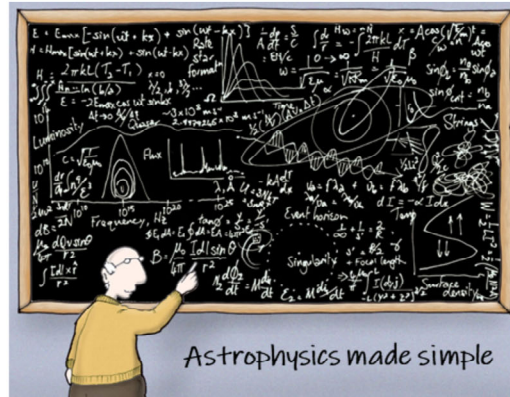


What makes a good talk?



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With thanks to Brian DeMarco for useful suggestions

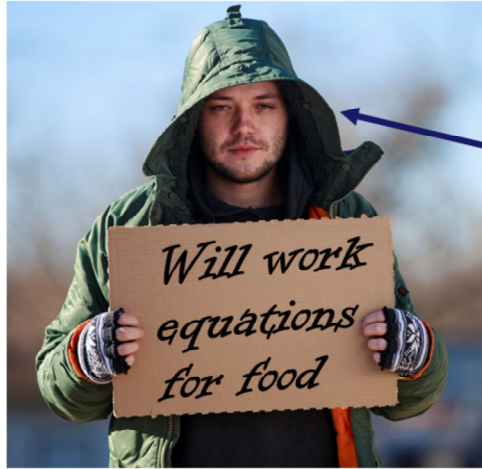
One of our goals for this class is not only to teach you how to present good talks, but also how to listen to them.

A good communicator recognizes the three major constraints on speakers and plans his talk with them in mind:

1. Who is the audience? What is their level of expertise? How motivated are they to listen? What is likely to confuse or bore them?
2. What is the purpose of the talk? To present new results? To inform? To solicit feedback on a new idea? To entertain? To get a job?
3. How much time has been allotted? It takes about 5–7 minutes to adequately motivate, explain, and summarize one main point in an oral talk. A speaker cannot cover six main points in a 10-min. APS-style presentation, no matter how fast he talks.

As you listen to a talk, ask yourself how well the speaker planned for these three constraints.

Listening to talks and evaluating them critically will make you a better speaker



Physicist who never learned to give good talks

Learning to give effective talks will have enormous benefits for your future career success, whatever you path you pursue

Giving good talks is not an art, it is a *craft*.

And like any other skill, it requires learning specific techniques, practicing them over and over, getting feedback from experts, and listening to a *lot* of talks so that you learn to recognize excellence and emulate it.

Learn to evaluate talks analytically and critically—think about the delivery as well as the scientific content

What was ineffective?

What could have been done better?

What was well done?

What do I want to emulate?

Be specific—identify details as well as larger issues

Excellent advice from Professor DeMarco:

“Few people take the time to evaluate a talk that they have heard. Doing so is really the key to learning how to give a better talk.

“If you want to become a better speaker, after giving or listening to a talk ***every time***:

Think: What was ineffective about the talk? What are a few things that could be improved? Be specific. Try to identify details and larger issues.

Think: What was effective? Find three things. Be specific. Try to identify details and larger issues.”

Good talks are presented at a level for appropriate for the audience

In general, technical talks are all the same— you're reporting results and interpreting data —but the audiences are different

You'll give a variety over the course of your career:

Group meeting

Conference talk

Report to a boss, customer, or funder

Job interview

Club or volunteer group



A successful talk must be tailored for the listeners

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The important points (IPs) are clear



Scientificus physicus

Was the terminology and level of detail appropriate for the audience?

Did the speaker emphasize IPs and explain *why* they are important?

Was the talk logically structured around the IPs?

Were figures used to make IPs memorable?

Every aspect of a talk should be evaluated in light of the overarching goal for giving the talk: How well does this aspect (the title, the appearance of the slides, the structure of the talk, the language, the figures, the summary) help my audience understand the important points that I'm trying to communicate?

