$P^{o}W_{E}R$ ☜ ?

Presentation Techniques with

pdfLaTeX

POWER

LATEX

POWER

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Power What? Presentation Techniques with pdfLaTeX

Patrick W. Daly

MPS

February 23, 2005

Outline

1. Why LaTeX?
2. Requirements for a presentation
   - Content Requirements
   - Font Requirements
   - Dynamic Requirements
   - Processing Aids
3. Solutions before pdfLaTeX
   - SliTeX
   - Seminar
4. More recent solutions
   - Several classes
   - PPower4 Post-processor
5. Beamer

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All this is a matter for the author, there is no LaTeX style that can make him/her less verbose.

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LaTeX can manage all this, best in prepared classes or packages.

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These features can be added with pdfLaTeX.
Special classes (and some programs) make it "*simple*".

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- Handouts and/or a complete regular article should be available, to be output as options.

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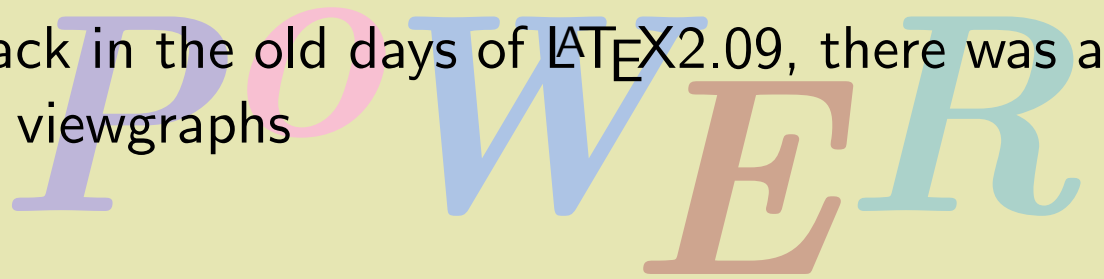

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- In modern LaTeX 2ε, the `slides` class replaces SliTeX, much improved, with colour management left to the `color` package.

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Results from the RAPID Experiment

Annales Geophysicae (2001) 19: 1–12 © European Geophysical Society 2001

Annales Geophysicae

First results from the RAPID imaging energetic particle spectrometer on board Cluster

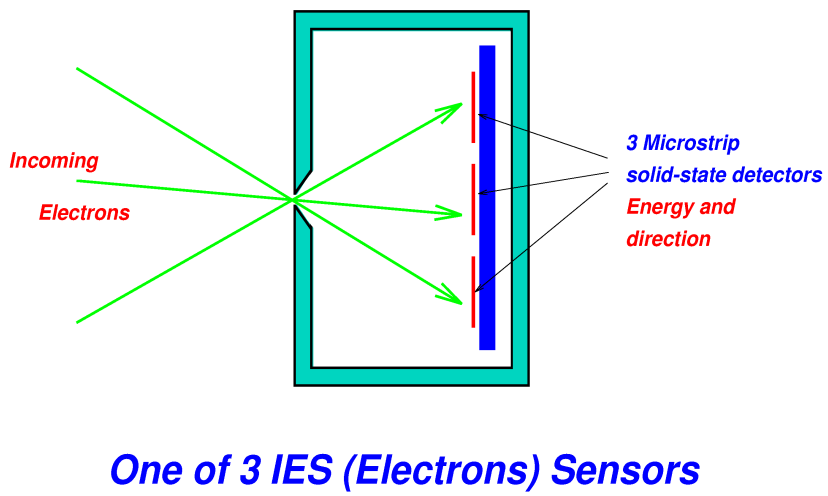
B. Wilken[1,*], P. W. Daly[1], U. Mall[1], K. Aarsnes[2], D. N. Baker[3], R. D. Belian[4], J. B. Blake[5], H. Borg[6], J. Büchner[1], M. Carter[7], J. F. Fennell[5], R. Friedel[4], T. A. Fritz[8], F. Gliem[9], M. Grande[7], K. Kecskemety[10], G. Kettmann[1], A. Korth[1], S. Livi[1], S. McKenna-Lawlor[11], K. Mursula[12], B. Nikutowski[1], C. H. Perry[7], Z. Y. Pu[13], J. Roeder[5], G. D. Reeves[4], E. T. Sarris[14], I. Sandahl[15], F. Søraas[2], J. Woch[1], and Q.-G. Zong[1]

[1]Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, D-37191 Katlenburg Lindau, Germany
[2]University of Bergen, Allegt. 55, 5007 Bergen-U, Norway
[3]LASP, Boulder-CO 80309, USA
[4]LANL, Los Alamos-NM 87545, USA
[5]Aerospace Corporation, Los Angeles-CA 90009, USA
[6]IRF, 90187 Umea, Sweden
[7]RAL, Chilton, Didcot, Oxfordshire OX110QX, UK
[8]Boston University, Boston-MA 02215, USA
[9]IDA, D-38106 Braunschweig, Germany
[10]KFKI, H-1525 Budapest-114, Hungary
[11]NUI, Maynooth-Co., Kildare, Ireland
[12]University of Oulu, 90571 Oulu, Finland
[13]Peking University, Beijing 100871, China
[14]University of Thrace, Xanthi, Greece
[15]IRF,S-98128 Kiruna-C, Sweden
*The RAPID team deeply regrets the untimely demise of B. Wilken, PI of the Cluster project. Without him, the RAPID instrument would never have been created

RAPID (*Research with Adaptive Particle Imaging Detectors*)

is the energetic particle spectrometer on board Cluster is an advanced particle detector for the analysis of suprathermal plasma distributions in the energy range from 20–400 keV for electrons, 40 keV–1500 keV for hydrogen, and 10 keV/nucleon–1500 keV for heavier ions.

