LABORATORY07: Report and Presentation of work on Beamer and Posters

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Contents

1 700IntroductionBeamer - Basic Beamer Presentation

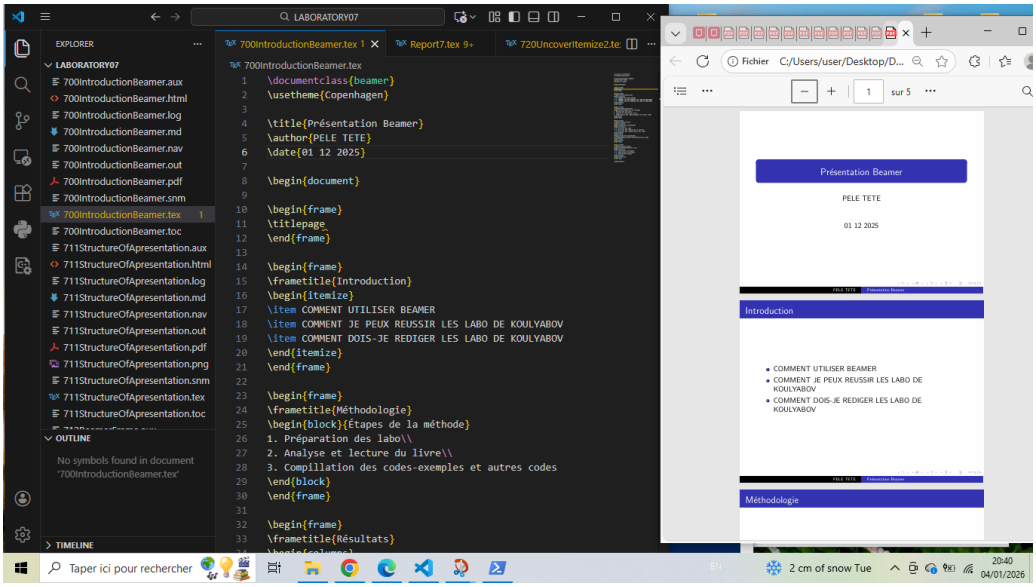
```
\documentclass{beamer}
\usetheme{Copenhagen}

\title{Présentation Beamer}
\author{PELE TETE}
\date{01 01 2025}

\begin{document}

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

\begin{frame}
\frametitle{Introduction}
\begin{itemize}
\item COMMENT UTILISER BEAMER
\item COMMENT JE PEUX REUSSIR LES LABO DE KOULYABOV
\item COMMENT DOIS-JE REDIGER LES LABO DE KOULYABOV
\end{itemize}
\end{frame}

\begin{frame}
\frametitle{Méthodologie}
\begin{block}{Étapes de la méthode}
1. Préparation des labo\\
2. Analyse et lecture du livre\\
3. Compillation des codes-exemples et autres codes
\end{block}
\end{frame}

\begin{frame}
\frametitle{Résultats}
\begin{columns}
\begin{column}{0.5\textwidth}
\begin{itemize}
\item Résultat des labo
\item Résultat des retenus de la lecture
\item Résultat des compillations des codes
\end{itemize}
\end{column}
\begin{column}{0.5\textwidth}
\includegraphics[width=\textwidth]{faucon.jpg}
\end{column}
\end{columns}
\end{frame}

\begin{frame}
```

```
\frametitle{Conclusion}
\begin{alertblock}{Points clés}
\begin{itemize}
\item Conclusion principale
\item Implications pratiques
\item Directions futures
\end{itemize}
\end{alertblock}
\end{frame}

\end{document}
```

Generated figure (simulation)

Beamer presentation with title page, introduction, methodology, results, and conclusion slides.

Imported image



---

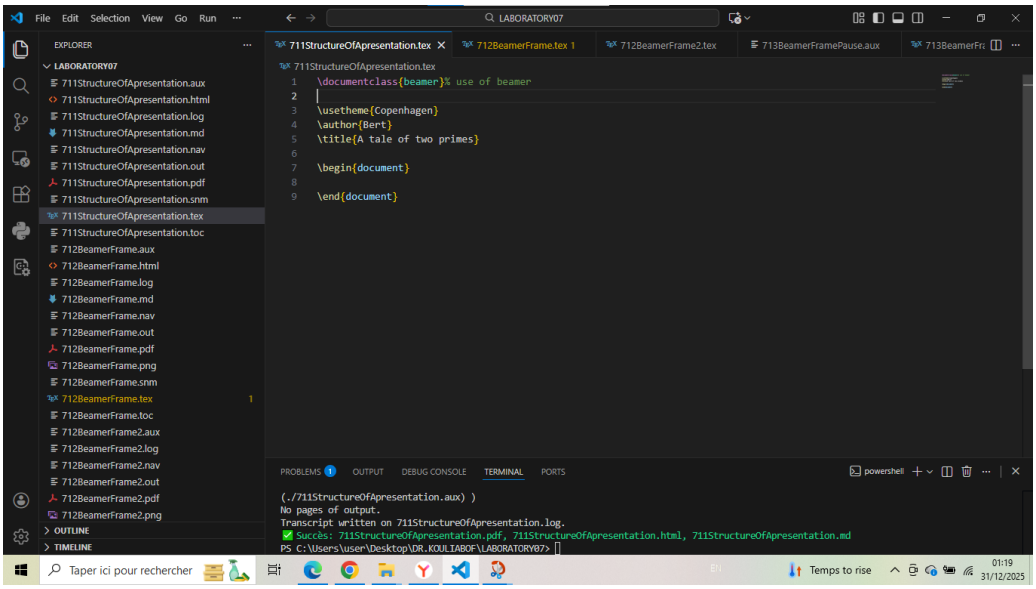
2 711StructureOfApresentation - Basic Beamer Structure

```
\documentclass{beamer}% use of beamer

\usetheme{Copenhagen}
\author{Bert}
\title{A tale of two primes}

\begin{document}
All is good
\end{document}
```

Generated figure (simulation)

Minimal Beamer document structure.

