# Creating Beamer presentations in *Scientific WorkPlace* and *Scientific Word*

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March 2006

# What is Beamer?

- Beamer is a LATEX document class that produces presentations and transparency slides.
- Beamer presentations feature
  - PDFLATEX output.
  - Global and local control of layout, color, and fonts.
  - List items that can appear one at a time.
  - Overlays and dynamic transitions between slides.
  - Standard LATEX constructs.
  - Typeset text, mathematics like this $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$, and graphics.

# Basic tasks in creating a Beamer presentation

1. Start a new document with the Slides - Beamer shell in the Other Documents shell directory.
2. Choose a presentation theme to define the appearance of the presentation.
3. Create a frame for each slide in the presentation.
4. Organize information in lists and columns.
5. Create transitions between frames.
6. Add graphics and animations.
7. Typeset the presentation with PDFLATEX.

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- This sample presentation uses the Madrid theme, which is without navigation bars.
- Sample any of the themes by adding the command \usetheme{themename} to the preamble of this document, replacing any existing \usetheme command.

# Using presentation themes
## Themes without navigation bars

- **Default**: a professional, no-nonsense theme
- **Bergen**: divides the frame into vertical boxes
- **Boadilla**: gives much information in little space
- **Madrid**: similar to Boadilla but with fancier item icons
- **Pittsburgh**: professional, with right-flush titles
- **Rochester**: a professional theme with a horizontal header panel

# Using presentation themes
Themes that display a tree-like navigation bar

- **Antibes**: a theme with a strong appearance, with a navigation bar at the top
- **JuanLesPins**: a smoother, rounder version of Antibes
- **Montpellier**: professional, with basic navigational hints at the bottom

- **Berkeley**: a professional theme with a with a horizontal header panel
- **PaloAlto**: a less forceful form of Berkeley
- **Goettingen**: with a full table of contents on the right and no header panel
- **Marburg**: a very strong variation of Goettingen
- **Hannover**: TOC sidebar on the left balances right-flush titles

- **Berlin**: a theme with strong rectangular areas and a navigation bar at the top
- **Ilmenau**: a variation of Berlin
- **Dresden**: a variation of Ilmenau
- **Darmstadt**: similar to Dresden with rounded theorem boxes and icons
- **Frankfurt**: like Darmstadt but without subsection information
- **Singapore**: a softer appearance; divides headings from text with shading
- **Szeged**: softer, with strong horizontal lines

- **Copenhagen**: shows current section and subsection at top, title and author at bottom; no shadows
- **Luebeck**: a boxier variation of Copenhagen
- **Malmoe**: a more professional variation of Copenhagen
- **Warsaw**: a variation of Copenhagen, with a strong appearance

# Using outer and inner themes

Instead of using complete presentation themes, you can define presentation elements separately.

- Use **Outer themes** to define the overall frame layout, borders, headers, sidebars, footers, and navigation bars.
- Use **Inner themes** to define the appearance of title pages, lists, blocks of text, theorems and proofs, figures, tables, footnotes, and bibliography entries.
- For full information, see TCITeX/TeX/LaTeX/contrib/beamer/doc/beameruserguide.pdf provided as part of the downloaded support.

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    2. Place the text for the frame between the BeginFrame and EndFrame fields.

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    2. Place the text for the frame between the BeginFrame and EndFrame fields.
    3. Enter the frame title and subtitle.
       If you used the Frame fragment, apply the Frame title and Frame subtitle text tags as necessary.

# Suppressing frame headlines, footlines, and sidebars

- Having a frame without the usual frame elements is useful:
    - The text area is slightly larger.
    - Large graphics may look nicer.

- To create a frame that suppresses the headlines, footlines, and sidebars,
    1. Apply the BeginFrame fragment to start a frame.
    2. Double-click the fragment to open the TeX field.
    3. In the entry area, place the insertion point at the end of the \begin{frame} command and type **[plain]**.
    4. Choose **OK**.
    5. Apply the EndFrame fragment to end the frame.
    6. Place the text for the frame between the two fragments.

- To illustrate, the headline, footline, and sidebars have been suppressed in this frame.

# Breaking frames automatically I

- When information extends beyond the boundaries of a single slide, you can use a Beamer option to automatically create additional slides within the frame.
- To break the frame automatically,
    1. Apply the BeginFrame fragment to start a frame.
    2. Double-click the fragment to open the TeX field.
    3. In the entry area, place the insertion point at the end of the \begin{frame} command and type **[allowframebreaks]**.
    4. Choose **OK**.
    5. Apply the EndFrame fragment to end the frame.
    6. Place the text for the frame between the two fragments.
- Beamer modifies the Frame title to indicate which of several slides is displayed. Here, you see "Breaking frames automatically I".
- To illustrate automatic frame breaking, this frame contains information that continues to an additional slide.

# Breaking frames automatically II

- The BeginFrame fragment for this frame contains [allowframebreaks].
- No other changes to the document are necessary.
- Beamer automatically creates as many additional slides as are needed to contain the information in the frame.
- Note the designation of a slide number in the Frame title. Now you see "Breaking frames automatically II".