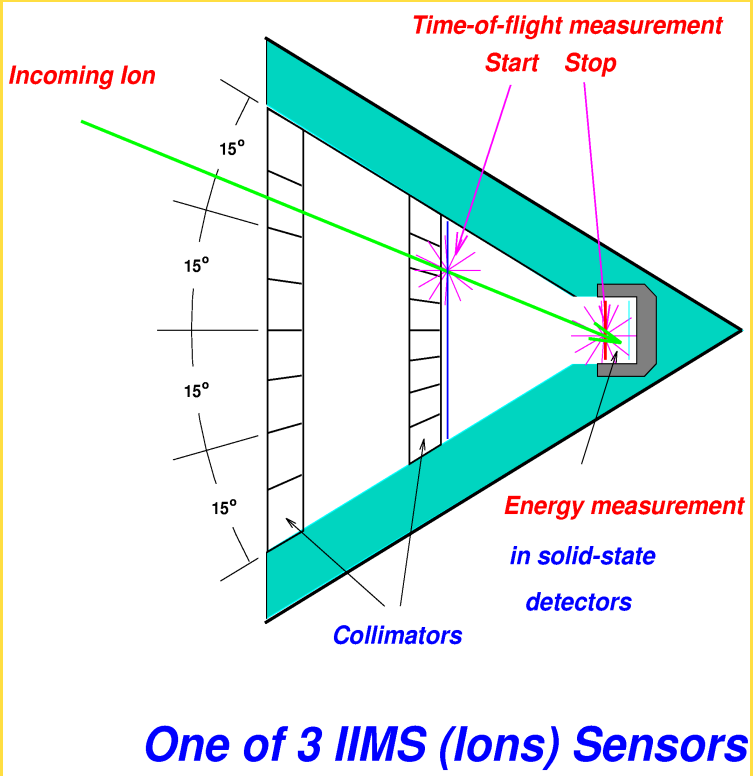
Electron (IES) Detectors



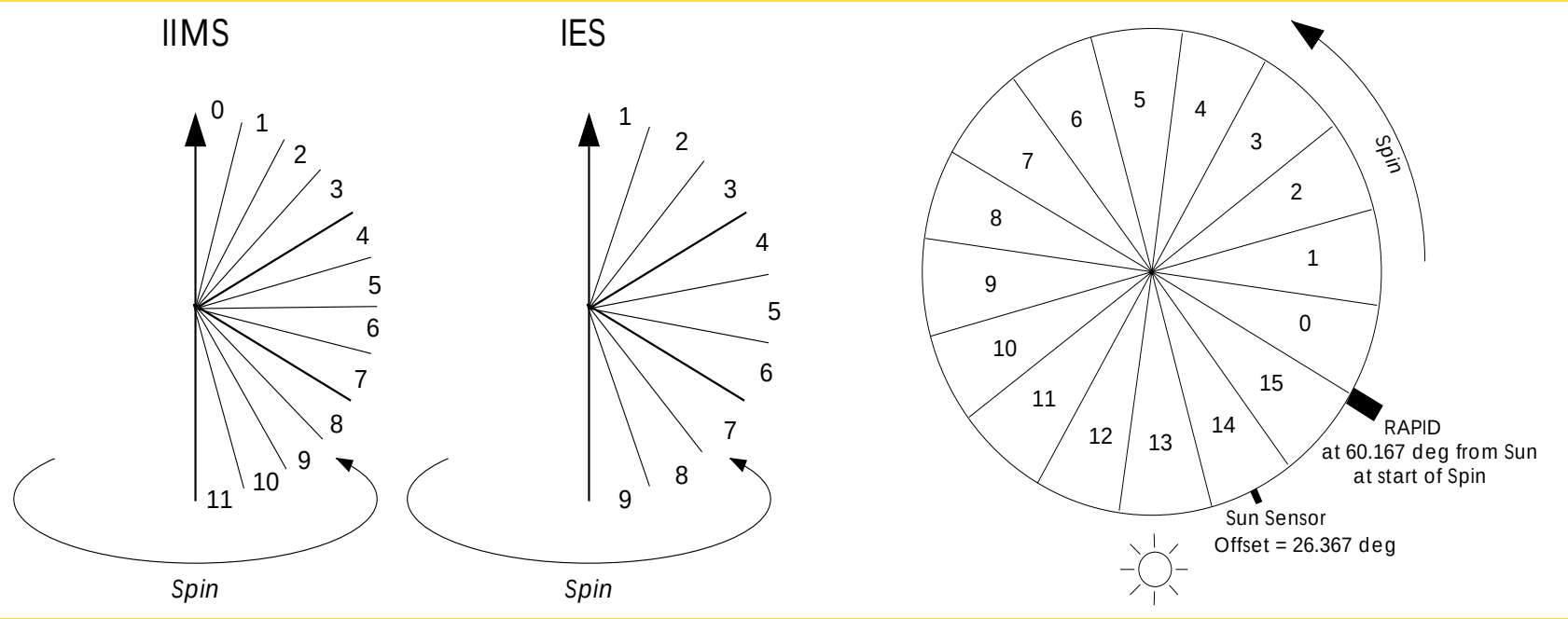
- There are 3 electron detector heads, each covering 60° in plane of spin axis;
- The heads function as a pin-hole camera, each having 3 separate detectors for a fine resolution of 20°;
- Four read-out ('integration') times available: 2, 5, 15, 50 μs.

Ion (IIMS) Detectors

- There are 3 ion detector heads, each covering 60° in plane of spin axis;
- Time-of-flight mass determination: start signal: e^- from penetrated foil; stop: e^- from surface of solid-state detector;
- TOF distance is 34 mm; time resolution 80 ns/256;
- The start signal also serves to indicate incoming direction; fine resolution is 15°.



Angular Coverage in 3-D



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A sample talk that I gave last year in Kiel, with seminar and the PPower4 post-processor for overlay effects ...

The energetic particle spectrometer *RAPID* on board Cluster— A three-year overview

Patrick W. Daly

Max-Planck-Institut für Aeronomie
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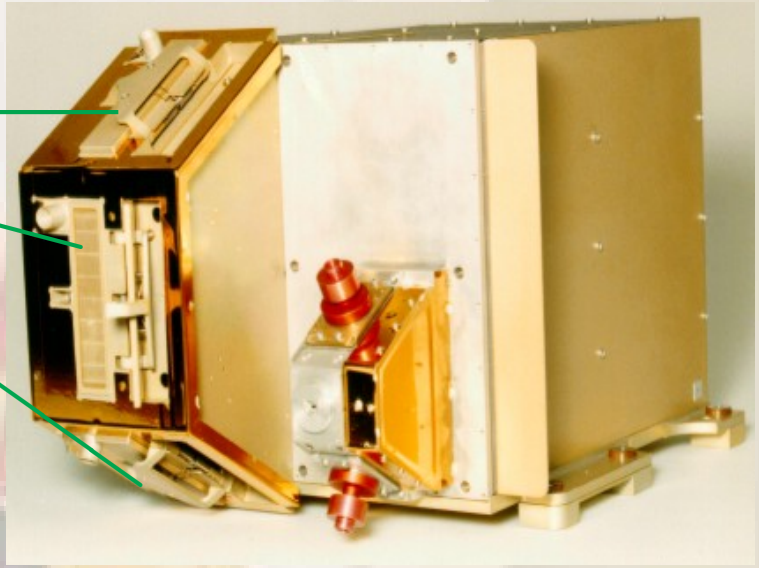

