How to give a great talk

First: planning

1. Know your audience
2. Define your goals
3. Craft your narrative
1. Know your audience

Your talk must be crafted to match your audience’s:

- Wants
- Needs
- Knowledge

First understand: who is your audience?

Physics professors  Venture capitalists

Your boss  Students

If you are not sure: ask!
What do they want? Need?

The big picture
Basic information
Technical information
Comparisons

What is their knowledge base?

For a mixed audience: play to the middle
Always assume your audience knows less!
2. Define your goals

Your talk must be crafted to meet your goals

What is your desired outcome?

What do you want to accomplish?
What is the best outcome?

Understanding

Communicate a result

Make a convincing argument
What are the ingredients required to achieve your goals?

Big picture  Basic information  Details

3. Craft your narrative

Humans understand complex information via narrative

Every talk, paper, poster, thesis, etc. should tell a story!
A narrative is not a recipe / report

1 lock-in amplifier
3 RG-58 cables
1 oscilloscope
1 function generator
1 sample

1. Connect amplifier, function generator, scope
2. Scan current, measure voltage, vary T

Conclusion: The insulator-metal transition is driven by dimensionality

Adding jokes, anecdotes, or engaging material does not make a narrative

1 lock-in amplifier
3 RG-58 cables
1 oscilloscope
1 function generator
1 sample
0.5 student

1. Connect amplifier, function generator, scope, student
2. Scan current, measure voltage, vary T

Conclusion: The insulator-metal transition is driven by dimensionality
Elements of a narrative

Beginning

Elements of a narrative

Beginning

Middle
Elements of a narrative

Beginning → Middle → End

Logical connections

This structure should be mirrored at all levels

**Beginning**

**What is your talk about?**

**Why is it interesting? What is the motivation?**

Tell me, O muse, of that ingenious hero who travelled far and wide after he had sacked the famous town of Troy. Many cities did he visit, and many were the nations with whose manners and customs he was acquainted; moreover he suffered much by sea while trying to save his own life and bring his men safely home; but do what he might he could not save his men, for they perished through their own sheer folly in eating the cattle of the Sun-god Hyperion; so the god prevented them from ever reaching home. Tell me, too, about all these things, O daughter of Jove, from whatsoever source you may know them.

I’m going to tell you about how experimental data resolution can affect measurements of slip avalanche statistics in bulk metallic glasses, which are amorphous metals.

This work is important because metallic glasses have many uses (e.g., golf clubs and cell phone cases), but we do not understand how these materials fatigue under stress.
Middle

What did you do? What happened? What did you find out?

Penelope was faithful and foiled the suitors. Odysseus had trouble getting home, because of many...monsters.

We borrowed some data involving measurements of applied stress for Zr$_{45}$Hf$_{12}$Nb$_{10}$Cu$_{15.4}$Ni$_{12.6}$Al$_{10}$ samples under compression from a group at Bucknell. We simulated varied resolutions by averaging over different timescales. By fitting the fake data at different resolutions to a model, we found out that false avalanches can appear at low resolutions.

The End

So what? What is the impact? What’s next?

Odysseus finally makes it home and kills all the suitors. Their parents are ticked off, but Athena makes them forget the whole thing. Peace is restored to Ithaca.

We learned that high temporal resolution is critical to measuring and understanding fatiguing of metallic glasses under compression. This information will inform future measurements and may change the interpretation of existing data. Next, we will examine how temporal resolution impacts...
Logical Connections

You make them for the [reader, listener]

We are theorists, and to do our analysis we borrowed some data taken at the highest possible temporal resolution. That way we can artificially reproduce low temporal resolutions.

Planning to give a great talk

1. Know your audience
2. Define your goals
3. Craft your narrative
Next: Creating & giving the talk

1. Crafting PPT presentation
2. Speaking tips
3. Professionalism
## 1. Crafting PPT presentation

### Number of slides

<table>
<thead>
<tr>
<th>Speaking time</th>
<th># slides</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 minutes</td>
<td>6</td>
</tr>
<tr>
<td>20 minutes</td>
<td>15</td>
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<tr>
<td>30 minutes</td>
<td>22</td>
</tr>
<tr>
<td>45 minutes</td>
<td>30</td>
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</tbody>
</table>
Before opening Powerpoint

Write out your narrative as sentences

One sentence per idea

Translates to one idea per slide

Tips

• Make the story obvious! State it directly and simply.
• Give information as needed
• Refer back to the story often
  • Explain how details connect to the overall narrative
• Make the connections for the listener
PowerPoint Content

Introduction
- Who are you?
- What is the motivation? Context? Big picture?

Body
- What did you do?
- What did you find out?
- What does it mean?

Conclusion
- One slide: 3—4 takeaway points

Who are you? What is the motivation? Context? Big picture?
What did you do? What did you find out?
What does it mean?

Answer each question directly!
2. Speaking tips

Speak clearly and slowly

Rehearse  Rehearse  Rehearse

Use laser pointer effectively
3. Professionalism

Dress

At your age:
Men: tie optional / strange blazer very optional
Women: pants more common in academia

Business Casual

Answering questions

Respect

Understanding

Say “thank-you”
Admit ignorance: follow-up
1. Crafting PPT presentation
2. Speaking tips
3. Professionalism