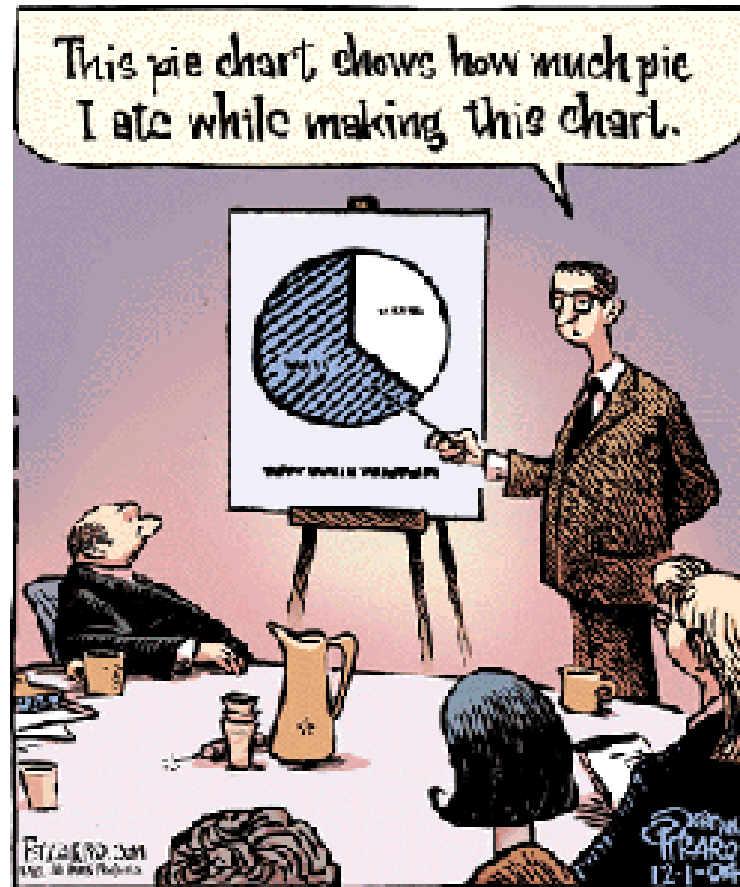


Organizing a ~30-minute prelim/final talk



The Oral Presentation for the Prelim or Thesis



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www.phdcomics.com

How Do You Start Drafting Your Presentation?

**First, draft an outline for
your presentation!!**

Example organization of ~30-minute prelim talk

Background and Introduction (7–9 minutes)

⇒ 5–6 slides

- ~1 Title slide - Your name, advisor's name, research title
- ~1 Outline slide – Organization of talk
- ~1 Overview slide – Why is this research important?
- ~2-3 Background slides – Provides essential background for non-experts

Methods and Preliminary Results (7–9 minutes)

⇒ 5–6 slides

- ~2-3 Methods slides – Theoretical/experimental methods used
- ~0-3 Preliminary results slides – Proof-of-principle results

Example organization of ~30-minute prelim talk

Proposed Research (10–12 minutes)

⇒ 5–6 slides

~1-2 slides per proposed project

Summary and Acknowledgments (1-2 minutes)

⇒ 2 slides

1 Summary slide - Review the main points

1 Acknowledgment slide – Acknowledge collaborators, funding agencies, helpful colleagues/staff, etc.

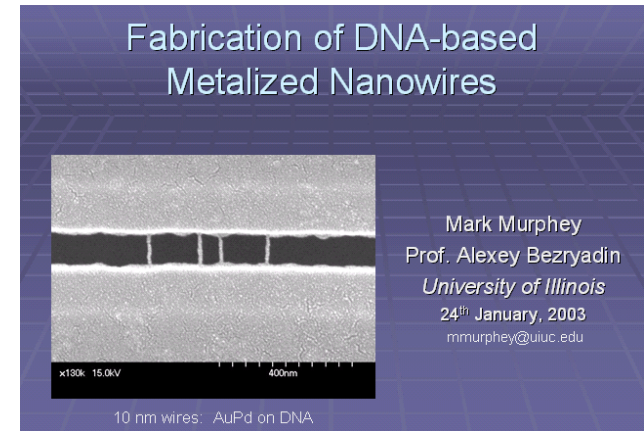
Questions

⇒ 3–N back-up slides – Anticipate questions that might arise

The title slide and outline prepares the audience to listen and shows organization of talk

Title slide

Your name and affiliation
Your advisor
Venue and date
Attention-getting graphic



Outline or overview of presentation

Prepares the audience to listen
Provides a logical structure for your talk
Provides motivation and context
Summarizes key points (limit to two or three for a ~30-minute talk)



The “body” of your presentation is the intellectual content of your talk

Problem statement, motivation

Previous work, essential background info

Methods

Results and Discussion

Proposed work (prelim)

What's this all about?