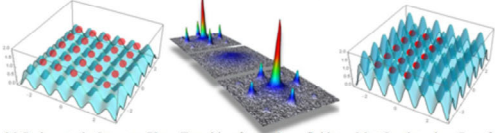
The important points are previewed at the beginning of the talk

Adhere to the speaker's "Rule of 3":

- tell 'em what you're going to tell 'em
- tell 'em
- tell 'em what you told 'em

An outline slide can be used for longer talks

Superfluid to Mott Insulator Transition in Ultracold Atoms



M Greiner et al., Quantum Phase Transition from a Superfluid to a Mott Insulator in a Gas of Ultracold Atoms. Nature, 415(6867):39-44, JAN 3 2002.

Outline

- History and Background
 - What are superfluids and Mott insulators?
 - What work led up to this paper?
- Theory
 - Bose-Hubbard Model (BH)
- Summary of paper
 - Experimental Realization of BH
- Critique
- Citation Evaluation

Example from a PHYS 596 journal club talk

Unlike printed materials, where we can flip back and reread something if we need to understand it before proceeding, we cannot "rewind" an oral talk. Good speakers anticipate this need and tell you the important points more than once.

Common advice to speakers is to tell the audience your important points three times:

1. Tell them what you're going to tell them (preview).
2. Tell them (body of the talk).
3. Tell them what you told them (summary at the end).

Take it from a mother, telling somebody something important three times is **not** overkill.

Figures inform, clarify, and give evidence for important points

Improving the Cooling of Blades and Vanes in Gas Turbine Engines

- To increase efficiency, gas turbine engines have to run at higher power
- Better cooling schemes can dramatically affect the life of blades and vanes in gas turbines

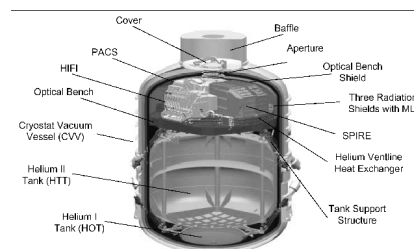


eye candy

Most people remember images much longer and more clearly than they remember words. Every illustration shown in a talk should be directly related to one of the speaker's important points and should explain, amplify, or clarify it.

If somebody else's figure has been used, the speaker should at a minimum give credit for it and perhaps provide a URL or bibliographic reference for where the original may be found.

Another tip for ALL figures—a photograph or drawing of something should include some sort of visual clue to its scale. The audience may have no idea if the apparatus shown below is something that sits on a tabletop or has to be hauled around on a truck.



Graphs and tables are kept simple

Verbosity Index

Words per Sentence

Illustration only, does not represent actual data

Women in Top-Ranked Physics Ph.D. Programs (1998)

University	NRC Rank/Score	PhD Students	Women %	PhD Recipients %Women
Harvard	1 / 4.91	149	13	14
Princeton	2 / 4.89	110	13	3
MIT	3 / 4.87	315	10	12
California-Berkeley	4 / 4.87	283	9	8
Cal Tech	5 / 4.81	154	18	8
Cornell	6 / 4.75	182	18	12
Chicago	7 / 4.69	154	14	6
UIUC	8 / 4.66	295	8	7
Stanford	9 / 4.53	135	13	12
California-Santa Barbara	10 / 4.43	117	13	5

Regrettably, *does* represent actual data, but we've improved substantially since 1998

Was their relation to IPs clear and immediately obvious?

The example on the left shows how a plot can quickly show a trend or reveal an underlying relationship. The actual numerical data are not as important as the slope of the line.

Note also that this plot has axis labels and tick marks that are large enough to be seen by somebody sitting in the back row.

The example on the right shows how tabular data can be presented in a form that people listening to a talk can immediately process. Highlighting the relevant line conveys the main idea—that Illinois was ranked far down the list. The audience probably doesn't care that Illinois's score was 4.66 and Harvard's was 4.91; they care that Illinois is ranked toward the bottom of its peers, and its percent of women was in single digits. (We've improved substantially since 1998.)

Equations are tied to important points and are needed to understand them



$$\frac{\partial^2 u(x,t)}{\partial t^2} = \sum_{m=0}^N \left(b_m \frac{\partial^m}{\partial x^m} \right) u(x,t)$$

Did the speaker...

Define terms?

Talk through the equation step by step?

Explain relevance?

Make equations large enough to be easily read?

Equations should not be sprinkled thoughtlessly through talks; they should be used only when they're essential to understanding one of the speaker's key points. It's often helpful to substitute words for blocks of standard terms in equations; words are usually easier for the audience to process.

