How to Make and Deliver a Presentation

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Why do we give presentations?

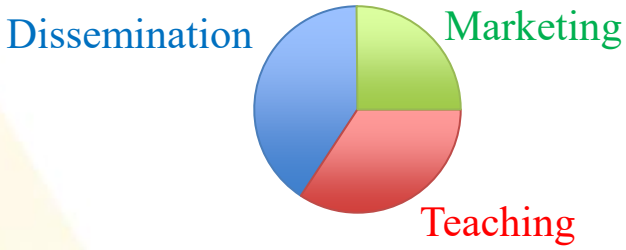
To disseminate our research results

To teach others — *A scientist is always teaching*

To market ourselves — *A scientist is also a salesman*

Relative emphasis changes with context:

APS Talk ≠ Colloquium ≠ Job Talk



My estimates.
Others may differ.

A Good Presentation Comprises…

Clarity: Organizational, Visual, Oral

Content: Include only the necessary

Delivery: Slides are a prop to your speech

When you start, follow the rules

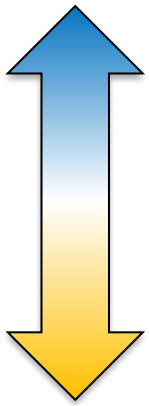
(Experts will sometimes break the rules for effect)

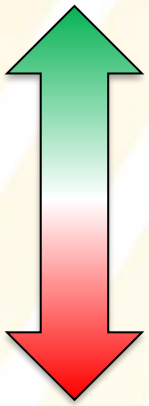
Consider Your Audience

The cardinal rule: *Never overestimate your audience*

If they don't understand, no one will remember it or ask any questions.

Audience knowledge	Audience	Introduction
More	Specialists (e.g., magnetism)	Less
	Subfield experts (e.g., cond. mat.)	
	Physicists (e.g. plasma, astro)	
	Graduate students	
	Undergraduate students	
Less	General public	More





Get Organized

1. Motivation:
    a) Why should the audience listen to you?
    b) Establish the context of your research question.

2. Spoil the punchline: Give the final results right away.

3. Background: Cover only that necessary to understand your novel results.

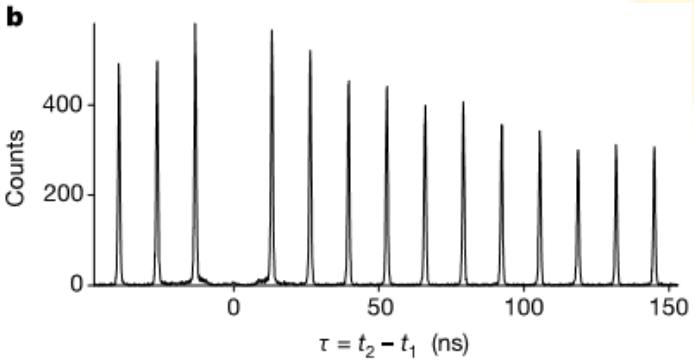
4. Data and Analysis:
    a) Present data clearly
    b) Describe how/why the conclusions were made.

5. Conclusion(s): Tell ‘em what you told ‘em.
    Describe potential future work

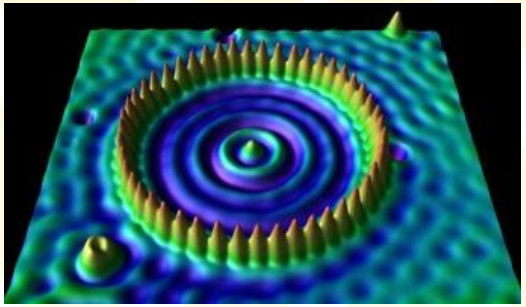
Make an outline, but don’t show it. (usually)

Slides add what speech cannot

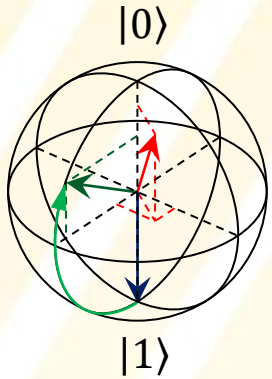
Graphs and plots



Pictures



Diagrams



Additional information pathway (visual vs. auditory)

A persistent explanation (audience can review earlier points)

Things to Do

Start right: Get the WVU template at https://brand.wvu.edu/

Modify the template: View → Master Views → Slide Master → Scroll up to 1st slide to modify

Make it clear: Large fonts – nothing smaller than 16 point

Use contrasting colors

Black on white

White on black

Not like these → Yellow on white

Blue on black

Make it pretty: Use "snap to grid"
View → Show → little box/arrow thing

Animate slide components

Very important

~~10 Lorem ipsum~~
~~12 Lorem ipsum~~
~~14 Lorem ipsum~~
16 Lorem ipsum
18 Lorem ipsum
20 Lorem ipsum
24 Lorem ipsum
28 Lorem ipsum
32 Lorem ipsum