- **Quark Gluon Plasma (QGP)**
 - hypothesized state of deconfined quarks and gluons
 - expected in the early universe, big-bang stage

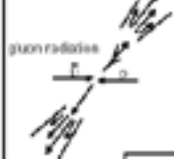


– this represents a phase change

pp vs A-A collisions

hard-scattered particles from pp coll.

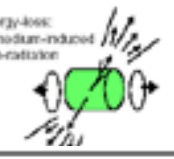
cons of hadrons



hard-scattered in the initial A-A coll.

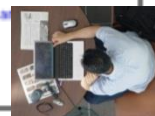
hadron production enhanced?

Energy-loss: increased medium-induced gluon radiation



High p_T

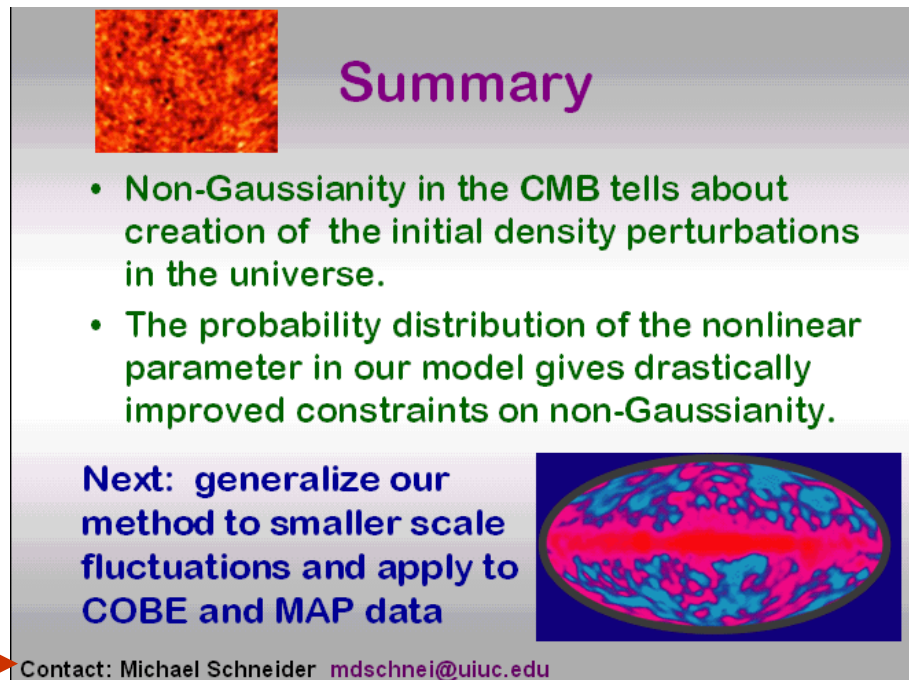
- Hard-scattering occurs at earliest times during a high-energy nuclear collision
 - well before QGP is expected to form (equilibrate)
- These “fast” scatterers will experience the strongly interacting medium created in the collision
- They will lose energy in the hot, dense medium (by **gluon bremsstrahlung**) and their outgoing energy distribution will be modified downward
- Net effect, depletion in yield of high p_T particles compared to p-p case
- The game is then to make the comparison ca



Provide a “summary” slide

Recap key preliminary results

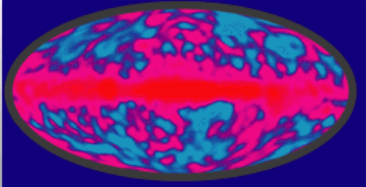
Reiterate proposed projects



Summary

- Non-Gaussianity in the CMB tells about creation of the initial density perturbations in the universe.
- The probability distribution of the nonlinear parameter in our model gives drastically improved constraints on non-Gaussianity.

Next: generalize our method to smaller scale fluctuations and apply to COBE and MAP data



Contact: Michael Schneider mdschnei@uiuc.edu

The slide features a purple title 'Summary' next to a small orange and red textured image. Below the title are two green bullet points. Further down, there is a blue text block with the text 'Next: generalize our method to smaller scale fluctuations and apply to COBE and MAP data' and a colorful CMB fluctuation map. At the bottom left, there is a blue text block with contact information. An orange arrow points from the left edge of the slide towards the contact information.

This slide will probably stay on the screen during the question period and will thus get the longest audience exposure—make it count!