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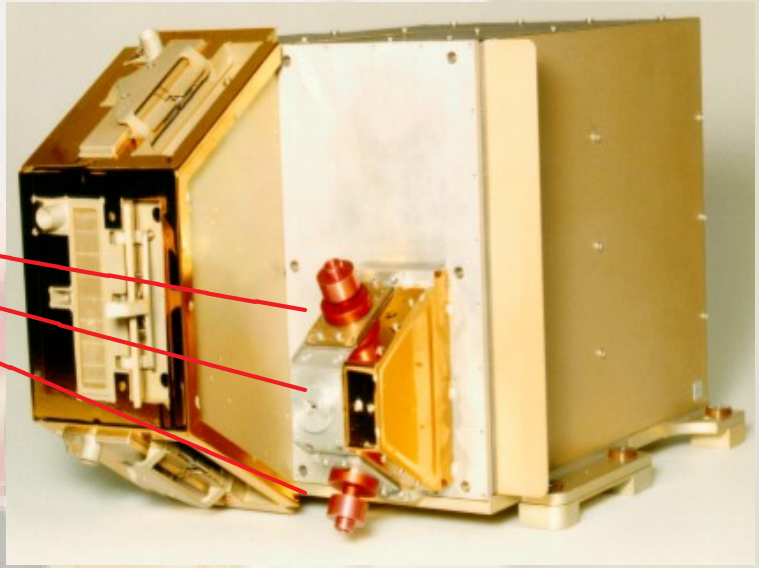

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Each set contains three units, each covering 60°, for a total of 180° in one plane.

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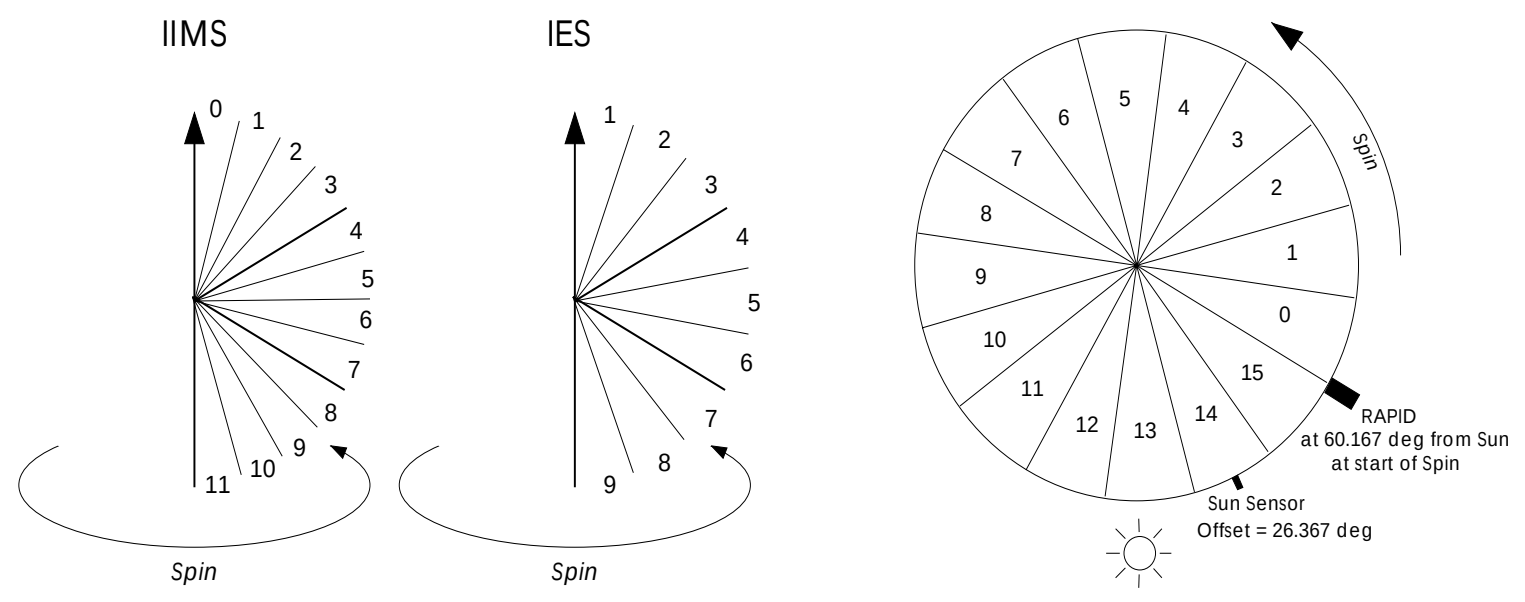

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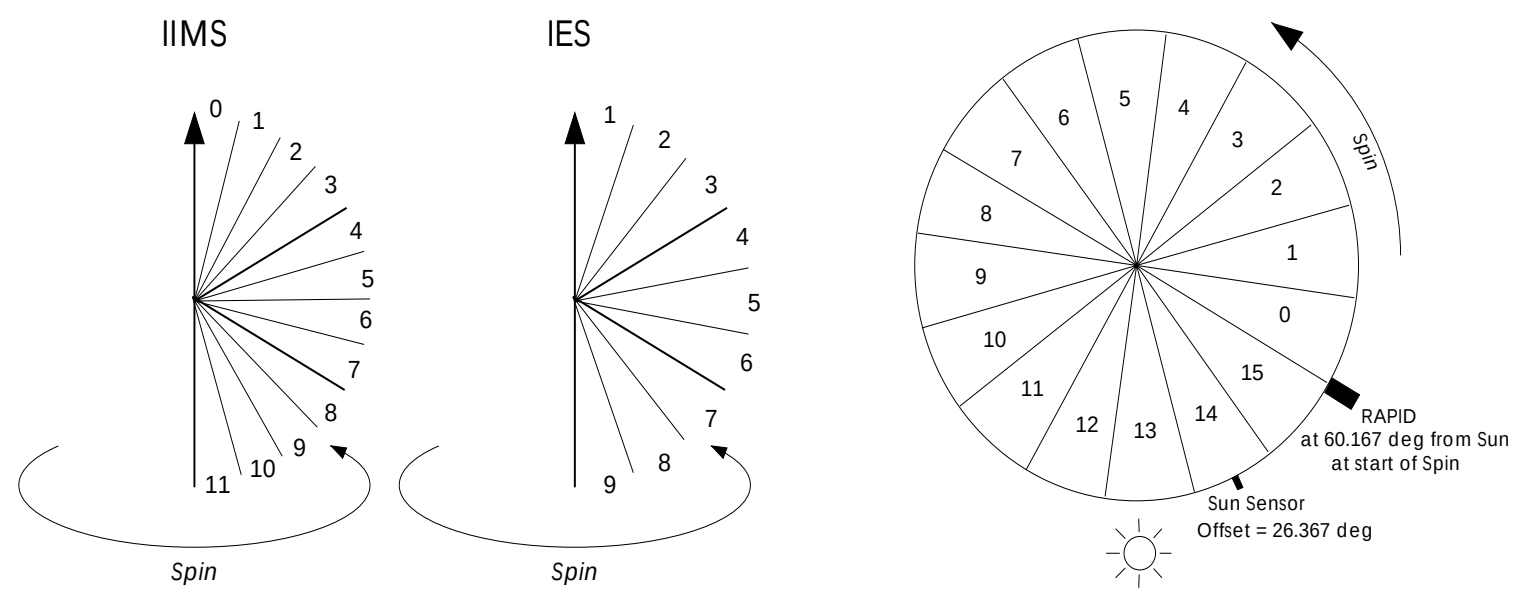