Things to Avoid

No outline (unless your talk is 30+ minutes)

No bulleted lists (but remember, experts can break the rules)

Don't *just* read from your slides

Few full sentences

Experimentalists: no photos of apparatus (diagram if necessary)

Theorists: at most one equation per slide; explain all terms

Bad Slides Obfuscate

Source: Optics & Photonics News
March 2011, pg 12

Title gives the "what" but lacks the "why"

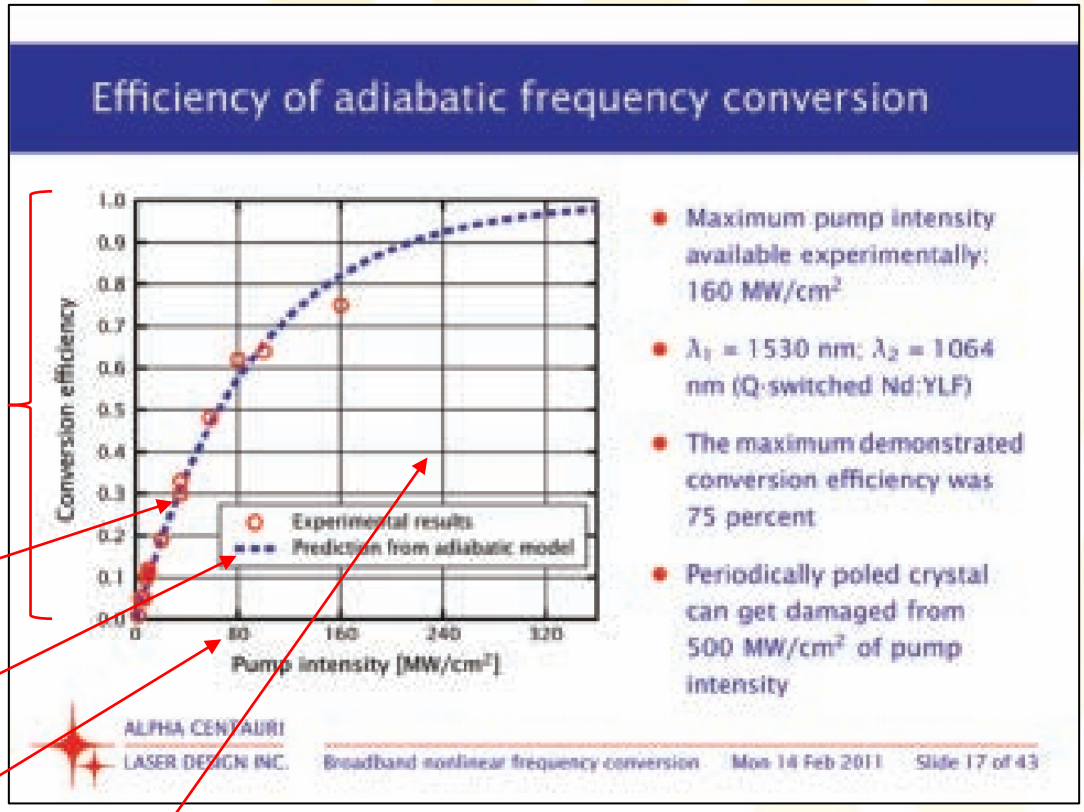
Too many ticks/values

Why open circles?
Why dashed line?

Legend superfluous

Unusual values

Unnecessary grid



Bullets not a list (sentences and fragments)