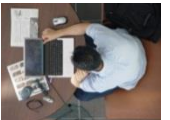


Tips for preparing your talk

Adjust the presentation to your audience! Your committee are not all experts...make sure you have sufficient background to orient all members

You don't have to tell the committee everything about your research: Identify the 2-3 main points you can reasonably convey in a 30-minute talk

Create an outline of your talk, i.e., have a logical organization: You can use the same outline as used for your prelim paper



Tips for preparing your talk (cont.)

Have only 1 idea per slide


Use the header to state the main idea of the slide, and use the body of the slide to support that idea

Use well-labeled graphs and figures to illustrate your key points...this makes the slide more real and interesting to the audience

Avoid too much text....


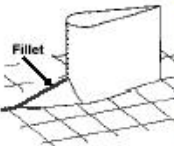
Filletlets reduce leading edge vortices in nature and in engineering

Fillet on dorsal fin of shark




Filletlet

Fillet on Seawolf submarine



[Devenport et al., 1991]



Literature Review

- Hefner developed a dynamic model of the thermal behavior of a temperature-dependent IGBT device. The model is expressed in terms of the instantaneous power dissipation and the thermal capacitance of the silicon chip. The model was used to simulate the thermal behavior of the SABER circuit simulator.
- Adams and Hefner investigated the interactions between the heat sources, sinks, and thermal capacitance of the walls and surfaces. The model determines which physical effects and level of detail are needed to accurately predict the thermal behavior of discretely heated enclosures.
- Chen, Wu and Hefner are modeling of thermal and electrical behavior using several commercial softwares (I-DEAS, Maxwell, Flotherm and Saber) and 3-D, transient approaches.

Too many words

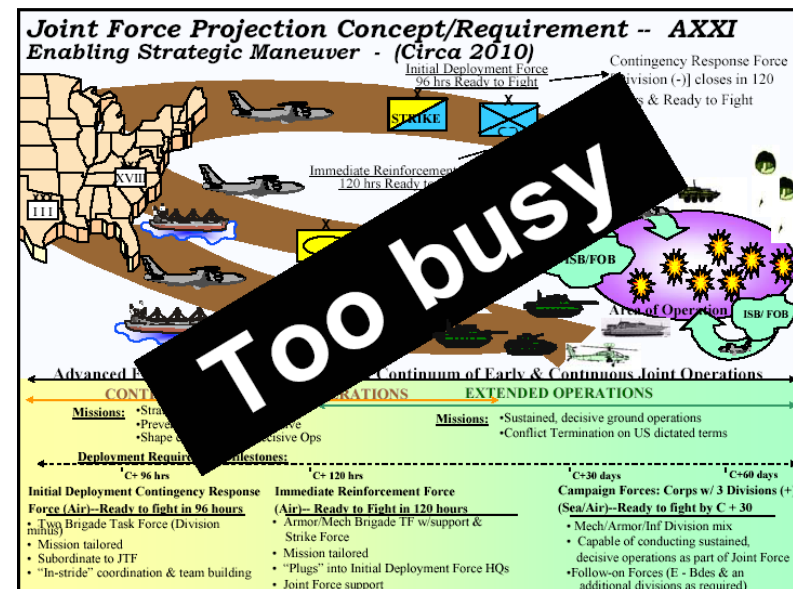
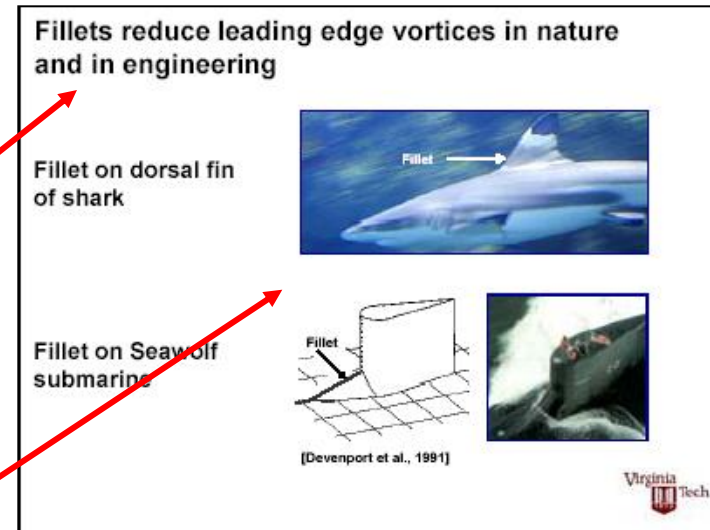
Tips for preparing your talk (cont.)