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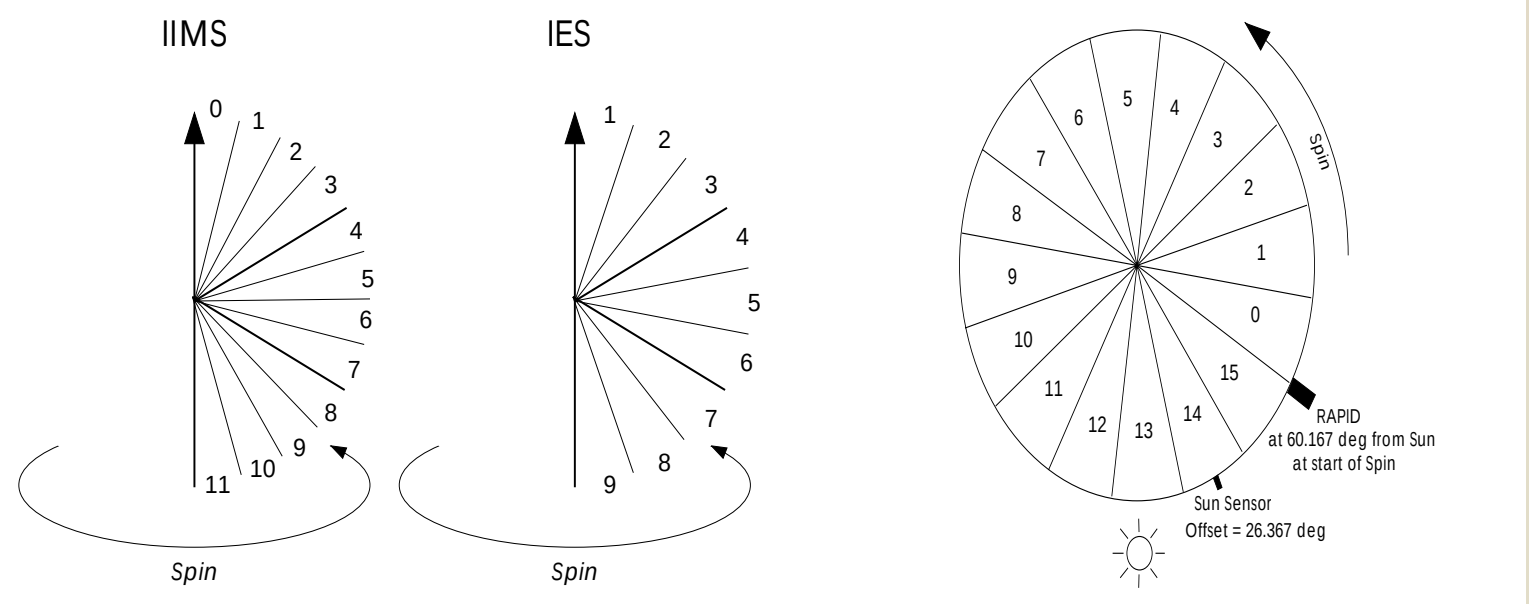

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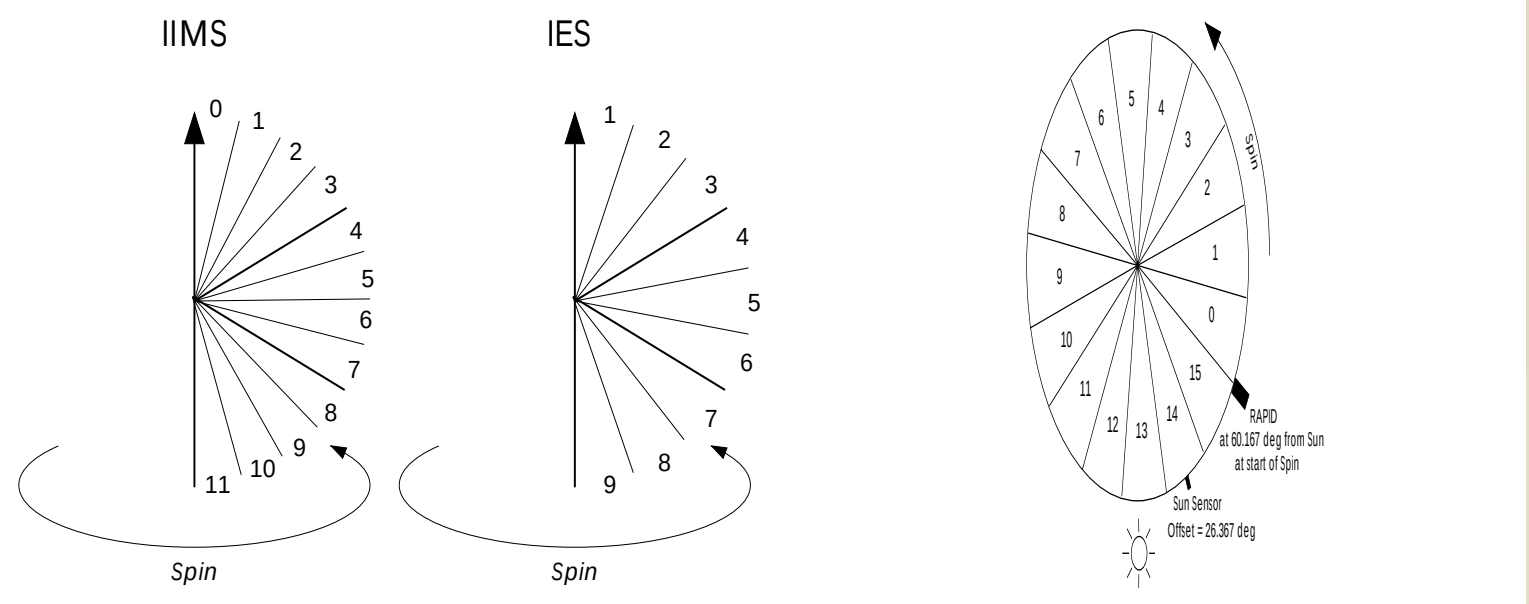