Item locations give no information

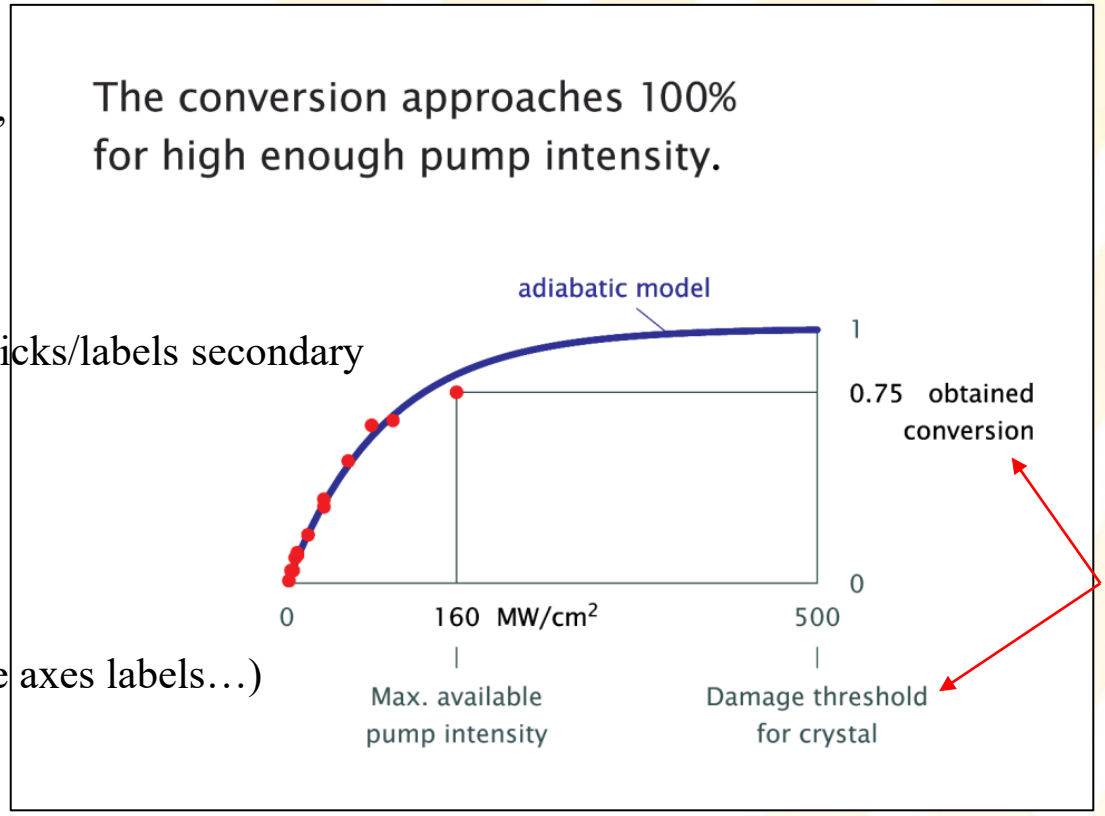
Good Slides Illuminate

Source: Optics & Photonics News
March 2011, pg 12

Title gives the message, the "why"

Data prominent, axes/ticks/labels secondary

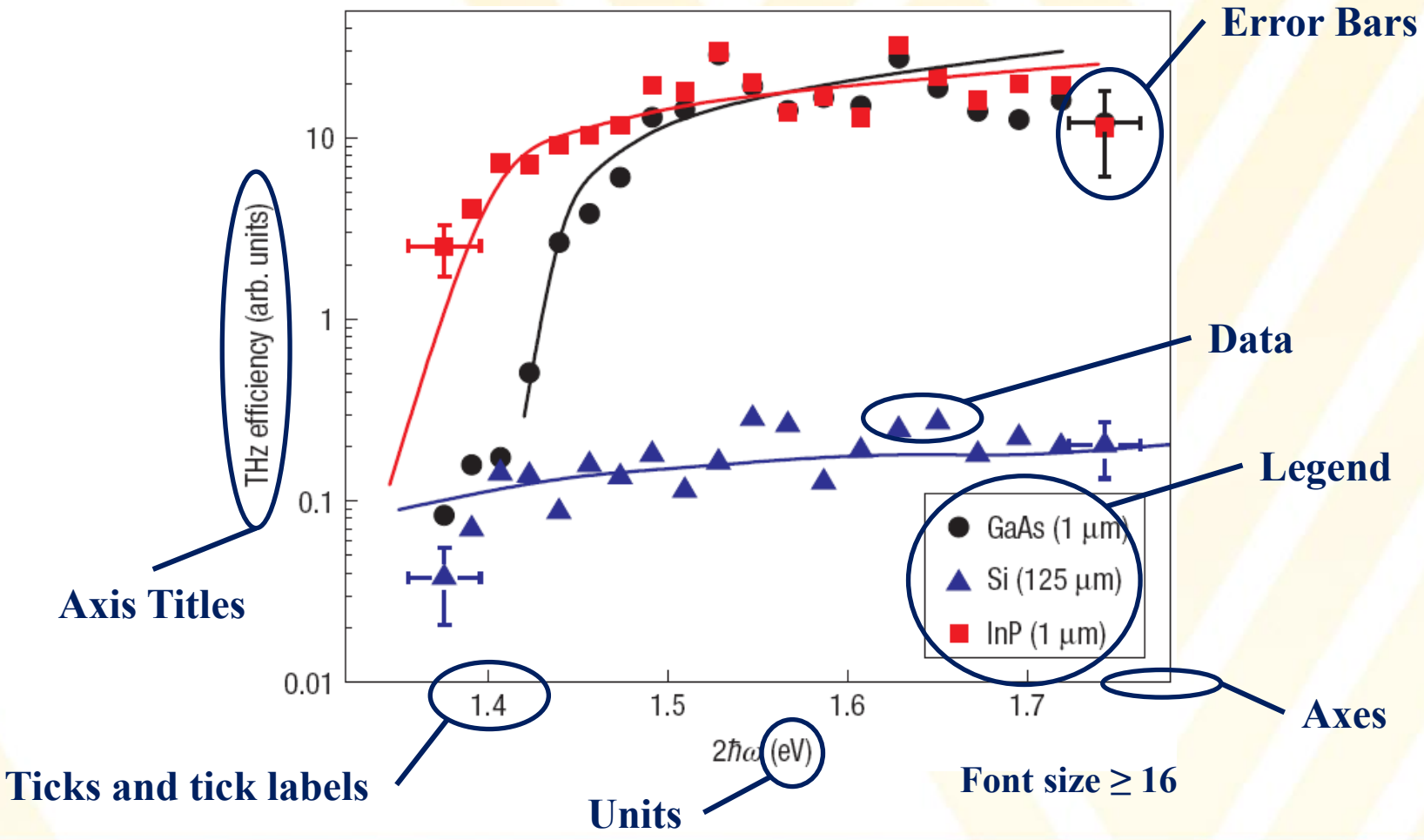
(Maybe should have axes labels…)