Have only 1 idea per slide

Use the header to state the main idea of the slide, and use the body of the slide to support that idea

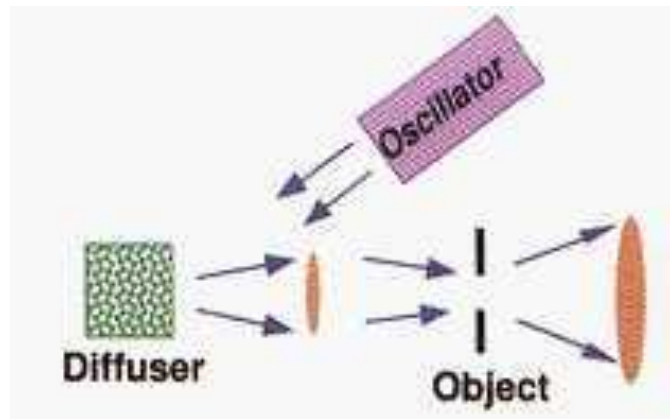
Use well-labeled graphs and figures to illustrate your key points...this makes the slide more real and interesting to the audience

....or too many distracting images

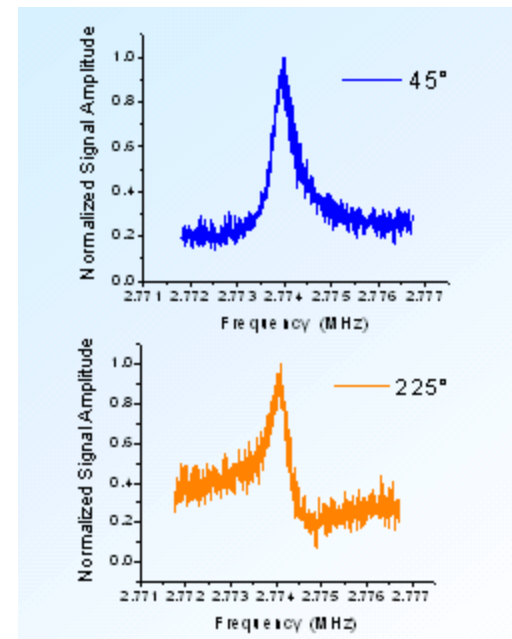


Label all elements in a figure

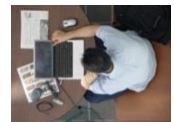
- Point out important features
- Label both axes of graphs and show units
- Provide a brief caption
- Give credit to source



The Nike laser system uses discharge pre-amplifiers.
(Courtesy US Navy)

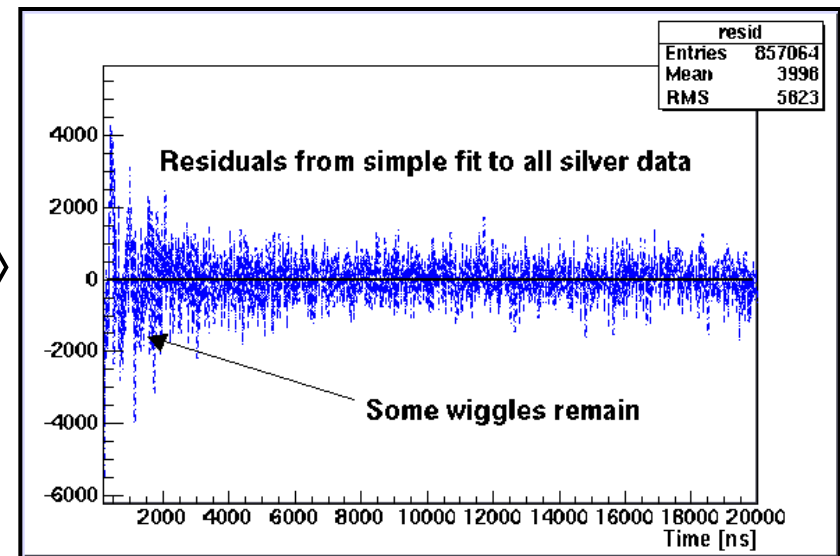
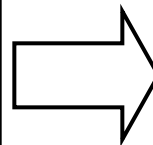
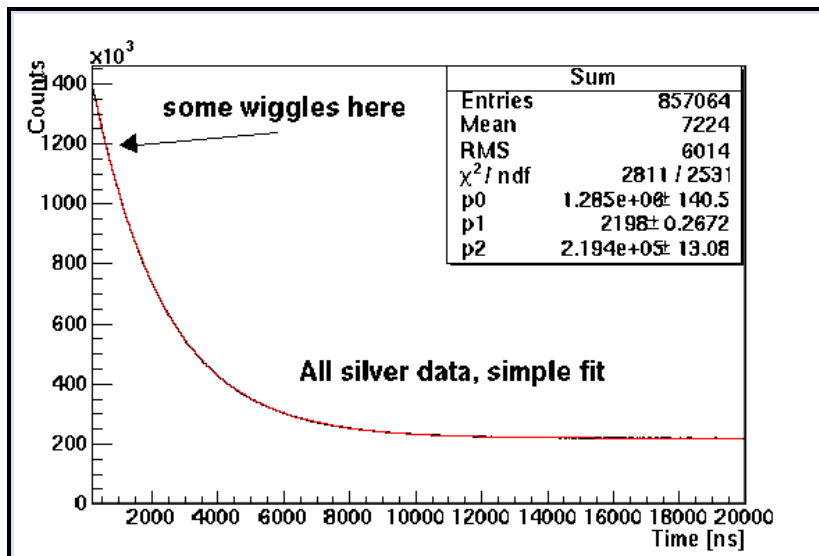


