

# Title: Presentation with *CEL* template

Subtitle: An Introduction to  
CELbeamer.cls

Jone Doe, Hedongliang Liu and Laurent  
Schmalen

September 12, 2025



SPONSORED BY THE



Federal Ministry  
of Education  
and Research

Gefördert durch  
**DFG** Deutsche  
Forschungsgemeinschaft





# Title: Presentation with *CEL* template

Subtitle: An Introduction to  
CELbeamer.cls

Jone Doe, Hedongliang Liu and Laurent  
Schmalen

September 12, 2025



SPONSORED BY THE



Gefördert durch  
**DFG** Deutsche  
Forschungsgemeinschaft





# Title: Presentation with *CEL* template

Subtitle: An Introduction to  
CELbeamer.cls

Jone Doe, Hedongliang Liu and Laurent  
Schmalen

September 12, 2025



SPONSORED BY THE



Gefördert durch  
**DFG** Deutsche  
Forschungsgemeinschaft



# Title: Presentation with *CEL* template

Subtitle: An Introduction to  
CELbeamer.cls

Jone Doe, Hedongliang Liu and Laurent  
Schmalen

September 12, 2025



SPONSORED BY THE



Gefördert durch  
**DFG** Deutsche  
Forschungsgemeinschaft





# Title: Presentation with *CEL* template

Subtitle: An Introduction to  
CELbeamer.cls

Jone Doe, Hedongliang Liu and Laurent  
Schmalen

September 12, 2025



SPONSORED BY THE



Gefördert durch  
**DFG** Deutsche  
Forschungsgemeinschaft



# Title: Presentation with *CEL* template

Subtitle: An Introduction to  
CELbeamer.cls

Jone Doe, Hedongliang Liu and Laurent  
Schmalen

September 12, 2025



SPONSORED BY THE



Gefördert durch  
**DFG** Deutsche  
Forschungsgemeinschaft





# Overview

## - Basic Usage

Options  
Color Boxes

## - Frames

Title and Footer  
Grid Page for Hand-written Notes  
Footnotes

## - Other Tips

Citations  
Handout Mode  
Macros



The following options can be used by putting the `<option>` in the `\documentclass[<option>]{CELbeamer.cls}` command:

- `en` (*default*) for English, `de` for German
- `helvet` (*default*) for Helvetica font, `franklin` for Franklin Gothic font
- `bigfoot` (*default*) sets the footer font size as 12pt; `smallfoot` sets the footer font size as 11pt.
- `navbaron` to show the navigation bar
- `kitgrid` to show the grid of rows and columns



The following options can be used by putting the `<option>` in the `\documentclass[<option>]{CELbeamer.cls}` command:

- `en` (*default*) for English, `de` for German
- `helvet` (*default*) for Helvetica font, `franklin` for Franklin Gothic font
- `bigfoot` (*default*) sets the footer font size as 12pt; `smallfoot` sets the footer font size as 11pt.
- `navbaron` to show the navigation bar
- `kitgrid` to show the grid of rows and columns
- `handout` to create a handout version of the slides
- `spaceforface` to leave space for face in recording
- `overviewatsection` to show the table of contents at each section
- `showsubsectionsatfirstoverview` to show all subsections at the first overview

# Font Size Examples



Tiny text

Scriptsize text

Footnotesize text

Small text

Normal text

large text

Large text

LARGE text

huge text

Huge text





# Color Blocks

## in the KIT Color Scheme



### Greenblock

Standard (block)

### Grayblock

Text

### Brownblock

Text

### Yellowblock

Text

### Royalblueblock

= exampleblock

### Lightgrayblock

Text

### Purpleblock

Text

### Lightgreenblock

Text

### Redblock

= alertblock

### Blueblock

Text

### Cyanblock

Text

### Orangeblock

Text

## Contentblock

This is a content block without color.

# Color Boxes

## with Filled Background

**Standard box**

**Highlight box**

**Gray highlight box**

**Light gray highlight box**



# Slide Layout via Column Split

The pre-defined lengths `\kitcolumn`, `\kittwocolumns`, ..., `\kitsixcolumns` can be used to create columns of different widths.

This is a three-column layout.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna.

This is another three-column layout.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna.

**Two column box**

**Two column box**

**Two column box**

# Overview

## - Basic Usage

## - Frames

- Title and Footer

- Grid Page for Hand-written Notes

- Footnotes

## - Other Tips





# Title

## Subtitle



With frames with the option [ t ], the content is not vertically centered but started at the top edge.