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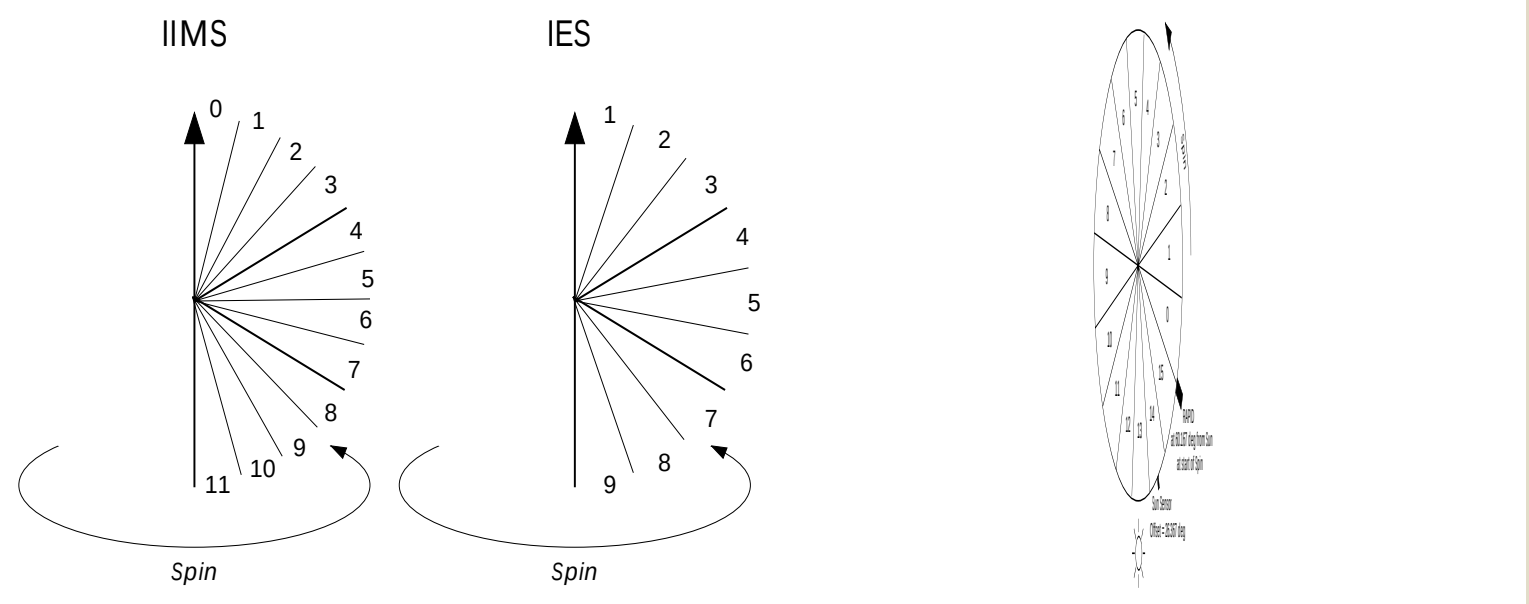

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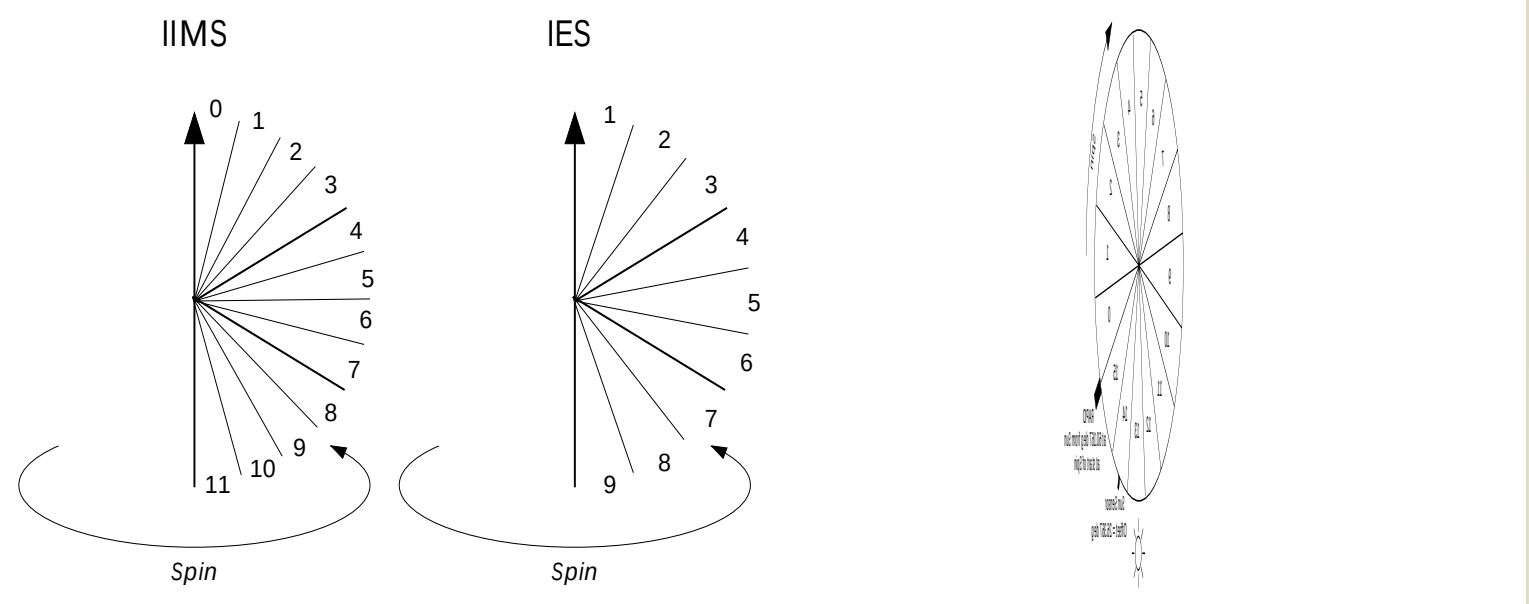

