Some Advice for Giving Good Physics Talks  
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1. Introduction

Everyone loves to give advice about giving technical talks. As a speaker and physicist, you need to find your own style and determine what works for you and your audience. There are two ways to do this: 1) study how others give (good or bad) talks, and 2) present as many talks as possible, the earlier in your career the better. Below is a list of important things to consider when giving or listening to talks.

2. Some Advice

2.1 On preparing the talk

• The goal of the talk is to clearly present your ideas and results to an audience. You want to give the audience some new, exciting information. Specifically, you want to give them a few “take-home” messages. A very important point to remember is that you want the audience to associate your name along with the messages. Physics research is a social activity so it is important that the audience remembers the good (or bad) results and the person responsible for these results.

• Before starting work on the presentation, first think about your target audience. Is the talk for a general seminar or a technical conference? Do you need introductory material before you present your results?

• Think about time: how long do I have to talk? How much time is for questions?

• 99% of your effort will be spent composing the presentation, and 1% will be used to think about potential questions during your talk. Right from the start; think about possible questions that may be asked. This way you can create extra slides to cover any potential questions.

• Tell a story. Describe a problem before you offer a solution. Make the subject come alive by conveying something of your enthusiasm for the subject area. For example, if you describe a contradiction, sound puzzled. Let some of your natural emotion come through.

• Keep the title slide simple but do not forget to acknowledge the major contributors to your work.

• On average, you want to have one slide per minute for the talk. You also want extra slides for questions.

• Make your slides clear.
  o Most likely you will use a computer to compose and give your presentation. Keep in mind the font size, so that everyone can see the text on your slides.
Typically you do not want to use a size smaller than 22 pt. Also, you may want to use a template for making your slides.

- Make sure your font type is easy to read. Arial font is recommended so make the text **bold** so it shows up better.
- Only one major idea per slide. Make your graphs large, with large axis labels. If information is not important enough for you to make it large, then remove it completely so your slides are not cluttered. Do not use whole sentences, but rather short phrases.
- There should be nothing on your slides that you do not plan to discuss.
- Use pictures instead of words, whenever possible. Grab drawings from the web, or make simple ones in PowerPoint (or other programs) yourself.
- Graphs must be large and legible. Default fonts for graphs are not large enough. In general, do not use experimental quantities (like volts) when they can be readily converted to another quantity, like light power, even if the units are then arbitrary. Instead, plot physical quantities that you have already introduced in your previous slides. Always say “In this graph, I have plotted (quantity, like power) vs. (quantity, like wavelength)” Only include traces in the graph that you will actually explain. Assume your audience has never seen a graph quite like this one.
- Be careful with colors, so that your audience can read what is written or plotted.

- Remember, your work is based on the work of others. So, be sure to give proper credit to other researchers in your field during your talk. They will probably be in the audience.

- Try to give your “take-home” messages in the introduction, and repeat these messages in the conclusions.

- **Always practice (and practice again) your talk out loud before presenting it for real.** Rehearse it once or twice by yourself, then practice on a friend or a few colleagues, especially for shorter talks. You must always give a practice talk in front of people before giving a conference talk. For in-house talks, the bare minimum is to have spoken the talk through once. Time the talk, so you know if you need to add or (more likely) remove material.

- **Always practice (and practice again) your talk out loud before presenting it for real.** (O.K., we get it.)
2.2 On giving the talk

- When you arrive at the podium, orientate yourself with the surroundings. Note the location of the microphone, the keyboard, and any pointer. Make sure you are not blocking the projector. Try to do all this before the talk.

- If using a microphone, keep the distance from your mouth to the microphone constant. Make sure the microphone is angled correctly as well.

- Laser pointers can be annoying things in the hands of the inexperienced. Do not just flash them around your slide, move the pointer in a careful motion to highlight results.

- Try to keep eye contact with the audience. Try not to stare at your slides on the screen or on a computer monitor.

- Slow down! Typically, you will get nervous during the talk so you will need to consciously slow down your speaking. A good way to slow down is to enunciate your words, more that you would during a normal conversation. But try not to be annoying.

- The audience will immediately pick up on your personal or nervous habits (stammers, fidgeting, pauses, etc.) which may be distracting. Keep these habits in mind while giving your talk.

- Follow cues from your audience. If they are squinting, turn around and see what is wrong with your projected slides. If they are ducking, stop pointing the laser pointer at them.

- Relax, smile, and enjoy yourself. You’re talking about something you enjoy and understand! Use some humor to keep people interested (but do not overdo it).

- Never exceed the time limit.

2.3 On responding to questions

- Typically, there are four types of questions during or after the talk: 1) questions of clarification, 2) completely irrelevant questions, 3) good but irrelevant questions, and 4) good, pertinent questions.

- Questions of clarification are usually easy to answer. However, this usually points out you did not make something clear during your talk. Make note of it for future talks.

- You may get a completely irrelevant question, and this may be hard to answer without embarrassing yourself or the questioner. A good way to handle this situation is to ask questioner to discuss the point after the talk.
- A good but irrelevant question is the worst situation. The question is valid but it does not contribute to the understanding of your material. Or it may be something trivial. Try to answer the question to the best of your ability, but point out politely the irrelevance of the question.

- Try to answer good, pertinent questions to the best of your ability. If you do not know the answer, state this with a comment. Do not just say “I do not know”. Your comments may clue in the audience member to the answer to his or her question.

- Try to answer all questions and remember to restate the question for the audience. Then ask for clarification if you do not understand the question. Then give a thoughtful answer. Explain clearly what you do know and what you do not know. Because you will have prepared by anticipating the questions, this should not be so hard.

- Again, be prepared for questions with extra slides!

3. References
   A departmental link for resources about giving good talks can be found at: http://jrm.phys.ksu.edu/Tutorial/Speaking/speaking.html