Screenshot



---

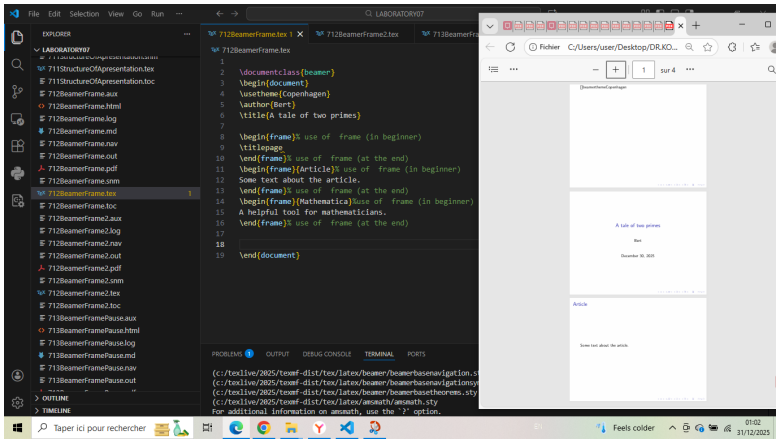
3 712BeamerFrame - Basic Frame Usage

```
\documentclass{beamer}
\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of two primes}

\begin{frame}% use of  frame (in beginner)
\titlepage
\end{frame}% use of  frame (at the end)
\begin{frame}{Article}% use of  frame (in beginner)
Some text about the article.
\end{frame}% use of  frame (at the end)
\begin{frame}{Mathematica}%use of  frame (in beginner)
A helpful tool for mathematicians.
\end{frame}% use of  frame (at the end)

\end{document}
```

Generated figure

Beamer presentation with title page and two content frames.

Screenshot



---

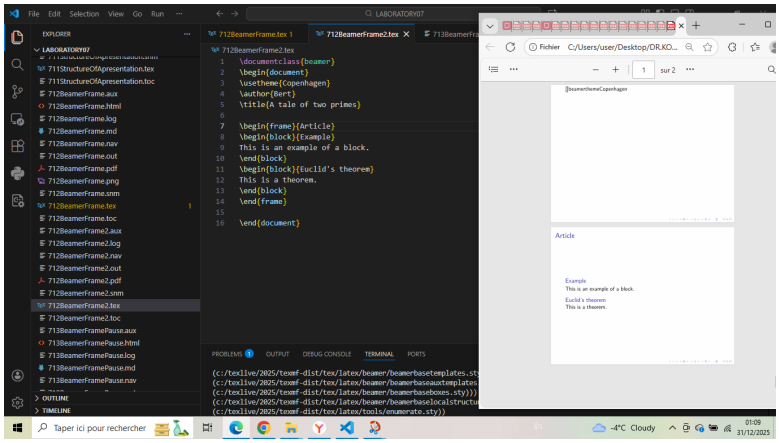
4 712BeamerFrame2 - Blocks in Frames

```
\documentclass{beamer}
\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of two primes}

\begin{frame}{Article}
\begin{block}{Example}
This is an example of a block.
\end{block}
\begin{block}{Euclid's theorem}
This is a theorem.
\end{block}
\end{frame}

\end{document}
```

Generated figure

Frame with example and theorem blocks.

Screenshot



---

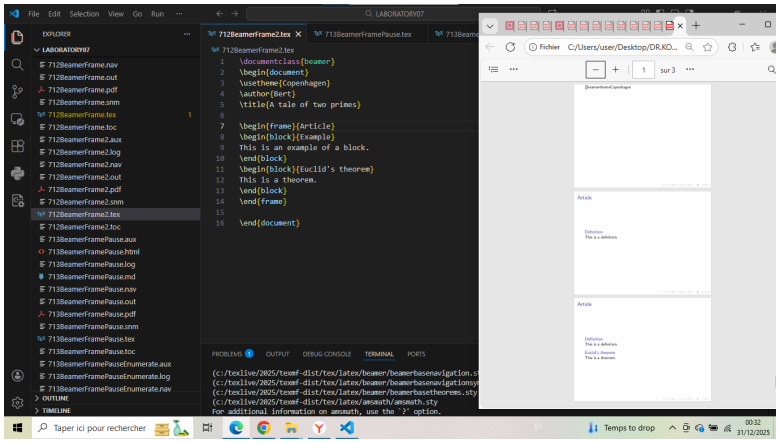
5 713BeamerFramePause - Pausing Between Blocks

```
\documentclass{beamer}
\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of two primes}

\begin{frame}{Article}
\begin{block}{Definition}
This is a definition.
\end{block}
\pause% use of pause to get one by one the slide
\begin{block}{Euclid's theorem}
This is a theorem.
\end{block}
\end{frame}

\end{document}
```

Generated figure

Frame with pause between blocks.

Screenshot



---

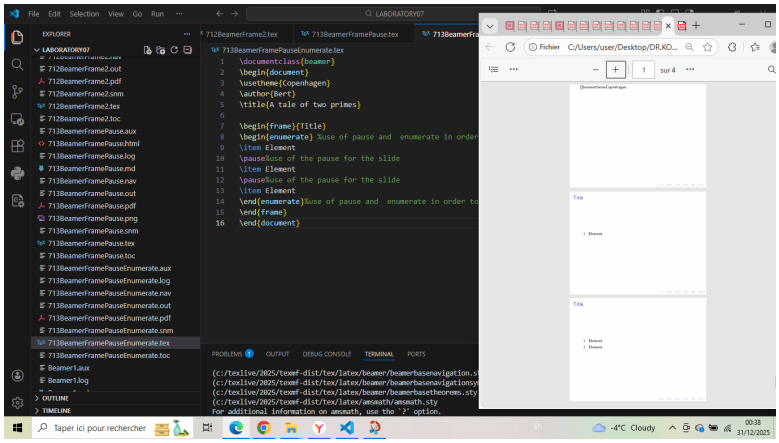
6 713BeamerFramePauseEnumerate - Pause with Enumerate

```
\documentclass{beamer}
\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of two primes}

\begin{frame}{Title}
\begin{enumerate} %use of pause and  enumerate in order to enumerate
\item Element
\pause%use of the pause for the slide
\item Element
\pause%use of the pause for the slide
\item Element
\end{enumerate}%use of pause and  enumerate in order to enumerate
\end{frame}
\end{document}
```

Generated figure

Enumerated list with pauses.