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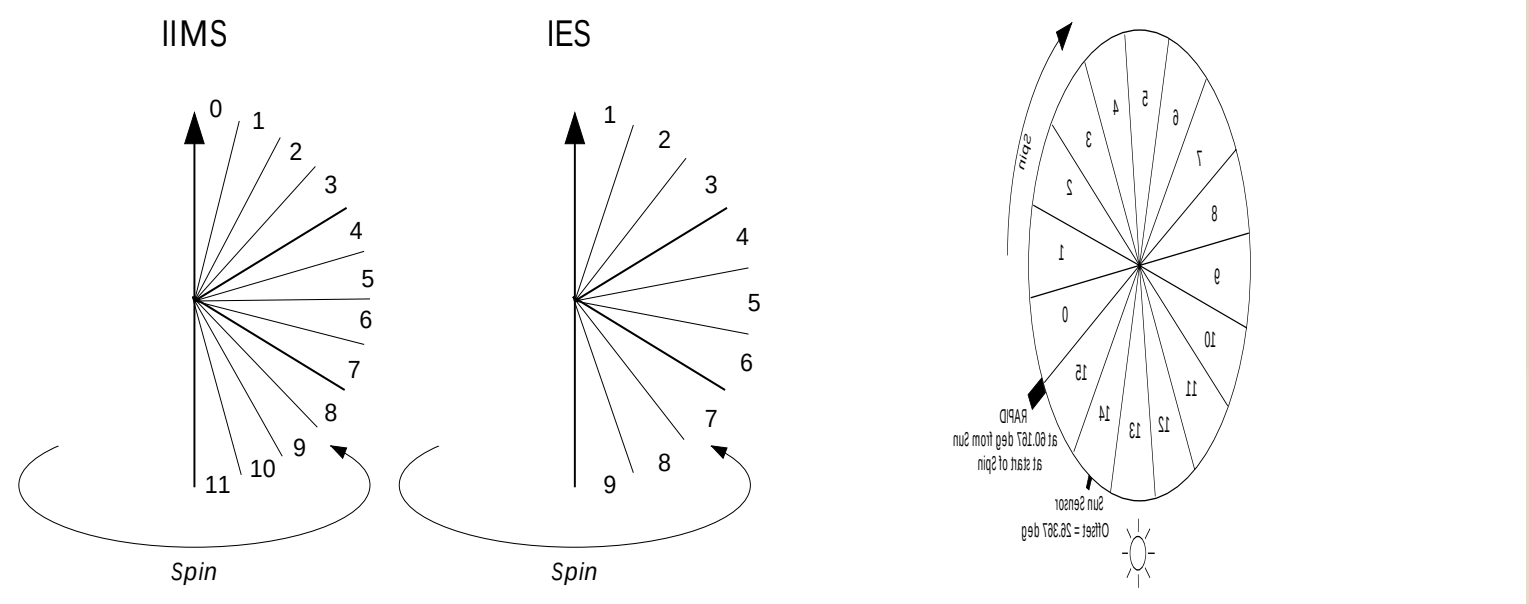

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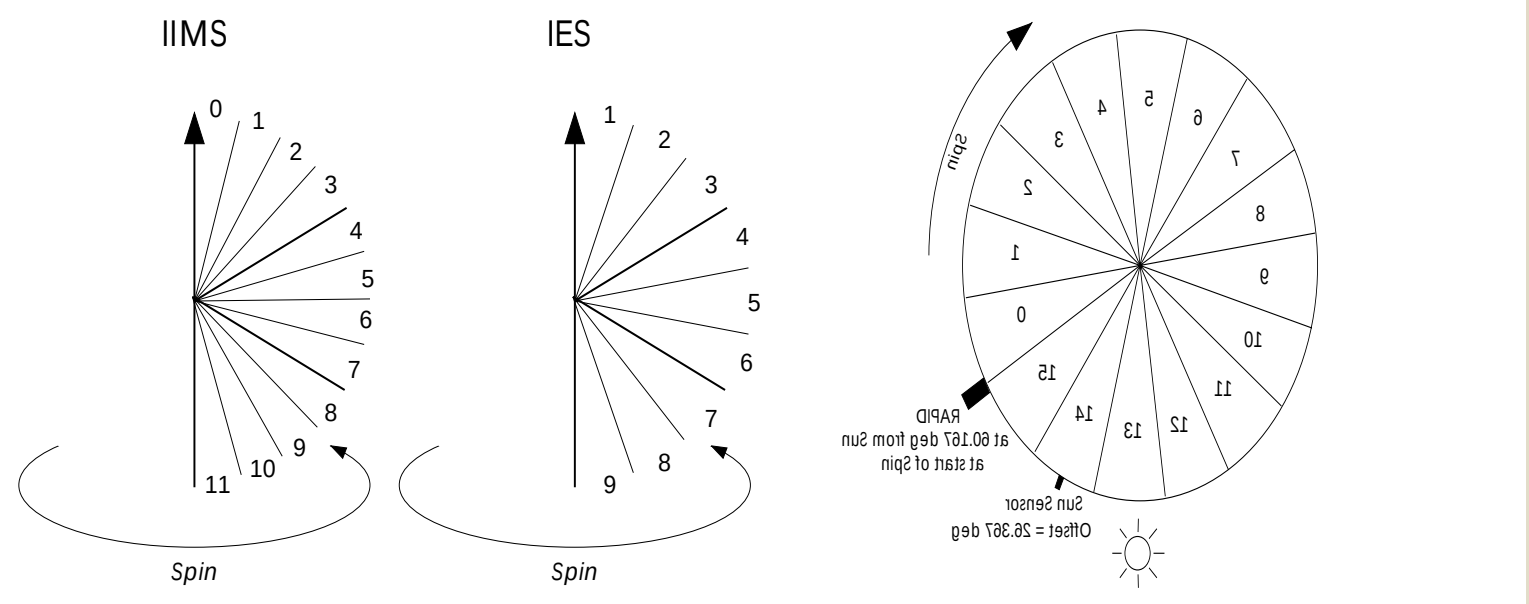