With frames without a title, the free space for title can be used for content.

With frames with the option `[plain]`, neither header nor footer are displayed.

# Notes Page with Grid Lines



The command `\pagesNotes{<label>}{<subtitle of the note page>}` can be used to create a page with grid lines for notes, shown on the next slide.

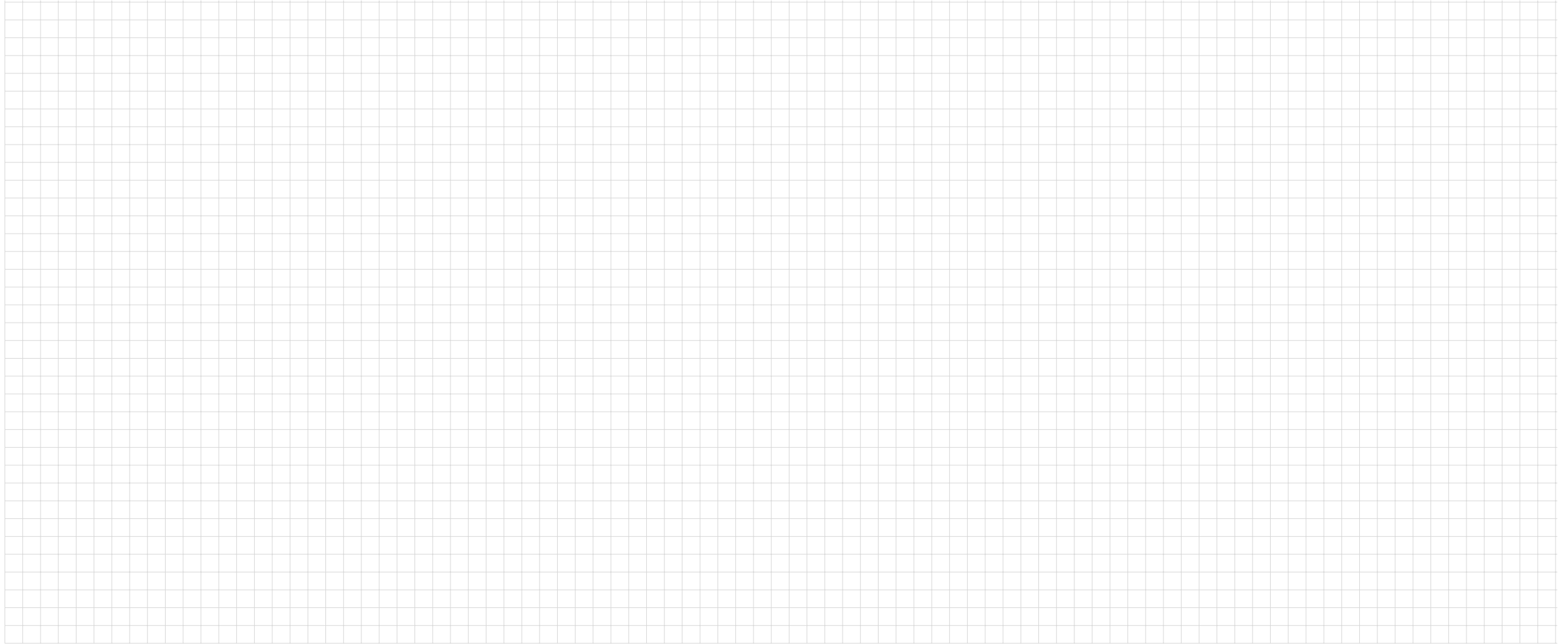
`\refnotes<label>` creates a symbol linked to the page with notes.

