How to Present a Physics Talk

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Start with a “title” slide

"Piezoelectric Sensors"

Presented by <Names of Team Members>
Department of Physics • University of Illinois at Urbana-Champaign
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The title slide cues the audience “Get ready to listen”
Include an interesting graphic to grab their attention
Your PHYS 398DLP talk should address the following points:

- Identify the device
- Explain what it does
- Specify what information it will provide
- Describe how you will use this information
- Explain the underlying physics (principle of operation) of the device
- Discuss any problems you might have in deploying it and how you will mitigate them
- Summarize everything in your final slide

TIP: Use this paradigm to organize your presentation
How many slides should you prepare? (refer to the Elliott equation)

\[ S = \frac{t}{2}, \]  

[1]

A good “rule of thumb” is to allow about 2 minutes per slide

Allow more time for equations, complex plots, complicated figures, tabular data
Allow at least 2 min* per slide

Do the math:

15 min total – 3 min for Q&A = 12 min for “talk”

\[
\frac{12 \text{ min talk}}{2 \text{ min/slide}} = 6 \text{ slides max}
\]

6 slides – title slide – summary slide = 4 slides

*Tip: You cannot show 44 slides in a 15-min presentation, no matter how fast you talk
How do you divide up your four slides?

1. Identify the device and explain what it does

2. Specify what information it provides and how you will use the information

3. Explain the physics

4. Discuss anticipated problems and how you will mitigate them
The last slide should be a summary that recaps the main points of your talk

To recap...

Piezoelectric sensors will be used to measure pressure

Insensitive to EM fields and radiation

\[ C_x = d_{xy} F y_b / \alpha \]

Will have to mitigate for vibration

Put your contact information on the last slide
Don’t use a pointless last slide

QUESTIONS?
The last slide will get the longest audience exposure—make it count!*

To recap...

Piezoelectric sensors will be used to measure pressure

Insensitive to EM fields and radiation

\[ C_x = d_{xy}Fy_b/a \]

Will have to mitigate for vibration

*Celia M. Elliott
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*Reiterate your important points and stimulate audience questions
Use a simple sans serif font

Serif fonts don’t project as well, because the narrow parts tend to fade away

Eschew weird fonts

Use one main font color, and, at most, one contrasting font color for emphasis

Use mixed upper and lower case for text—WRITING IN ALL CAPS LOOKS LIKE YOU’RE SHOUTING (and it’s much harder to read—and proofread!)
Choose a neutral background and a high-contrast color for the text

Use a light-colored background with dark text

Use a dark background with light text

This isn’t high-enough contrast

Neither is this

Don’t ever put red on blue

Or blue on red

And avoid using gradient fills, too
DO replace the content-less PPT “title” with a meaningful motivating statement

Tip 1: Write the statement as a sentence and left-justify it

Tip 2: Turn off the “auto-correct” feature in PPT that reduces the font size if you exceed the number of characters MS thinks you should have on a line

Results

IV curves showed an increase in resistance with Joule heating

Plot courtesy Thomas Hymel
**DO** use the SEEE method to present your ideas effectively

- **State** your main point
- **Evidence**
- **Example**
- **Explanation**

**What are slip avalanches?**

BMG deforms with intermittent slip avalanches

Previous work: Statistics of slip avalanches in BMG can be described using a mean field model

Mean field model: All cells are coupled equally
Don’t use photographic or “fill” backgrounds

Yes, it’s Illini Orange, but nobody can read the text

They’re distracting
They make your text too hard to read
They get boring after the first two or three

Even if your talk is about koalas
Even if it’s on hydrophobic materials

Even if you think it looks really cool

Just don’t do it!
Don’t use one of the PPT templates
They take up too much real estate with meaningless graphics
They force you to devote 25% of the slide to the “title”
They trivialize your message by promoting style over substance
Many are just butt-ugly
Turn off the unless you’re presenting an actual list

Status of Projects

HEP at ANL

Theory
- Connection with UC through Carlos Wagner (appet) has brought two thesis students to
- New Assistant level theorist (Tim T)
- 7 international workshops organized
    - Broad participation by students
- Active work on organizing international workshops held every year
- Physics highlights

Accelerator Drive
- Basic operation of electron micropulse wakefield acceleration with single sub-nanosecond-pulse laser beams and operation of accelerators for 100 MeV in 1m
- The new gun has required a major upgrade of their facility, especially the electron gun and laser system
- High power tests of externally powered dielectric loaded waveguides in collaboration with Naval Research Laboratory
- 2 new physics processes affecting electron acceleration discovered (and published)
Presenting your talk...

KNOW your material (best way to overcome stage fright)

Rehearse!
  Say the words out loud
  Practice your timing
  Okay to write out words ahead of time, but practice until you can speak naturally

Look at the audience—don’t turn around and read off the screen

Point out features using a laser pointer, not your finger
To recap...

Six slides—title, four “content” slides, summary

Recap your talk on your summary slide to remind the audience of your main points and stimulate questions

Keep it simple—neutral background, high-contrast text, sans serif font

Use a motivating statement at the top of each slide and turn off the bullets

Rehearse—out loud, in real time—until you can say your part naturally and effortlessly while maintaining eye contact with the audience

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