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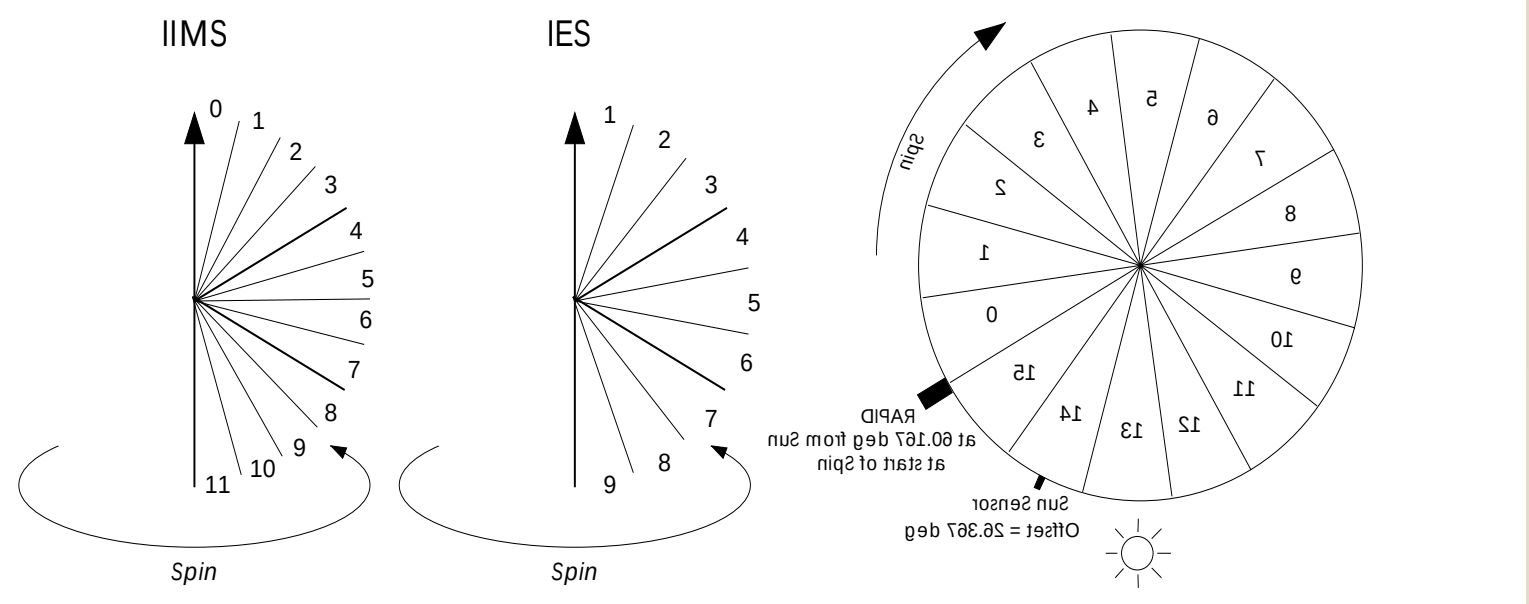

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- TeXPower by Stephan Lehmke and Hans Fr. Nordhaug
- Beamer by Till Tantau, very powerful and ambitious collection.

Overlays in PDF

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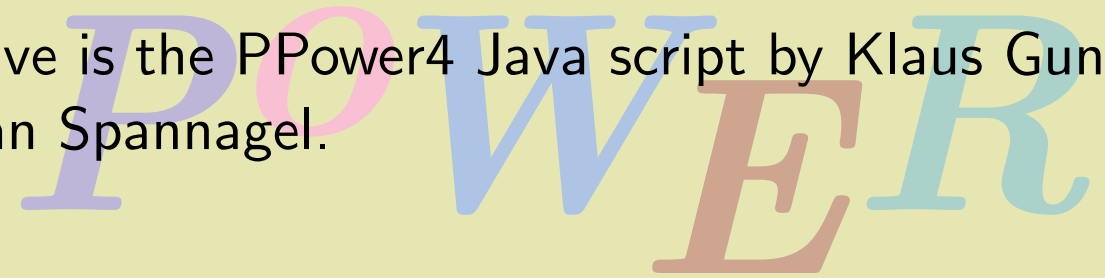
- With it, lists are build up successively, but also figures can be embellished with arrows, indicators, or alternatives.
- In a PDF file, this is done by breaking one page up into several.
- The previous classes try to do this by generating the one page several times, with and without the varying text.
- This requires some tricky internal programming, to get the missing text participating in the positioning calculations

PPower4

An alternative is the PPower4 Java script by Klaus Guntermann and Christian Spannagel.



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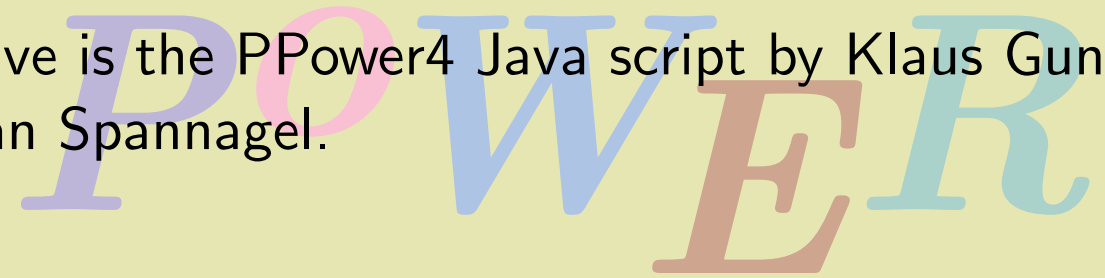

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```
\usepackage{pause}
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1. Produce the LaTeX file with the special `pause` package.
2. Add the command `\pause` wherever a break is to occur

```
\textbf{List of Important Things}\pause
\begin{enumerate}
  \item This is the first\pause
  \item This is the second\pause
  \item This is the absolutely most important
   thing\pause
\end{enumerate}
```

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2. This is the second
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1

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2. Add t to occur
3. Gener
4. Run the Java script on that file, to produce a new PDF file with page breaks.

```
ppower4 demo-pp4.pdf out.pdf
This is PPower4 version 0.9.4
[1]
Writing modified output file...
Done.
```

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This produces the following output:-

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It appears only on the last view because it is set after the last \pause statement.
To control this, one can set the level number explicitly.