Information placed at relevant locations

A graph for a presentation has different qualities than a graph for a paper.
Avoid using the same figures.

Check that your graphs contain…



Delivery adds what a slide cannot

Enthusiasm!

Interaction with audience

Words spoken ≫ words on slide

Speaker gives context and addn'l info.

Faster info transfer than a paper

Practice, Practice, Practice

1. Alone, silently
2. Alone, out loud
3. Alone, video yourself
4. In front of labmates/friends
5. In front of research group, including professors

Write a script
(especially if non-native English speaker)

Time yourself: e.g. 10 mins for APS-style, 2 mins for questions

Be aware of distracting behaviors:
- Fidgeting
- Um, uh, ah, etc.
- Excessive laser pointer use, or wiggling

Check that you have good behaviors:
- Eye contact with whole audience
- Body turned toward audience
- Steady, stable laser pointer use

The Five Kinds of Questions

	Question	Response
90% of questions	Request for Clarification	Re-explain
	Request for Further Information	Give more details
	Request for Speculation	Apply same principles to different system.
	Request for Comparison	Probe for misunderstanding. Note similarities/differences.
	Not a question (Rare)	Offer thanks and move on. You have the floor, not them.

How to Answer Questions

The cardinal rule: *Don't answer the wrong question*

Misunderstanding the question  Most difficulties in answering

1. Repeat back the question
2. Ask them to clarify the question
3. Offer to discuss afterward

Oral Qualifier Questions

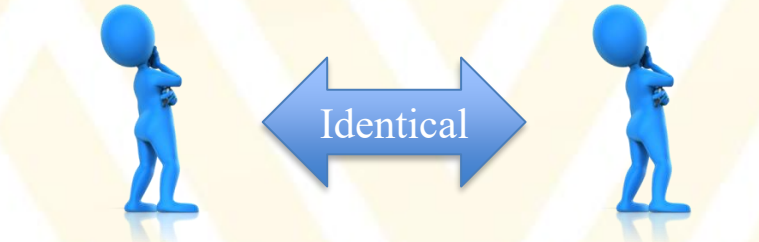
Different purpose than conference questions

Committee wants to:
- Test your knowledge
- See your analytical skills in action

The questions are simpler than you think

Work it out step by step

In speech or on the board
Don't stand thinking silently



Pondering quietly

Frozen brain panicking

Start from the basics

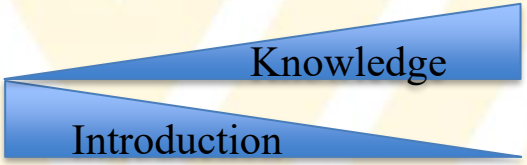
Work toward the answer from a more basic point.
Don't guess; don't wrack your memory.

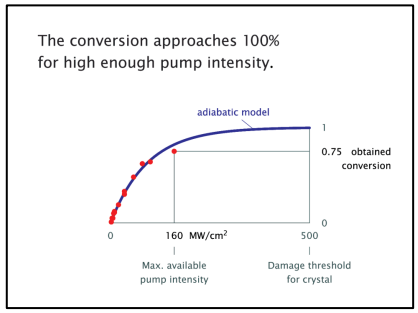
Summary

Clarity Content Delivery

Never overestimate your audience

Err to this side





Construct illuminating slides

Practice, practice, practice

Observe others (both good and bad)

Break the rules when necessary