Sample normalized signals from the two-beam optical drive.
(Courtesy C. Michael)



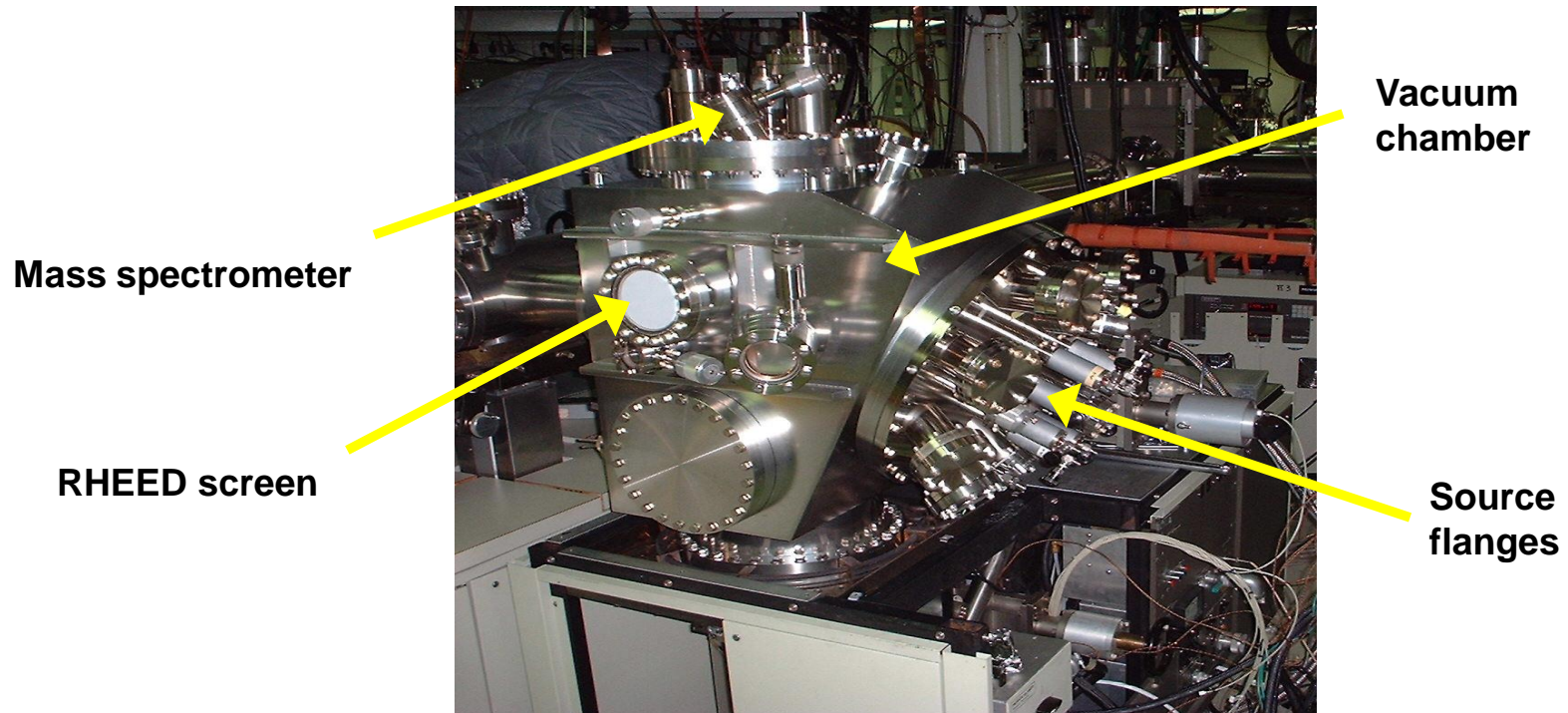
Presenting data is your most important and challenging task