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\textbf{List of Important Things}\pause
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  \item This is the first\pause
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  \item This is the absolutely most important
   thing\pause\pauselevel{=1}
\end{enumerate}
```

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It appears only on the last view because it is set after the last \pause statement.
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This results in:

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List of Important Things

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List of Important Things

1. This is the first

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RAPID Particle Spectrometer

RAPID actually consists of two sets of spectrometers:

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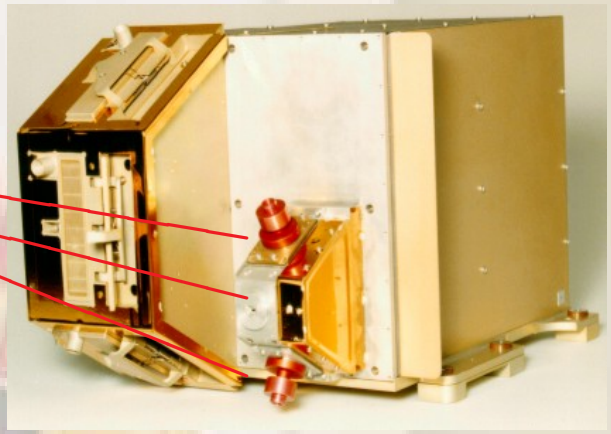

T
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RAPID Particle Spectrometer

RAPID actually consists of two sets of spectrometers:

- one for ions
- one for electrons.

Each set contains three units, each covering 60°, for a total of 180° in one plane.

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This example was produced with code:

```
% Left hand minipage with text
\begin{minipage}[c]{0.4\textwidth}
RAPID actually consists of two sets of spectrometers:\pause
\begin{itemize}
  \item one for ions \pause
  \item one for electrons.\pause
  \end{itemize}
Each set contains three units, each covering 60\deg, for a
total of 180\deg\ in one plane.
\end{minipage}\qquad
```

```
% Right hand minipage with figure
\parbox[c]{0.5\textwidth}{%
\setlength{\unitlength}{0.01\linewidth}
\begin{picture}(100,72)
  \pause\pauselevel{=1}%
  \put(0,0){\includegraphics[width=\linewidth]{rapid}}
  \pause\pauselevel{:+0}
  \put(15,57){\color{Green}\line(-1, 0){58}}
  \put(10,40){\color{Green}\line(-4, 1){53}}
  \put(18,10){\color{Green}\line(-3, 2){61}}
  \pause\pauselevel{:+0}
  \put(40,09){\color{Red}\line(-5, 2){65}}
  \put(40,22){\color{Red}\line(-4, 1){65}}
  \put(40,32){\color{Red}\line(-6, 1){65}}
\end{picture}}
\pause\pauselevel{=1}
```

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```
\hypersetup{pdfpagetransition={Split /Dm /H /M /I}}
```

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4)

```
\Replace
\Dissolve
\VBlinds
\HBlinds
\HOSplit
\VOSplit
\VISplit
\OBox
\IBox
\Wipe{angle}
\pageTransitionGlitter{angle}
```

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  - in the `pagetrans.tex` file (supplied with PPower4)
  - and with `\pause`*`trans`* commands in the `pause` package

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package

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Advantages and disadvantages of a Post-Processor

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Pros and Cons

Conclusion

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- PPower4 is an excellent tool for adding overlay and transition effects to any LaTeX document.
- But if a class like Beamer can do that just as well, then one may have to reconsider.

The Beamer Class

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- (Which explains why I missed it when preparing the 4th edition of the *Guide to LaTeX*.)

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Outline

Why LaTeX?

Presentation needs

Pre-pdfTeX

Recent solutions

Beamer

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article	a regular LaTeX article

Main features

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  Things like sidebars, header, footlines, navigation bars can be separately turned on/off, with various options, or reprogrammed at a lower level, but also with *objects*.
- Many useful and attractive *themes* are preprogrammed.
  Themes are named after cities; this one is Ilmenau, a variation on Berlin.
- All requirements are fulfilled: large fonts, overlaying, transitions, backgrounds, selective processing
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There are alternate ways to uncover a list:

1. This is the first
2. This is the second
3. This is the absolutely most important thing

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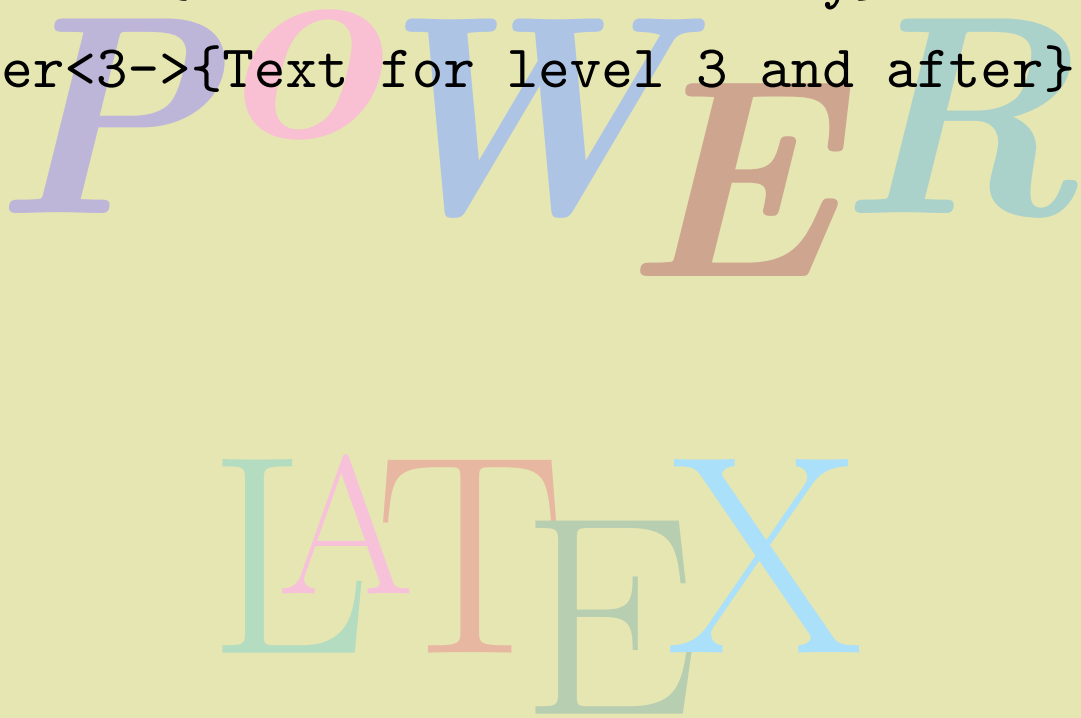
- `\uncover<3->{Text for level 3 and after}`



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- and the increment can even be made to be a default with

```
\begin{itemize}[<+->]
 \item ...
\end{itemize}
```

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