Here's an example:

$$\Gamma \propto (\text{phase space}) \times M_{ij}$$

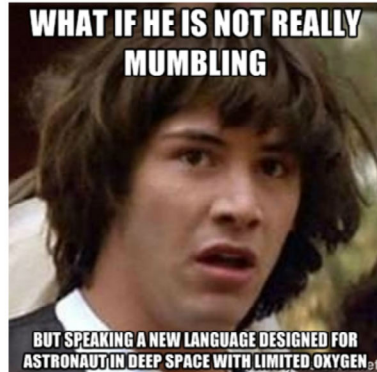
The speaker maintains a uniform pace throughout the talk



No skipping slides or rushing to cover half the talk in the last 5 min

A speaker should maintain an even pace throughout the talk, not rush through the last 10 slides in a panic because he failed to rehearse and check his timing.

The speaker enunciates words clearly and distinctly and speaks in a conversational tone of voice



No mumbling
No monotone
No sing-song intonation

Even if you're a native English speaker, remember that many members of your audience may not be. Slow down and pronounce every word distinctly.

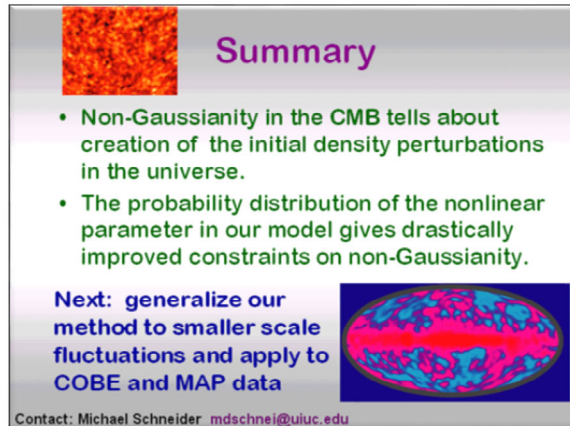
If you're a non-native English speaker, slow down and pronounce every word distinctly.

Factor the need to speak slowly and distinctly into your calculations of how much material you can cover in your allotted time.

The important points are reiterated at the end of the talk (“Rule of 3”)

Recap key results

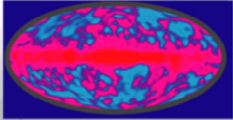
Reiterate principal conclusions



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 image shows a slide titled 'Summary' with a red and orange textured background on the left. It contains two bullet points in green text. Below the bullet points, there is a blue box with white text that says 'Next: generalize our method to smaller scale fluctuations and apply to COBE and MAP data'. To the right of this text is a circular image showing a map of the Cosmic Microwave Background (CMB) with various colors representing different temperature fluctuations. At the bottom of the slide, there is contact information for Michael Schneider.

The speaker should provide a summary slide that recaps key points and cues the audience that the Q&A is about to start. The summary slide should help people review what they’ve learned and remind them of questions they want to ask.

Questions are handled appropriately

Did the speaker:

Ask for questions at the end of the talk?

Repeat a question so everyone in the room heard it?

Treat questioners with respect?

Respond appropriately if he didn't know the answer?



Learning how to handle questions is an important skill for all speakers. Later on in this class we'll explore strategies for you to use to master questions.

No annoying mannerisms

Pacing, arm-waving, distracting gestures

Verbal fillers, “and, um, like...you know”

Jingling keys or coins

Fiddling with the microphone

**Forgetting to TURN OFF the damned cell
phone or other electronica**

**Turning away from the audience and
reading off the screen**

Laser-pointer acrobatics



Did the speaker have any annoying mannerisms that made it hard for you to pay attention? Make note of them and resolve to correct your own bad habits.

For your first colloquium report (Due Feb 17)

Attend a Physics colloquium*

(Wednesdays, 4 pm, 141 Loomis)

Listen actively and attentively; take notes and formulate questions

Think critically about the science being presented; could you follow the talk?

Note the speaker's strengths and weaknesses

Identify styles you'd like to emulate (or avoid)

Write your report immediately after the talk while details are fresh in your mind

***or an alternative, Celia-approved talk**

Download the "URS_Review" document to use for your review. See the course website for a complete description of Homework Assignment #1.