- Avoid copying a graph from a formal article – they have a different style, **e.g., labels are too small**
- Use color and make lines thick, labels legible
- Label axes and annotate important points with arrows and add words
- Use tables sparingly – if used highlight important parts



Show the equipment **IF** it helps as part of your proof – **but sparingly**, not just because you love it

- **Photographs** give scale and reality – but add labels
- **Schematics** provide concept
- **Diagrams** strip away unnecessary details
- **ALL OF THESE** can be useful in combination



Use equations sparingly

Use equations only when necessary

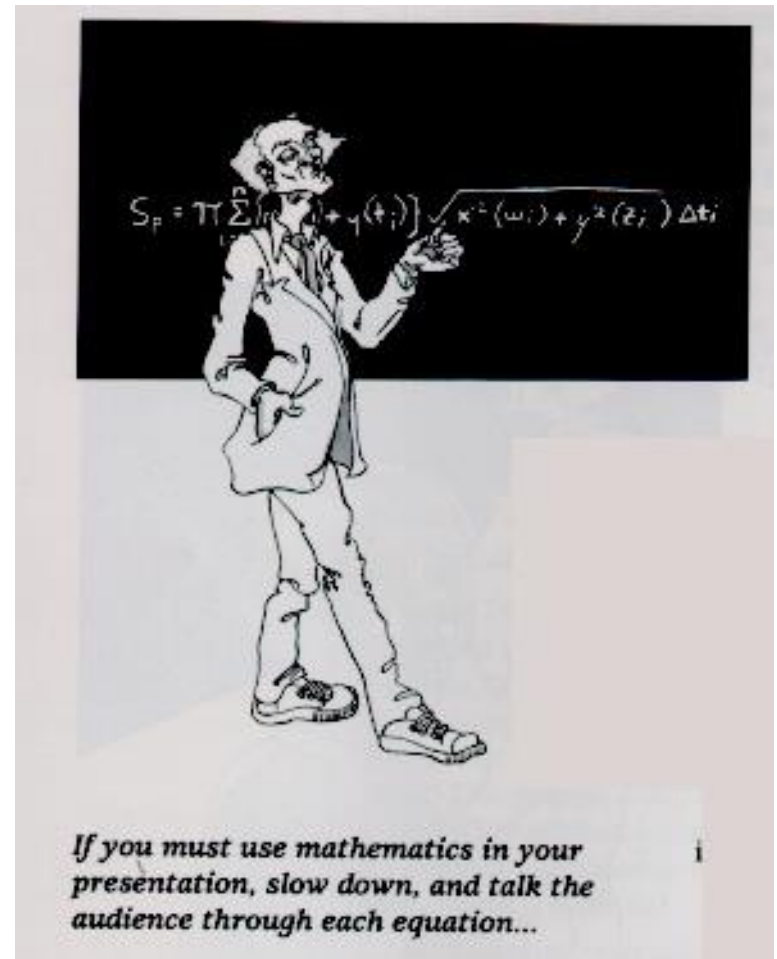
If you use equations

Slow down

Talk through step by step

Explain relevance

Combine with a picture that illustrates the physical principle involved



The Radiative Transfer Equation

$$\frac{dI}{ds} = -In(q_a + q_s) + \mathfrak{S}$$

Number of Photons

Density of Dust Grains

Distance Traveled

Absorption Coefficient

Scattering Coefficient

Source Function

(from geometry and composition of dust grains)

The diagram shows the equation $\frac{dI}{ds} = -In(q_a + q_s) + \mathfrak{S}$ with several labels and arrows. 'Number of Photons' has two arrows pointing to 'I' and 'n'. 'Density of Dust Grains' has an arrow pointing to '(q_a + q_s)'. 'Distance Traveled' has an arrow pointing to 'ds'. 'Absorption Coefficient' has an arrow pointing to 'q_a'. 'Scattering Coefficient' has an arrow pointing to 'q_s'. 'Source Function' has an arrow pointing to '\mathfrak{S}'. Below the equation, a note states '(from geometry and composition of dust grains)'.

Requirements to solve analytically:

- n is a constant
- $q_a = 0$ or $q_s = 0$

We want turbulent clouds. n is not a constant

Remember, your goal is to convey your ideas, so avoid distracting text and effects!