Screenshot



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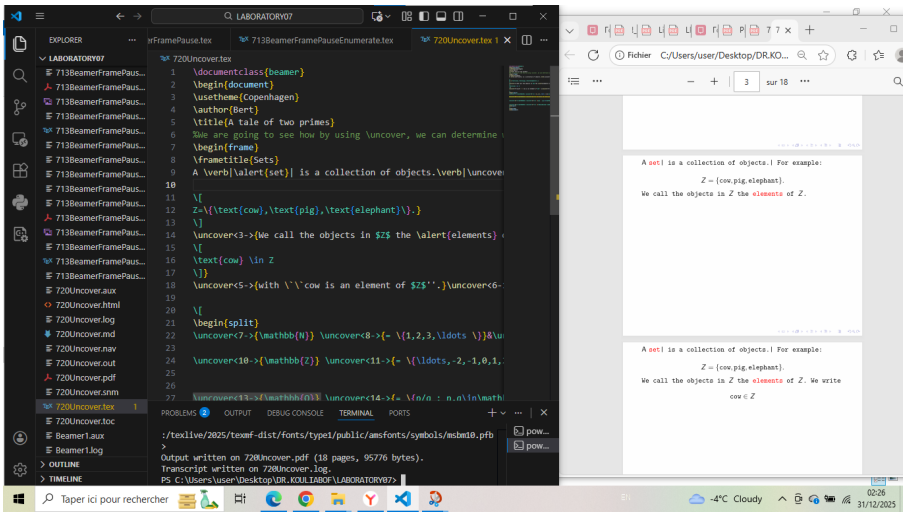
7 720Uncover - Basic Uncover Command

```
\documentclass{beamer}
\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of two primes}
%We are going to see how by using \uncover, we can determine when each part of the slide
\begin{frame}
\frametitle{Sets}
A \verb|\alert{set}| is a collection of objects.\verb|\uncover<2->|{ For example:

\[
Z=\{\text{cow},\text{pig},\text{elephant}\}.}
\]
\uncover<3->{We call the objects in $Z$ the \alert{elements} of $Z$.}\uncover<4->{ We wr
\[
\text{cow} \in Z
\]}
\uncover<5->{with \‘\‘cow is an element of $Z$’’.}\uncover<6->{ Frequently encountered s

\[
\begin{split}
\uncover<7->{\mathbb{N}} \uncover<8->{= \{1,2,3,\ldots \}}&\uncover<9->{ \qquad (\text{\
\uncover<10->{\mathbb{Z}} \uncover<11->{= \{\ldots,-2,-1,0,1,2,\ldots \}}&\uncover<12->{
\uncover<13->{\mathbb{Q}} \uncover<14->{= \{p/q : p,q\in\mathbb{Z} \text{ and } q\neq 0\
\uncover<16->{\mathbb{R}} \uncover<17->{= \{\hbox{decimal numbers}\}}&\uncover<18->{\qua
\end{split}
\]
\end{frame}
\end{document}
```

Generated figure

Step-by-step revelation of set definitions.

Screenshot



---

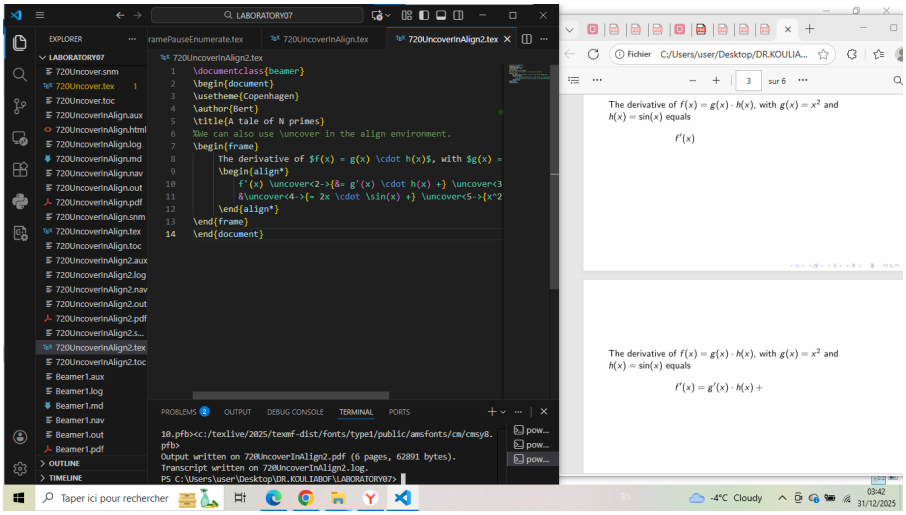
8 720UncoverInAlign2 - Uncover in Align Environment

```
\documentclass{beamer}
\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of N primes}
%We can also use \uncover in the align environment.
\begin{frame}
     The derivative of $f(x) = g(x) \cdot h(x)$, with $g(x) = x^2$ and $h(x) = \sin(x)$
     \begin{align*}
          f'(x) \uncover<2->{&= g'(x) \cdot h(x) +} \uncover<3->{g(x) \cdot h'(x)} \\
          &\uncover<4->{= 2x \cdot \sin(x) +} \uncover<5->{x^2\cdot \cos(x).}
     \end{align*}
\end{frame}
\end{document}
```

Generated figure

Gradual derivation of product rule.

Screenshot



---

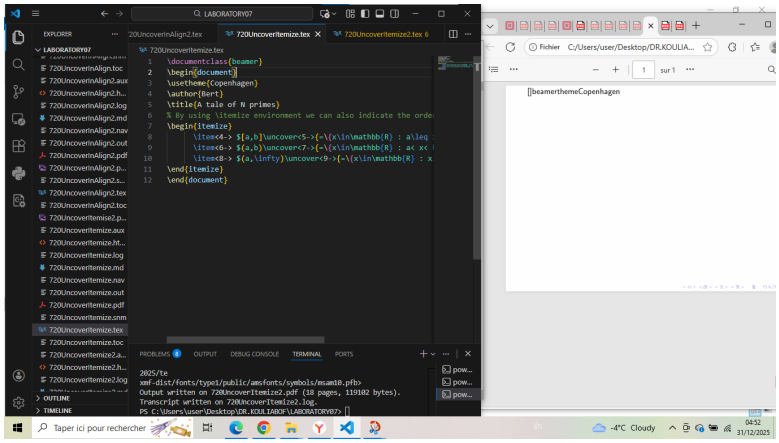
9 720UncoverItemize - Uncover in Itemize

```
\documentclass{beamer}
\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of N primes}
% By using \itemize environment we can also indicate the order at which the various item
\begin{itemize}
      \item<4-> $[a,b]\uncover<5->{=\{x\in\mathbb{R} : a\leq x\leq b\}$,}
      \item<6-> $(a,b)\uncover<7->{=\{x\in\mathbb{R} : a< x< b\}$,}
      \item<8-> $(a,\infty)\uncover<9->{=\{x\in\mathbb{R} : x>a\}$.}
\end{itemize}
\end{document}
```

Generated figure

Interval definitions revealed stepwise.