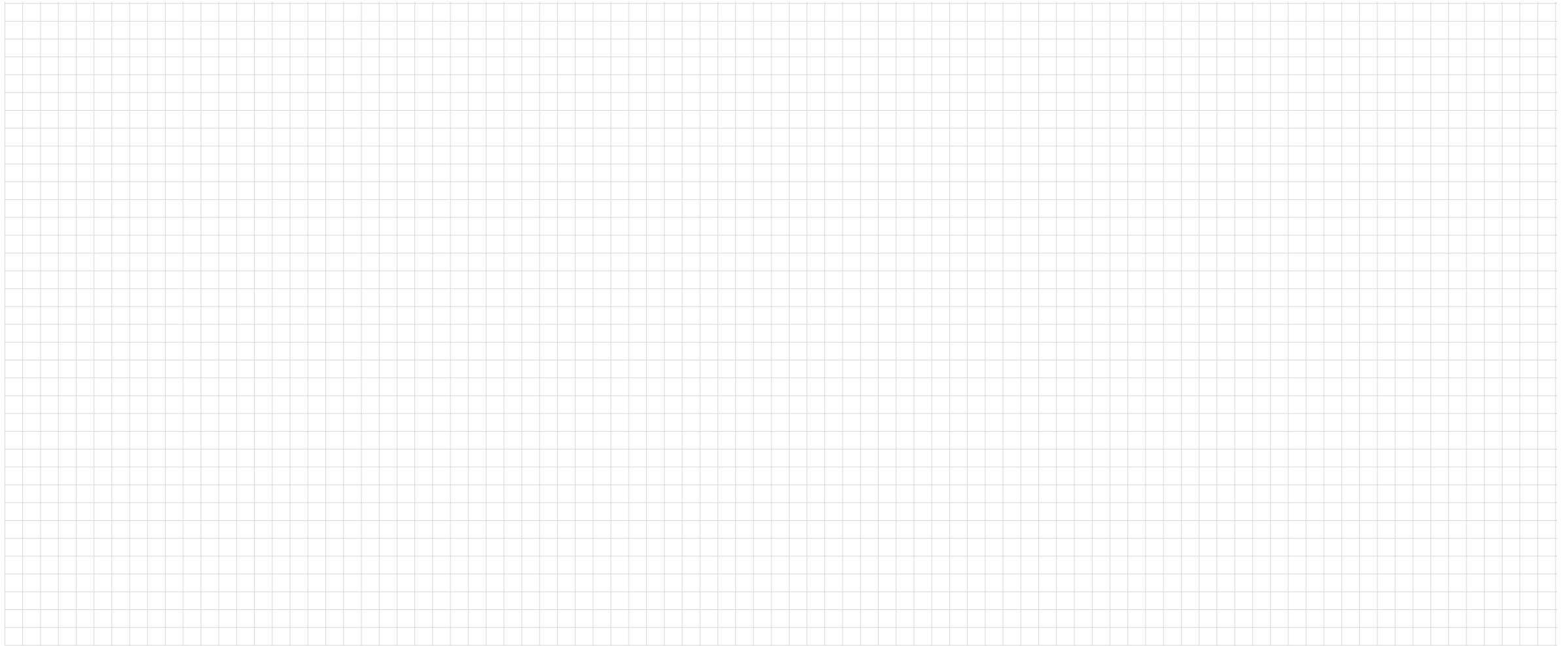
Let's learn more about entropy! 

Let's learn more about divergence! 









- This is a normal footnote<sup>1</sup>.
- `\nomarkfootnote` creates a footnote without a mark in the text.
- This is another normal footnote<sup>2</sup>.

---

<sup>1</sup>This is a normal footnote.

This is a footnote without a mark.

<sup>2</sup>This is another normal footnote.

# Overview

- Basic Usage
- Frames
- Other Tips
  - Citations
  - Handout Mode
  - Macros





# Citations in Footnote using BibLaTeX



Citations in beamer were often dealt by pasting the full text.

The biblatex package enables citing from your .bib file.

Here are several examples of usage:

- Cite full text in footnote<sup>3</sup> by `\footfullcite`.
- If the mark is not wanted, combine `\nomarkfootnote` and `\fullcite`.
- Cite author and year in text Rode, Geiger, Chimmalgi, and Schmalen, 2023.
- Cite title in text “End-to-end deep learning of optical fiber communications.”
- Use `\supercite` to cite the alphabetic bibkey [LHGW18; KCT+18].

*For more usage please refer to [Biblatex Cheat Sheet](#).*

---

<sup>3</sup>A. Rode, W. A. Gebrehiwot, S. Chimmalgi, and L. Schmalen, “Optimized geometric constellation shaping for Wiener phase noise channels with Viterbi-Viterbi carrier phase estimation,” in *Proc. Eur. Conf. Opt. Commun. (ECOC)*, Glasgow, UK, Oct. 2023.