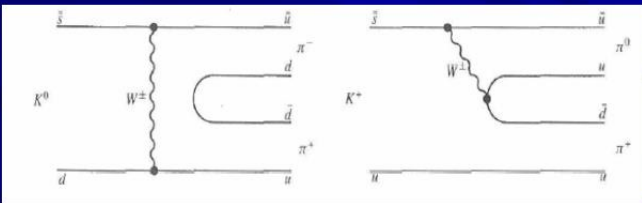
Don't overuse PowerPoint animations and sounds!

Make sure there is good contrast between text and background

Use simple (or no) backgrounds on slides

CP

- Parity invariance fails, combine it with charge conjugation to create a new invariant
- Converts the right-handed anti-neutrino into a left-handed neutrino- exactly what we observe in nature
- Neutral kaon experiment



The image shows two Feynman diagrams illustrating the decay of neutral kaons. The left diagram shows a K^0 meson (quark-antiquark pair $d\bar{u}$) decaying into a W^+ boson, which then decays into a π^+ meson ($u\bar{d}$) and a π^0 meson ($u\bar{u}$). The right diagram shows a K^+ meson (quark-antiquark pair $u\bar{s}$) decaying into a W^+ boson, which then decays into a π^+ meson ($u\bar{d}$) and a π^0 meson ($u\bar{u}$).

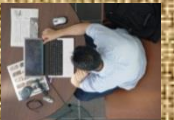


Eschew weird fonts

Don't use *calligraphy*
or serif fonts

USE THE SAME FONT
THROUGHOUT THE TALK

Make all text at least 20 pt



Use “normal” colors

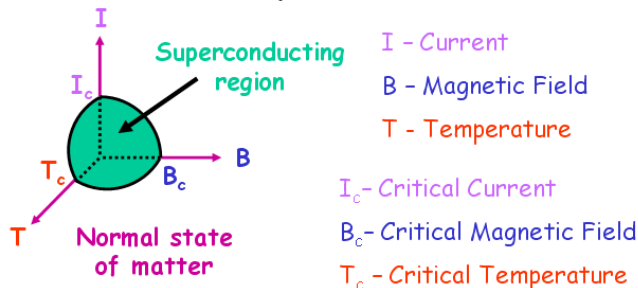
DON'T use red/green or red/blue as contrasting colors

Make sure colors looks the way you expect using an LCD projector!

Avoid neon colors and pastels

Don't use many random colors; people expect color to *mean* something

Superconductivity is an electronic state of matter that exists below certain currents, magnetic fields, and temperatures.



Strive for easy reading

Strive for easy reading


Strive for easy reading



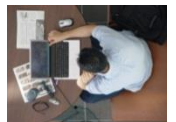
“Embed” special fonts in PPT

The Strickler-Berg relation opens the door for comparing measured spectral quantities