Screenshot



---

10 720UncoverItemize2 - Advanced Uncover with Mathematics

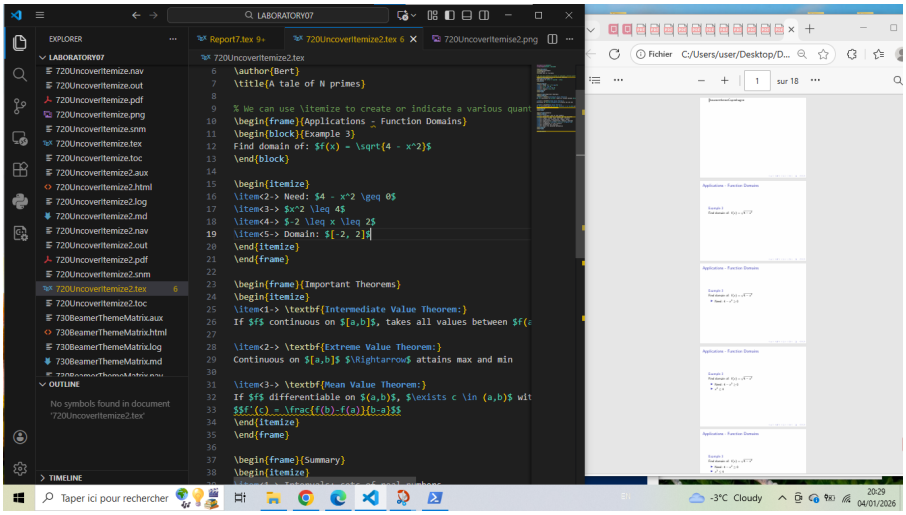
```
\documentclass{beamer}
\usepackage{amsmath, amssymb}

\begin{document}
\usetheme{Copenhagen}
\author{Bert}
\title{A tale of N primes}

% We can use \itemize to create or indicate a various quantities  that we need. More and
\begin{frame}{Applications - Function Domains}
\begin{block}{Example 3}
Find domain of: $f(x) = \sqrt{4 - x^2}$
\end{block}

\begin{itemize}
\item<2-> Need: $4 - x^2 \geq 0$
\item<3-> $x^2 \leq 4$
\item<4-> $-2 \leq x \leq 2$
\item<5-> Domain: $[-2, 2]$
\end{itemize}
\end{frame}

\begin{frame}{Important Theorems}
\begin{itemize}
\item<1-> \textbf{Intermediate Value Theorem:}
If $f$ continuous on $[a,b]$, takes all values between $f(a)$ and $f(b)$

\item<2-> \textbf{Extreme Value Theorem:}
Continuous on $[a,b]$ $\Rightarrow$ attains max and min
```

```
\item<3-> \textbf{Mean Value Theorem:}
If $f$ differentiable on $(a,b)$, $\exists c \in (a,b)$ with:
$$f'(c) = \frac{f(b)-f(a)}{b-a}$$
\end{itemize}
\end{frame}

\begin{frame}{Summary}
\begin{itemize}
\item<1-> Intervals: sets of real numbers
\item<2-> Notation: $[$ for included, $($ for excluded
\item<3-> Types: closed, open, half-open, infinite
\item<4-> Properties: intersection, length, center
\item<5-> Applications: inequalities, domains, theorems
\item<6-> Graphical: $\bullet$, $\circ$, $\rightarrow$
\item<7-> Fundamental in real analysis
\item<8-> Essential for calculus
\item<9-> Basis for advanced mathematics
\end{itemize}
\end{frame}

\end{document}
```

Generated figure

Three frames with mathematical content and stepwise reveals.

Screenshot



---

11 730BeamerThemeMatrix - Theme Selection

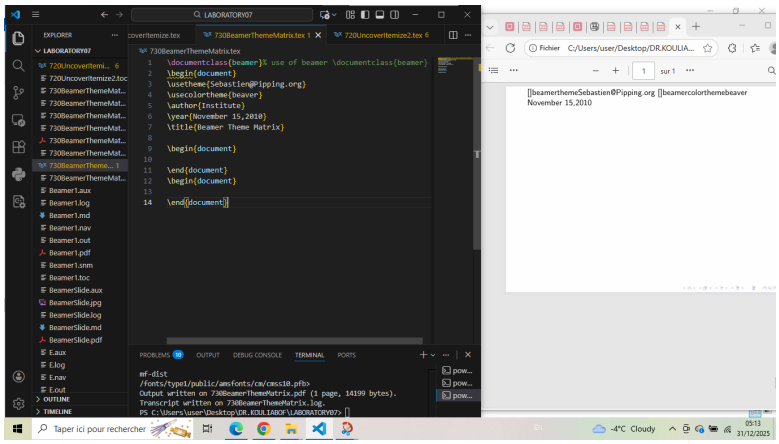
```
\documentclass{beamer}% use of beamer \documentclass{beamer}
\begin{document}
\usetheme{Sebastien@Pipping.org}%there more possibilities but I choose that
```

```
\usecolortheme{beaver}
\author{Institute}
\year{
      November 15,2010}
\title{Beamer Theme Matrix}

\end{document}
```

Generated figure

Minimal theme selection example.

