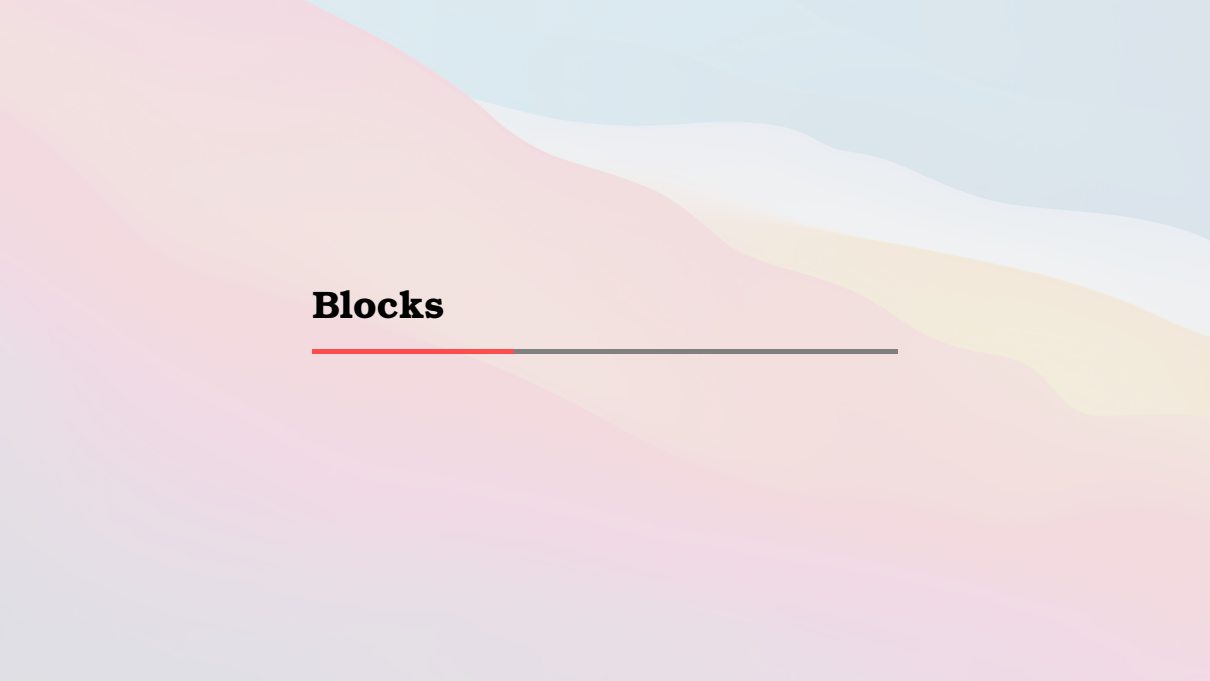
- ▶ Bookman as the text font
- ▶ EulerVM for mathematics
- ▶ Small-cap frame titles
- ▶ Serif font theme

Example:

$$E = mc^2$$

$$\int_0^{\infty} e^{-x^2} dx = \frac{\sqrt{\pi}}{2}$$

Blocks



BLOCK ENVIRONMENTS

Normal Block

This is the standard block.

Alert Block

Use this for warnings or important remarks.

Example Block

Useful for examples and exercises.

Lists

ITEMIZED LISTS

The itemize environment uses customized checkmarks.

- ▶ First item
- ▶ Second item
- ▶ Third item

Enumerations are changed as follows.

- 1 One
- 2 Two
- 3 Three

Figures

FIGURES

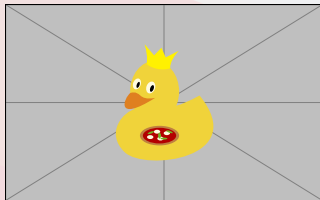


Figure 1: Image of an duck.

Captions are automatically numbered.

Tables

TABLES

Parameter	Value	Unit
Mass	1.2	kg
Velocity	15	m/s
Time	12	s

Table 1: Sample table

Mathematics

DISPLAYED MATHEMATICS

The class loads the AMS packages automatically.

$$E = mc^2$$

$$\vec{\nabla} \cdot \vec{E} = \frac{\rho}{\epsilon_0}$$

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

CUSTOMIZED MATH COMMANDS-I

Number sets :

Command	Meaning	symbol
<code>\R</code>	Real Numbers	$\mathbb{R}$
<code>\C</code>	Complex numbers	$\mathbb{C}$
<code>\N</code>	Natural numbers	$\mathbb{N}$
<code>\Z</code>	Integers	$\mathbb{Z}$
<code>\Q</code>	Rational numbers	$\mathbb{Q}$

CUSTOMIZED MATH COMMANDS-II

Command	Meaning	symbol
<code>\Lag</code>	Lagrangian	$\mathcal{L}$
<code>\Ham</code>	Hamiltonian	$\mathcal{H}$
<code>\Order</code>	Order of	$\mathcal{O}$
<code>\Ylm</code>	Spherical Harmonics	Y_ℓ^m
<code>\Pl</code>	Legendre Polynomial	P_ℓ
<code>\Plm</code>	Associated Legendre Polynomial	P_ℓ^m
<code>\Y{1}{0}</code>	specified indices	Y_1^0