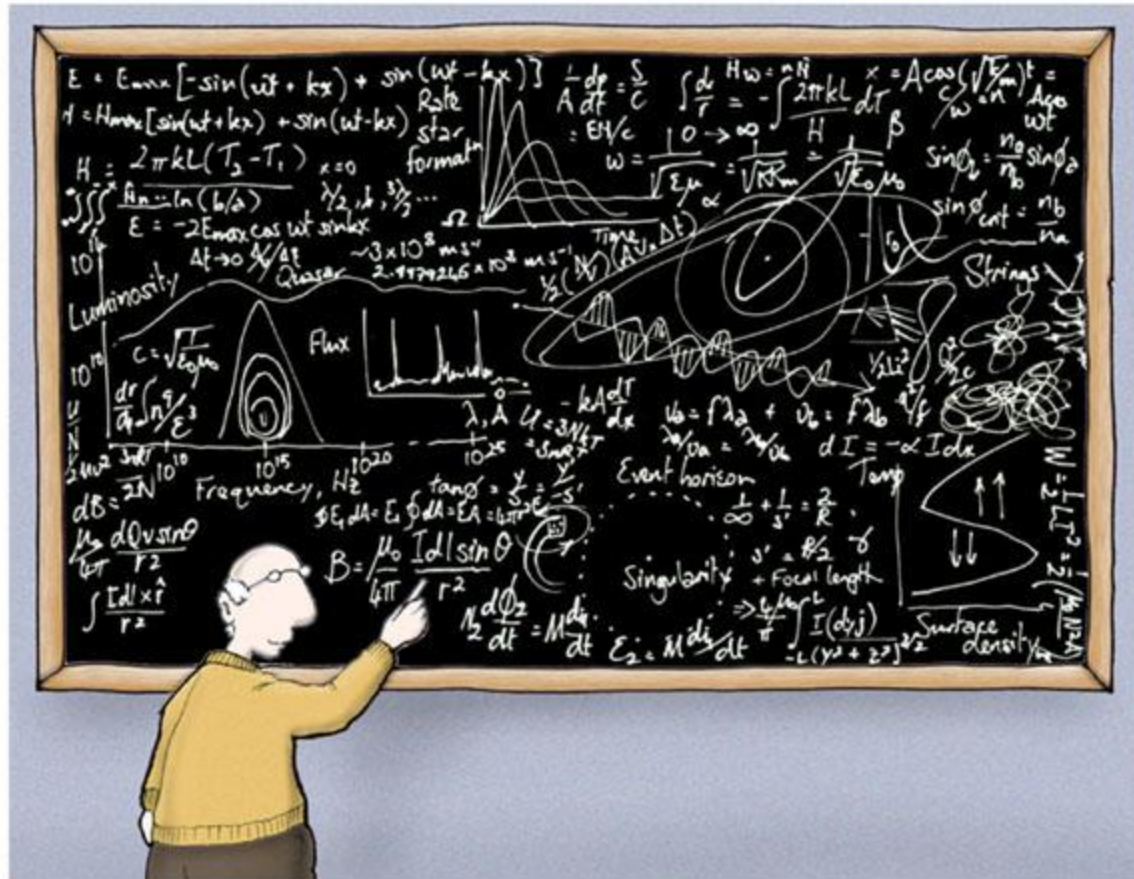
Strickler-Berg Relation

$$\frac{1}{\lambda} = (2.88 \cdot 10^{12}) * (n^2) * [\lambda^3]^{-1} * \frac{I(\lambda)}{d}$$


- (1). Open the document in PowerPoint
- (2). Click on the "Tools" tab on the top menu
- (3). Click on the "Options" link
- (4). Click on the "Save" tab
- (5). Locate “Font options for current document only” and “Embed TrueType fonts”
- (6). Click in the check box to turn on the option



Tips for presenting you prelim/final talk



Astrophysics made simple



Pointers for giving the best possible talk:

Maintain eye contact with audience

Don't stare at screen or monitor

Do not read your talk!

Avoid nervous mannerisms

Pacing, bobbing, waving arms, jingling coins

Use laser pointer or stick directed at screen

Don't point directly at overhead or projector

Don't block the screen

Train yourself to speak slowly and distinctly— practice!

Avoid “fillers”: “uh”, “like”, “um”, “okay”

Be enthusiastic!

If you don't act excited by your results,
don't expect the audience to be!



Pointers for giving the best possible talk:

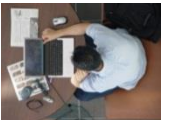
Don't show any material on slides (e.g., figures, equations, text, etc.) you can't explain!! This will invite questions you don't want!!

Rehearse how you'll end your talk

Don't end with "Well, I guess that's it..."

Don't just stop and let the committee guess that you're done

Thank the audience!



The best way to prepare for a talk is to Know Your Material

Practice, practice, practice

**Focus on communicating,
not performing**

Humor is good, but don't overdo it

Keep explanations simple

Prepare key phrases and words

It's okay to write out material first

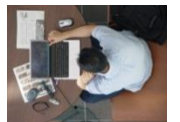
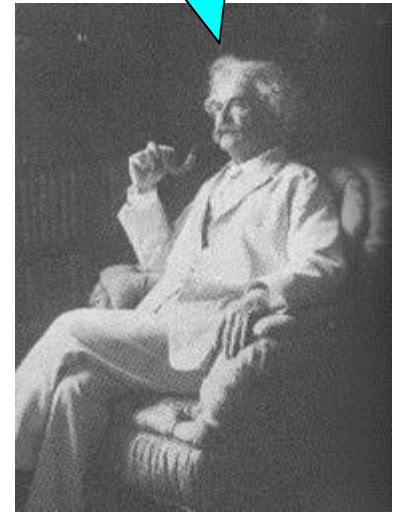
Write the key point to make for each slide

If the slide doesn't have a point, eliminate it!!!

Stay on track

Small (planned) digressions fine if motivated,
but get back on track (shows you are
paying attention to audience)

*It takes three
weeks to prepare
a good ad-lib
speech*



Check *everything* just before your talk

Check the projector

Make sure you know how to turn it on

See that it is plugged in

Check which way to position your slides

Adjust the focus

Check microphones, pointer, other tools

Arrange your slides, notes, and other materials

Be able to reach everything without moving

Be able to go through your slides without fumbling

Have a “clock” handy to check the time