Screenshot



---

12 740TryingPresentation - Complete Presentation Example

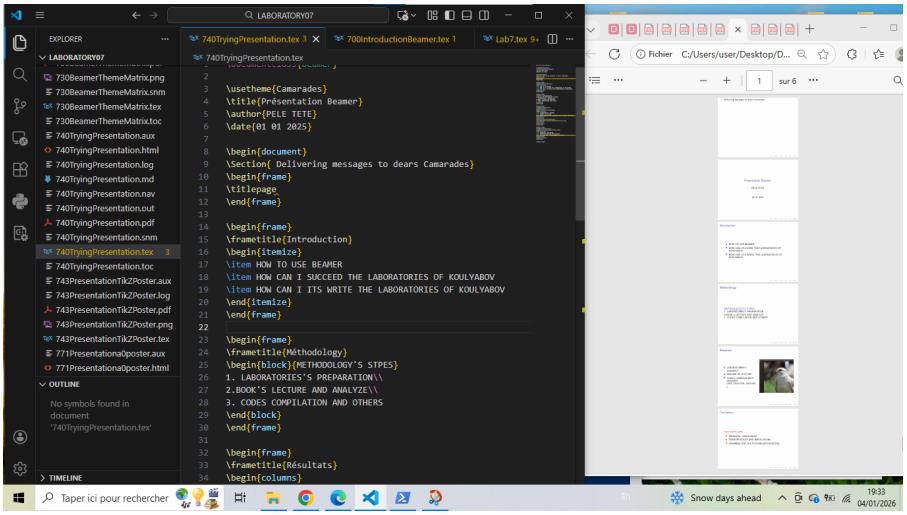
```
\documentclass{beamer}

\usetheme{Camarades}
\title{Présentation Beamer}
\author{PELE TETE}
\date{01 01 2025}

\begin{document}
\Section{ Delivering messages to dears Camarades}
\begin{frame}
\titlepage
\end{frame}

\begin{frame}
\frametitle{Introduction}
\begin{itemize}
\item HOW TO USE BEAMER
```

```
\item HOW CAN I SUCCEED THE LABORATORIES OF KOULYABOV
\item HOW CAN I ITS WRITE THE LABORATORIES OF KOULYABOV
\end{itemize}
\end{frame}

\begin{frame}
\frametitle{Méthodology}
\begin{block}{METHODOLOGY'S STPES}
1. LABORATORIES'S PREPARATION\\
2.BOOK'S LECTURE AND ANALYZE\\
3. CODES COMPILATION AND OTHERS
\end{block}
\end{frame}

\begin{frame}
\frametitle{Résultats}
\begin{columns}
\begin{column}{0.5\textwidth}
\begin{itemize}
\item LABORATORIES'S ANSWERS
\item REZUME OF LECTURE
\item CODES COMPILATION'S ANSWERS (PDF,TEX,HTML AND MD )
\end{itemize}
\end{column}
\begin{column}{0.5\textwidth}
\includegraphics[width=\textwidth]{faucon.jpg}
\end{column}
\end{columns}
\end{frame}

\begin{frame}
\frametitle{Conclusion}
\begin{alertblock}{importantes parts}
\begin{itemize}
\item PRINCIPAL CONCLUSION
\item SOMESPRATICES AND IMPLICATIONS
\item LEARNING FOR THE FUTURE(ANTICIPATION)
\end{itemize}
\end{alertblock}
\end{frame}

\end{document}
```

Generated figure

Complete presentation with custom theme.

Screenshot



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13 743PresentationTikZPoster - First TikZPoster Attempt

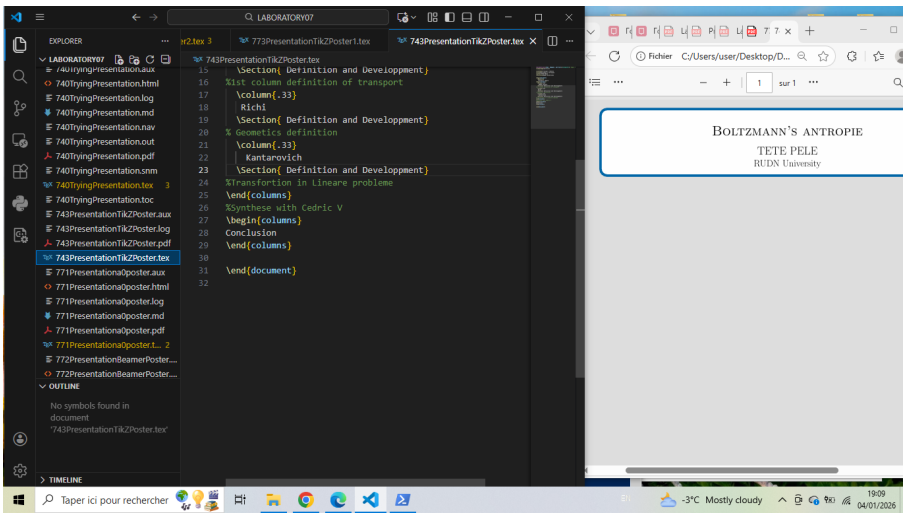
```
\documentclass[24pt, a0paper, portrait]{tikzposter}% begin the TikZ
\usepackage[multicol]

\usetheme{Transport theory}
\title{Boltzmann's antropie}
\author{TETE PELE}
\institute{RUDN University}

\begin{document}
  \maketitle
   Transport theory
\begin{columns}%
  \column{.33}
    MONGE Gaspard
  \Section{ Definition and Developpment}
%1st column definition of transport
  \column{.33}
   Richi
  \Section{ Definition and Developpment}
% Geometics definition
  \column{.33}
    Kantarovich
  \Section{ Definition and Developpment}
%Transfortion in Lineare probleme
\end{columns}
%Synthese with Cedric V
\begin{columns}
Conclusion
\end{columns}
```

```
\end{document}
```

Generated figure

Basic poster structure with errors.