CUSTOMIZED MATH COMMANDS-III

Command	Meaning	Symbol
<code>\Metric{a}{b}</code>	Metric tensor	$g_{\mu\nu}$
<code>\InvMetric{a}{b}</code>	Inverse metric tensor	$g^{\mu\nu}$
<code>\MetricDet</code>	Metric determinant	$\sqrt{-g}$
<code>\Christoffel{a}{b}{c}</code>	Christoffel symbol	$\Gamma^\mu_{\nu\rho}$
<code>\dChristoffel{a}{b}{c}{d}</code>	Derivative of Christoffel symbol	$\Gamma^\mu_{\nu\rho,\sigma}$
<code>\Riemann{a}{b}{c}{d}</code>	Riemann curvature tensor	$R^\mu_{\nu\rho\sigma}$
<code>\Ricci{a}{b}</code>	Ricci tensor	$R_{\mu\nu}$
<code>\RicciScalar</code> frames	Ricci scalar	R
<code>\Einstein{a}{b}</code>	Einstein tensor	$G_{\mu\nu}$
<code>\Weyl{a}{b}{c}{d}</code>	Weyl tensor	$C^\mu_{\nu\rho\sigma}$
<code>\StressEnergy{a}{b}</code>	Stress-energy tensor	$T_{\mu\nu}$
<code>\FieldTensor{a}{b}</code>	Electromagnetic field tensor	$F_{\mu\nu}$
<code>\DualFieldTensor{a}{b}</code>	Dual field tensor	$\tilde{F}_{\mu\nu}$
<code>\CovD{a}</code>	Covariant derivative	∇_μ
<code>\CovDu{a}</code>	Contravariant covariant derivative	∇^μ
<code>\Lie{a}</code>	Lie derivative	$\mathcal{L}_\xi$
<code>\Kronecker{a}{b}</code>	Kronecker delta	δ^μ_ν
<code>\LeviCivita{a}{b}{c}{d}</code>	Levi-Civita tensor	$\varepsilon_{\mu\nu\rho\sigma}$

Customization



CHANGING COLORS

Modify

```
1 bjt/colors.sty
```

Example:

```
1 \setbeamercolor{structure}{fg=purple}  
2  
3 \setbeamercolor{progress bar}{fg=orange,bg=gray}
```

CHANGING FONTS

Edit

```
1 bjt/fonttheme.sty
```

For example,

```
1 \RequirePackage{bookman}  
2 \RequirePackage{eulervm}
```

Replace them with your preferred font packages.

CHANGING BLOCKS

Modify

```
1 bjt/innertheme.sty
```

For example,

```
1 \setbeamertemplate{blocks}[rounded][shadow=true]
```

or

```
1 \setbeamertemplate{itemize item}{\ensuremath{\checkmark}}
```

CHANGING THE FOOTLINE

Modify

```
1 bjt/outertheme.sty
```

For example,

```
1 \setbeamertemplate{footline}[frame number]
```

You can also adjust the progress bar thickness.

References

BIBLIOGRAPHY

References can be inserted automatically:

```
1 \referencesframe{references.bib}
```

Note

- ▶ `\referencesframe{references.bib}` sets the bib file.
- ▶ `unsrt` is the default bibliography style.

You can input a custom style:

```
1 \referencesframe[abbrvnat]{references.bib}
```

Backup Slides

BACKUP MANAGEMENT

```
1 \backupbegin  
2  
3 Put backup frames here  
4  
5 \backupend
```

The frame counter automatically returns to the main presentation.

SUMMARY

The BJT Beamer Class provides

- ▶ Modular theme architecture
- ▶ Modern Metropolis design
- ▶ Custom title pages
- ▶ Background control
- ▶ Physics-oriented commands
- ▶ Bibliography management
- ▶ Backup slide support
- ▶ Easy extension through packages

Designed for scientific presentations. Happy $\LaTeX$ ing!



Questions?

Thank You!

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Slides for Backup

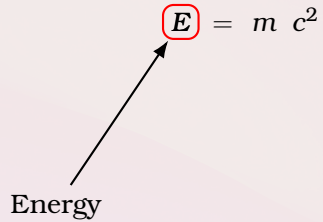
EXTRA DERIVATION

This is a backup slide.

EQUIVALENCE OF MASS AND ENERGY

$$E = m c^2$$

EQUIVALENCE OF MASS AND ENERGY



The diagram shows the equation $E = mc^2$ centered on the slide. The letter E is enclosed in a red square box. A black arrow originates from the word "Energy" located below and to the left of the equation, pointing diagonally upwards to the boxed E .

$$\boxed{E} = m c^2$$

Energy

EQUIVALENCE OF MASS AND ENERGY

$$E = m c^2$$



Mass

EQUIVALENCE OF MASS AND ENERGY

$$E = m c^2$$

Speed of
Light

A black arrow originates from the text 'Speed of Light' and points diagonally upwards and to the left, terminating at the green-bordered box containing 'c^2' in the equation.

SOURCE CODE

This whole project is available at this link <https://github.com/Baijayanta21/bjt-beamer-theme>.