A. Rode, B. Geiger, S. Chimmalgi, and L. Schmalen, “End-to-end optimization of constellation shaping for Wiener phase noise channels with a differentiable blind phase search,” vol. 41, no. 12, pp. 3849–3859, Jun. 2023



Cite the in text by `\citereference{<bibkey>}`. E.g.,

- End-to-end learning applied to optimize multidimensional constellations for IM/DD links [KCT+18]
- End-to-end learning of transceivers for the nonlinear Fourier transform [GJDZ20]
- Constellation optimization for the zero-dispersion channel [LHGW18]

Then add the references at the bottom of the page by `\addreference{<bibid>}` for single reference, or `\addreferences{<bibid><bibid>...<bibid>\stoppreferences}` for multiple references.

- [KCT+18] B. Karanov et al., “End-to-end deep learning of optical fiber communications,” vol. 36, no. 20, pp. 4843–4855, 2018
- [GJDZ20] S. Gaiarin, R. Jones, F. Da Ros, and D. Zibar, “End-to-end optimized nonlinear fourier transform-based coherent communications,” in *2020 Conference on Lasers and Electro-Optics (CLEO)*, IEEE, 2020, pp. 1–2
- [LHGW18] S. Li, C. Häger, N. Garcia, and H. Wymeersch, “Achievable information rates for nonlinear fiber communication via end-to-end autoencoder learning,” in *2018 European Conference on Optical Communication (ECOC)*, IEEE, 2018, pp. 1–3

Handout mode is activated by the option `handout` in the document class.  
A frame with multiple animated slides will be shown on one slide in the handout version.  
One can still control the number of slides of one frame in the handout version, e.g.,

- One: This will not be shown in the handout version.
- Two: This will not be shown in the handout version.

Handout mode is activated by the option `handout` in the document class.  
A frame with multiple animated slides will be shown on one slide in the handout version.  
One can still control the number of slides of one frame in the handout version, e.g.,

- **One:** This is shown on the first slide of this frame in the handout version.
- **Two:** This is also shown on the first slide in the handout version.



Handout mode is activated by the option `handout` in the document class.  
A frame with multiple animated slides will be shown on one slide in the handout version.  
One can still control the number of slides of one frame in the handout version, e.g.,

- **One:** This is shown on the first slide of this frame in the handout version.
- **Two:** This is also shown on the first slide in the handout version.
- **Three:** This is shown on the second slide in the handout version.

Handout mode is activated by the option `handout` in the document class.  
A frame with multiple animated slides will be shown on one slide in the handout version.  
One can still control the number of slides of one frame in the handout version, e.g.,

- **One:** This is shown on the first slide of this frame in the handout version.
- **Two:** This is also shown on the first slide in the handout version.
- **Four:** This is also shown on the second slide in the handout version.

- **Schlagwort** for highlighting keywords
- An important thing 📌 for pointing out important things

## Math macros

- `\coloneq` := for defining a new variable, e.g.,  $a := b + c$
- `\myspan{.}` for span notation, e.g.  $\langle a, b, c \rangle$
- `\ceil{.}`  $\lceil x \rceil$  for ceiling function, e.g.,  $\lceil 3.14 \rceil = 4$
- `\floor{.}`  $\lfloor x \rfloor$  for floor function, e.g.,  $\lfloor 3.14 \rfloor = 3$
- `\dd` for differential operator, e.g.,  $\int f(x) dx$ ,  $\frac{df(x)}{dx}$
- `\real` Re for real part, e.g.,  $\text{Re}(z)$
- `\imag` Im for imaginary part, e.g.,  $\text{Im}(z)$

# Math Macros (Cont'd)



- `\sinc`  $\text{sinc}(x)$  for sinc function, e.g.,  $\text{sinc}(x) = \frac{\sin(\pi x)}{\pi x}$
- `\rect`  $\text{rect}(x)$  for rectangular function, e.g.,  $\text{rect}(x) = \begin{cases} 1 & |x| \leq \frac{1}{2} \\ 0 & \text{otherwise} \end{cases}$

Math symbols:

- `\cA, \dots \mathcal{A}, \mathcal{B}, \mathcal{C}, \dots` for calligraphic letters
- **`0, n, \alpha, M, \mathcal{M}`** for bold math symbols
- **`\mathbb{N}, \mathbb{R}, \mathbb{Z}`** blackboard bold symbols for the sets of natural numbers, real numbers, and integers, respectively
- **`\mathbb{F}, \mathbb{F}_q, \mathbb{F}_{q^m}`** for finite field
- **`A, B, C, \dots`** sans-serif math letters, usually for naming instead of parameters in notations





## Backup Parts

Slides that are inserted after `\beginbackup` do not count towards the total number of slides.

# KIT Color Palette