Screenshot



---

14 771Presentationa0poster - a0poster Package

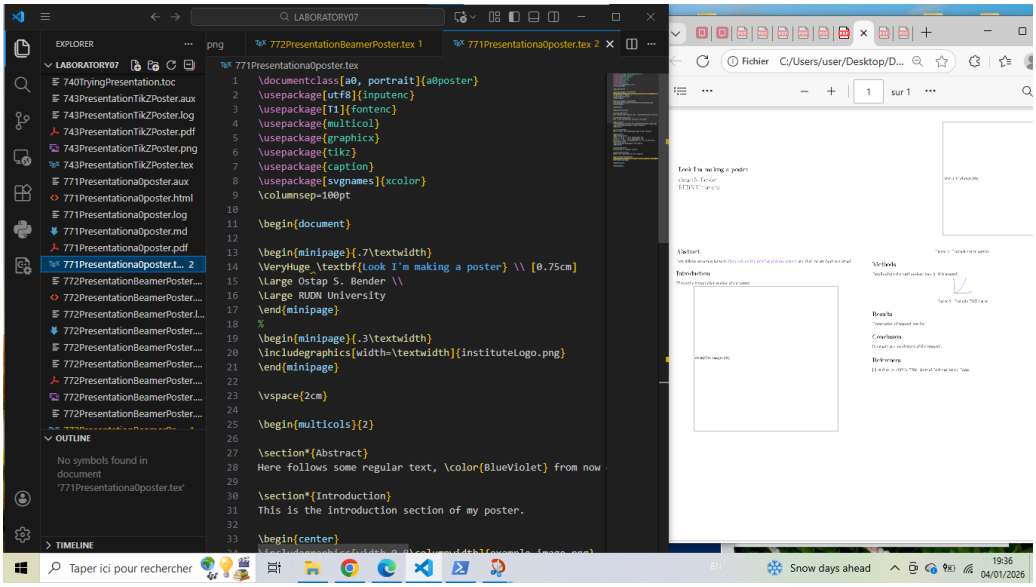
```
\documentclass[a0, portrait]{a0poster}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage{multicol}
\usepackage{graphicx}
\usepackage{tikz}
\usepackage{caption}
\usepackage[svgnames]{xcolor}
\columnsep=100pt

\begin{document}

\begin{minipage}{.7\textwidth}
\VeryHuge \textbf{Look I'm making a poster} \\ [0.75cm]
\Large Ostap S. Bender \\
\Large RUDN University
\end{minipage}
%
\begin{minipage}{.3\textwidth}
\includegraphics[width=\textwidth]{instituteLogo.png}
\end{minipage}
```

```
\vspace{2cm}

\begin{multicols}{2}

\section*{Abstract}
Here follows some regular text, \color{BlueViolet} from now on the text has changed colo

\section*{Introduction}
This is the introduction section of my poster.

\begin{center}
\includegraphics[width=0.8\columnwidth]{faucon.jpg}
\captionof{figure}{faucon.jpg}
\end{center}

\section*{Methods}
Details about the methodology used in this research.

\begin{center}
\begin{tikzpicture}
\draw[->] (0,0) -- (3,0) node[right] {x};
\draw[->] (0,0) -- (0,2) node[above] {y};
\draw[blue, thick] plot[domain=0:2.5] (\x, {0.5*\x*\x});
\end{tikzpicture}
\captionof{figure}{Example TikZ figure}
\end{center}

\section*{Results}
Presentation of research results.

\section*{Conclusion}
Summary and conclusions of the research.

\begin{thebibliography}{9}
\bibitem{ref1} Author, A. (2023). Title. Journal, Volume(Issue), Pages.
\end{thebibliography}

\end{multicols}

\end{document}
```

Generated figure

Poster using a0poster class.

Screenshot



---

15 772PresentationBeamerPoster - Beamer as Poster

```
\documentclass[xcolor={svgnames}]{beamer}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage{graphicx}
\usepackage{tikz}

\usetheme{Berlin}
\usecolortheme{seahorse}

\usepackage[orientation=portrait,size=a0,scale=1.4]{beamerposter}

\title{Look I'm making a poster}
\author{Ostap S. Bender}
\institute{RUDN University}

\begin{document}

\begin{frame}

\begin{columns}
\begin{column}{.33\textwidth}

\block{Introduction}
This is the introduction section. Here follows some regular text, \color{BlueViolet} fro

\begin{center}
\includegraphics[width=0.9\textwidth]{faucon.jpg}
```

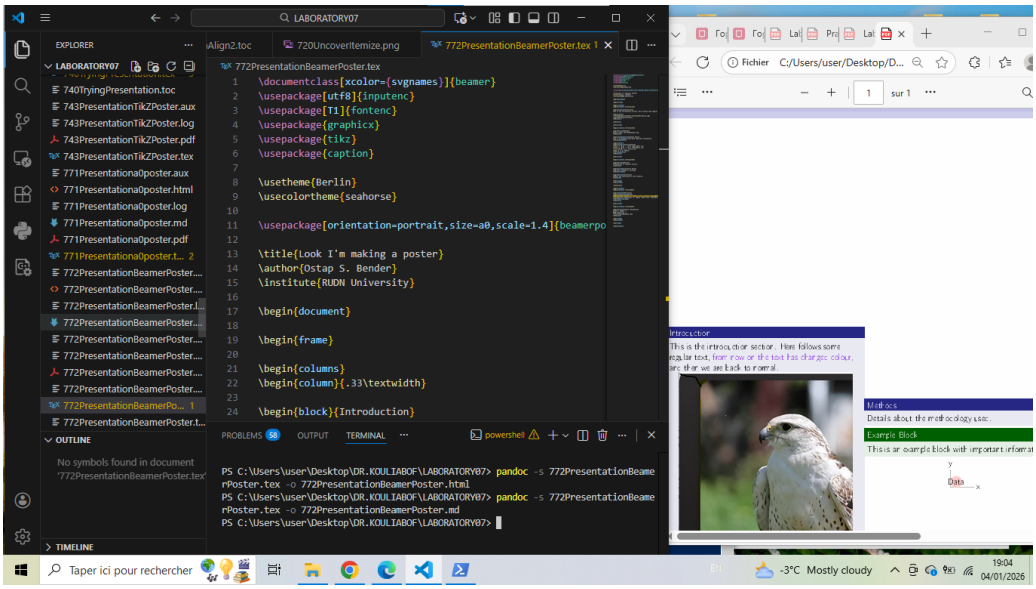
```
\captionof{figure}{faucon.jpg}
\end{center}

\end{column}
%
\begin{column}{.33\textwidth}

\block{Methods}
Details about the methodology used.

\begin{exampleblock}{Example Block}
This is an example block with important information.
\end{exampleblock}

\begin{center}
\begin{tikzpicture}[scale=0.8]
\draw[->] (0,0) -- (4,0) node[right] {x};
\draw[->] (0,0) -- (0,3) node[above] {y};
\fill[red!20] (1,1) circle (1);
\node at (1,1) {Data};
\end{tikzpicture}
\end{center}

\end{column}
%
\begin{column}{.33\textwidth}

\block{Results}
Presentation of research results.

\alertblock{Alert Block}
Important findings or warnings.

\block{Conclusion}
Summary and conclusions of the research.

\end{column}
\end{columns}

\begin{columns}
\begin{column}{.7\textwidth}

\block{References}
\begin{thebibliography}{9}
\bibitem{ref1} Author, A. (2023). Title. Journal, Volume(Issue), Pages.
\bibitem{ref2} Researcher, B. (2022). Book Title. Publisher.
\end{thebibliography}

\end{column}
%
```

```
\begin{column}{.3\textwidth}

\block{Contact}
Ostap S. Bender \\
RUDN University \\
email@example.com

\end{column}
\end{columns}

\end{frame}

\end{document}
```

