Introduction to Beamer

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July 13, 2009

Welcome to Mathematical Literature!

1. Course organization
2. Does everyone have something to read?
3. Presentation schedule: http://tinyurl.com/12jo3p
4. This week. . .

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Plan for this week

Monday	Introduction, and Beamer
Tuesday	Panel discussion (I)
Wednesday	Panel discussion (II)
Thursday	Molly Williams
Friday	Molly Williams

Discussion on reading papers

- What issues have you encountered so far?
- Features of mathematical papers
- arXiv.org
- MathSciNet

Introduction to Beamer

- What is it?
- What can it do?
  - Beamer sample
  - Another Beamer sample
  - PowerPoint sample
  - Prosper sample

First example

Theorem

If f is continuous on $[a, b]$ then it is Riemann integrable on $[a, b]$.

Proof.

Let $\epsilon > 0$. Since f is continuous on the closed, bounded interval $[a, b]$, therefore it is uniformly continuous. Find $\delta > 0$ such that $|x - y| < \delta$ implies $|f(x) - f(y)| < \epsilon$. Let P be a partition of $[a, b]$ with mesh less than δ. For any $x, y \in [x_{i-1}, x_i]$, $f(x) < f(y) + \epsilon$ and so, $M_i(f) \leq m_i(f) + \epsilon$. Thus

$$U(F) = \sum_{i=1}^{n} M_i(f)(x_{i-1} - x_i) \leq \sum_{i=1}^{n} (m_i(f) + \epsilon)(x_{i-1} - x_i) = \sum_{i=1}^{n} m_i(f)(x_{i-1}$$

The result follows, by Riemann's Condition. □

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$$\begin{aligned} U(F) &= \sum_{i=1}^{n} M_i(f)(x_{i-1} - x_i) \\ &\leq \sum_{i=1}^{n} (m_i(f) + \epsilon)(x_{i-1} - x_i) \\ &= \sum_{i=1}^{n} m_i(f)(x_{i-1} - x_i) + \epsilon \sum_{i=1}^{n} x_{i-1} - x_i \\ &= L(f) + \epsilon(b - a) \end{aligned}$$

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Basic concepts

Frame
: A frame consists of one or more layered slides.

Overlay
: An overlay is a pattern which selects certain slides of a frame for an action.

A simple frame

```
\begin{frame}
  \frametitle{Put your title here}
  ...
\end{frame}
```

A simple frame

```
\begin{frame}
  \frametitle{Put your title here}
  \begin{enumerate}
  \item<1> One
  \item<2> Two
  \item<3> Three
  \end{enumerate}
\end{frame}
```

A simple frame

1. One

A simple frame

2. Two

A simple frame

3. Three

A simple frame

```
\begin{frame}
  \frametitle{Put your title here}
  \begin{enumerate}
  \item<1-> One
  \item<2-> Two
  \item<3-> Three
  \end{enumerate}
\end{frame}
```

A simple frame

1. One

A simple frame

1. One
2. Two

A simple frame

1. One
2. Two
3. Three

Overlays

```
<2-4,6,7,10->
<-3>
<4->
<1,9>
```

Using overlays

Attach overlays to:

- **Items** `\item<3->`
- **Environments** `\begin{theorem}<2-5>...\end{theorem}` and lemmas, proofs, etc.
- **Specials** Custom beamer commands; `\alert<2>{foobar}`, `\only<2>{foobar}`, `\visible<2>{foobar}`, `\invisible<2>{foobar}`

What else...?

- Themes
- Links and buttons
- Graphics
- Advanced overlays
- `\alt{...}` and `\temporal{...}`
- Document structure (appendix)