# Working with lists

- Use lists to organize information on slides.
- Types of lists:
    - Standard Numbered and Bullet lists
    - Step lists
    - Alert step lists

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  Beamer automatically displays the top-level item and its subitems, then pauses before displaying the next top-level item.

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- Another top-level item

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  2. Final subitem

- You can modify Alert step lists to display all items in the list at once but highlight the items as you step through the list.

- You can also modify the lists to change the colors used for list items.

- This frame displays all the items in this list at the same time using the default colors.

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Modification of Alert step lists

- This frame displays all the items in this list at the same time using a gray scale instead of the default colors.
- Items are highlighted as you step through the list.
- The frame displays the highlighted item in black and displays other items using a 40% gray scale.
- A TeX command placed before the BeginFrame fragment specifies the colors.

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- This frame displays all the items in this list at the same time using a lighter gray scale.
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- The frame displays highlighted items in black and displays other items using a 20% gray scale. Compare it to the previous frame.
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# Working with lists I
## Modification of Alert step lists

- You can modify Alert step lists globally or individually.
- To modify all Alert step lists in your document,
  1. In your document preamble, find the \newenvironment{stepenumeratewithalert} command (for Alert numbered lists) or the \newenvironment{stepitemizewithalert} command (for Alert bullet lists).
  2. Replace the command with the command(s) necessary for the changes you want to make, and choose **OK**.
- To modify individual Alert step lists,
  1. Place the insertion point before the BeginFrame statement for the frame containing the lists you want to modify.
  2. Enter a TeX field and type the command(s) necessary for the changes you want to make, then choose **OK**.

- See the package documentation for detailed information about package commands. You can also use the commands in this sample document as models. Remember that when you place commands in the preamble, you must use \newcommand statements instead of \renewcommand statements.

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- This sample presentation uses the Box Out transition.

# Working with color

- Because specifying color for individual elements is complex, use Beamer *color themes* to define the use of all color in a presentation:
    - **Default color theme** has black text, white background, blue structural elements, alerts in red, examples in dark green.
    - **Complete color themes** specify all colors for all parts of a frame. Available color themes: albatross, beetle, crane, dove, fly, seagull, wolverine, beaver.
    - **Special purpose color theme** defines colors for sidebars.
    - **Inner color themes** define colors for inner elements. Named for flowers.
    - **Outer color themes** define colors for outer elements. Named for sea animals.
- This presentation uses the default color theme.
- To use a different color theme, add the command \usecolortheme{colorthemename} to the preamble, replacing any existing \usecolortheme command.

# Working with fonts

- Beamer *font themes* define the use of fonts in a presentation:
  - **Default** font theme uses a sans serif font in various sizes.
  - **Serif** uses a serif font in various sizes.
  - **Professional** suppresses Beamer font control in favor of installed fonts.
  - **Structurebold, structureitalicserif,** and **structuresmallcapsserif** change the font used for structural elements such as headers, footers, and sidebars.
- This presentation uses the default font scheme.
- To use a different font theme, add the command `\usefonttheme{fontthemename}` to the preamble of your document, replacing any existing `\usefonttheme` command.

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Beamer supports multiple columns of text.

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- To begin later columns, apply and revise the Column fragment.

# Using columns

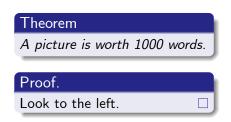Beamer supports multiple columns of text.

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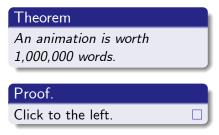- To end the last column, apply the EndColumns fragment.

# Adding graphics

- Frames can contain graphics  and movies.
- Columns provide support for laying out graphics and text:



### Theorem
*A picture is worth 1000 words.*

### Proof.
Look to the left. □

# Embedding animations

- Beamer presentations can include graphics and animations:

**Theorem**

*An animation is worth 1,000,000 words.*

**Proof.**

Click to the left. □

Click me!

This slide shows an AVI file of an animated plot generated in *SWP* and exported from VCAM.

# Floating graphics and tables

Usually, floating graphics and tables are automatically labelled as Figure and Table along with a figure and table number. With Beamer, no number is printed, since numbers make little sense in a normal presentation. You can override the default setting to allow automatic numbering. Add the following to the document preamble:

\setbeamertemplate{caption}[numbered]

## Setting class options

Use class options to

- Set the base font size for the presentation.
- Set text alignment.
- Set equation numbering.
- Set print quality.
- Format displayed equations.
- Create a presentation, handout, or set of transparencies.
- Hide or display notes.

- This sample document is originally supplied with the notes class option set to Show.
- This frame contains a note so that you can test the notes options.
- To see the note, scroll to the next frame

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Notes

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Here is a Beamer note.

# Learn more about Beamer

- This sample document, the Slides - Beamer shell, and the associated fragments provide basic support for Beamer in *SWP* and *SW*.
- For complete information, read the Beamer User Guide (a .pdf file): See TCITeX/TeX/LaTeX/contrib/beamer/doc/beameruserguide.pdf in your program installation.
- For support, contact **support@mackichan.com**.