Generated figure

Poster using beamerposter package.

Screenshot



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16 773PresentationTikZPoster1 - TikZPoster with Errors

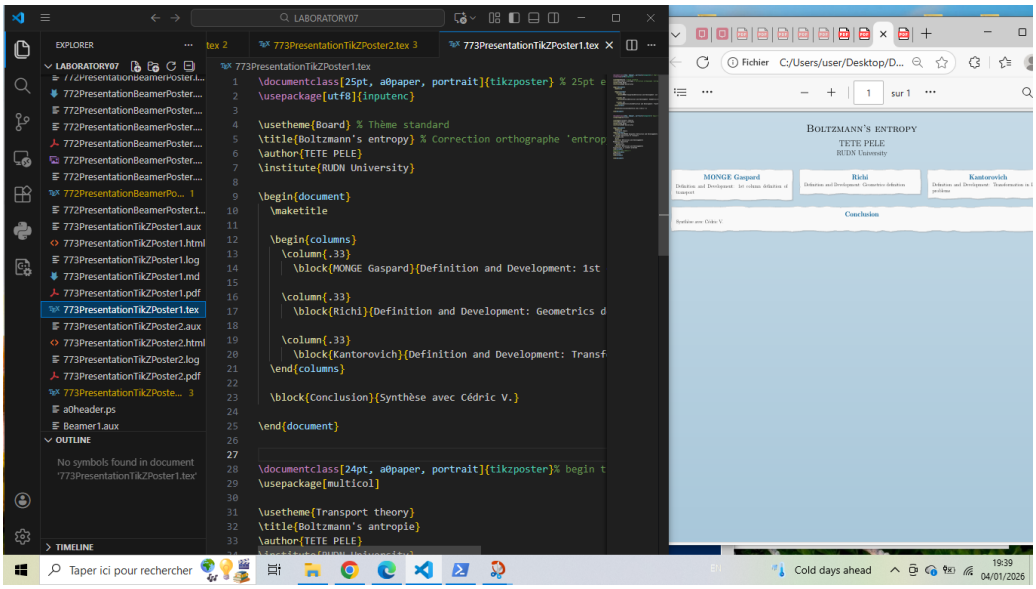
```
\documentclass[25pt, a0paper, portrait]{tikzposter} % 25pt est une taille standard pour
\usepackage[utf8]{inputenc}

\usetheme{Board} % Thème standard
\title{Boltzmann's entropy} % Correction orthographe 'entropy'
\author{TETE PELE}
\institute{RUDN University}

\begin{document}
```

```
  \maketitle

  \begin{columns}
    \column{.33}
      \block{MONGE Gaspard}{Definition and Development: 1st column definition of transpo

    \column{.33}
      \block{Richi}{Definition and Development: Geometrics definition}

    \column{.33}
      \block{Kantorovich}{Definition and Development: Transformation in Linear problems}
  \end{columns}

  \block{Conclusion}{Synthèse avec Cédric V.}

\end{document}


\documentclass[24pt, a0paper, portrait]{tikzposter}% begin the TikZ
\usepackage[multicol]

\usetheme{Transport theory}
\title{Boltzmann's antropie}
\author{TETE PELE}
\institute{RUDN University}

\begin{document}
  \maketitle
   Transport theory
\begin{columns}%
  \column{.33}{MONGE Gaspard}{ Definition and Developpment}
1st column definition of transport
  \column{.33}
   Richi
  \Section{ Definition and Developpment}
Geometics definition
  \column{.33}
    Kantarovich
  \Section{ Definition and Developpment}
Transfortion in Lineare probleme
\end{columns}
%Synthese with Cedric V
\begin{columns}
Conclusion
\end{columns}

\end{document}
```

Generated figure

TikZPoster with corrected and incorrect versions.

Screenshot



---

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```
\documentclass[24pt, a0paper, portrait]{tikzposter}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage{multicol}
\usepackage{graphicx}
\usepackage{tikz}
\usepackage{caption}
\usepackage{color}

\definecolor{MyPink}{RGB}{194, 19, 182}
\definecolor{MyBlue}{RGB}{30, 100, 200}
\definecolor{MyGreen}{RGB}{50, 150, 100}

\usetheme{Default}

\title{Look I'm making a poster}
\author{Ostap S. Bender}
\institute{RUDN University}

\begin{document}

\maketitle
```

```
\begin{columns}
\column{.33}

\block{Introduction}{
This is the introduction section. Here follows some regular text, \color{MyPink} from nc
\vspace{3cm}
}
\note[targetoffsetx=-11cm, targetoffsety=-6.5cm, width=10cm]{This is an important note a

\begin{center}
\includegraphics[width=0.9\colwidth]{faucon.jpg}
\captionof{figure}{faucon.jpg}
\end{center}

\column{.33}

\block{Methods}{
Details about the methodology used in this research.
}

\begin{center}
\begin{tikzpicture}[scale=0.7]
\draw[->, thick] (0,0) -- (5,0) node[right] {Time};
\draw[->, thick] (0,0) -- (0,4) node[above] {Value};
\draw[MyBlue, very thick] plot[domain=0:4.5, samples=50] (\x, {1.5 + sin(\x*100)});
\draw[MyGreen, very thick] plot[domain=0:4.5, samples=50] (\x, {2.5 + 0.5*cos(\x*120)});
\node[MyBlue] at (2,3.5) {Method A};
\node[MyGreen] at (3,1.5) {Method B};
\end{tikzpicture}
\captionof{figure}{Comparison of methods}
\end{center}

\column{.33}

\block{Results}{
Presentation of research results and findings.
}

\block{Conclusion}{
Summary and conclusions of the research. Key findings and future work.
}

\end{columns}

\begin{columns}
\column{.7}

\block{References}{
\begin{multicols}{2}
\begin{thebibliography}{9}
```

```
\bibitem{ref1} Author, A. (2023). Title. Journal, Volume(Issue), Pages.
\bibitem{ref2} Researcher, B. (2022). Book Title. Publisher.
\bibitem{ref3} Scientist, C. (2021). Conference Proceedings.
\bibitem{ref4} Scholar, D. (2020). Technical Report.
\end{thebibliography}
\end{multicols}
}

\column{.3}

\block{Contact Information}{
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RUDN University \\
Department of Mathematics \\
\texttt{email@rudn.ru} \\
+7 (906) 000-00-00
}

\block{Acknowledgements}{
This research was supported by RUDN University.
}

\end{columns}

\end{document}
```
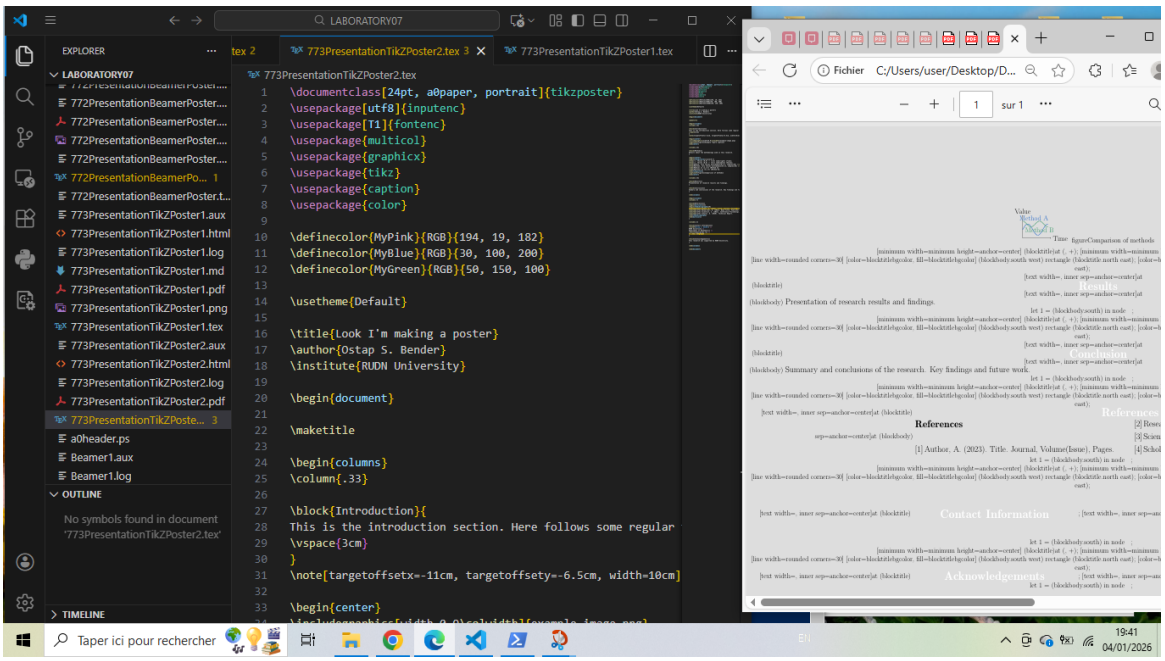

Generated figure

Complete TikZPoster with colors, figures, and proper structure.

Screenshot



Conclusion: Methodology for creating successful Beamer and Poster presentations

After exhaustive study of Beamer and Poster examples, here is the structured methodology for creating successful presentations:

1. Essential basic structure for Beamer

```
\documentclass{beamer}
\usetheme{ThemeName}          % Choose a theme
\usecolortheme{ColorTheme}    % Optional color theme
\title{Presentation Title}
\author{Your Name}
\date{\today}
\begin{document}
\begin{frame}
\titlepage
\end{frame}
\begin{frame}{Frame Title}
% Content here
\end{frame}
\end{document}
```

2. Essential basic structure for TikZPoster

```
\documentclass[24pt, a0paper, portrait]{tikzposter}
\usepackage[utf8]{inputenc}
\usepackage{graphicx}
\usepackage{tikz}
\usetheme{Default}
\title{Poster Title}
\author{Your Name}
\institute{Your Institution}
\begin{document}
\maketitle
\begin{columns}
\column{.33}
\block{Section Title}{
Content here
}
\end{columns}
\end{document}
```

3. Recommended progressive approach

Step 1: Planning

- Define presentation structure (title, sections, content)
- Choose appropriate theme and colors

- Prepare visual elements (images, diagrams)

Step 2: Build in layers

1. Basic structure (title page, sections)
2. Content (text, blocks, items)
3. Visual elements (images, TikZ graphics)
4. Animations and overlays (pause, uncover)
5. Final polish (notes, references)

Step 3: Optimize

- Use consistent formatting
- Balance text and visuals
- Test on different screen sizes (for presentations)
- Check printability (for posters)

4. Essential best practices

Practice	Example
Use appropriate themes	`\usetheme{Copenhagen}`
Organize with blocks	`\begin{block}{Title}...\end{block}`
Add visual elements	Images, TikZ diagrams
Use overlays effectively	`\pause`, `\uncover`
Maintain consistency	Same fonts, colors, sizes

5. Synthetic conclusion

To create successful presentations:

1. **Structure**: Title → Introduction → Content → Conclusion → References
2. **Visuals**: Balance text and graphics, use consistent theme
3. **Animation**: Use `pause` and `uncover` for stepwise revelation
4. **Posters**: Use appropriate classes (tikzposter, a0poster, beamerposter)
5. **Testing**: Compile frequently, test on target display/print

Final reminder: Beamer and poster creation tools are powerful for academic communication. Start with simple templates, gradually add complexity, and always prioritize clarity and readability over visual effects.