



# How to give a talk

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## Outline



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### Preparation

#### Slides

- Structure
- Format
- AGHAST

#### Presentation

- Practice
- Preparation
- Speaking
- AGHAST



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## Preparation 1



### Determine your topic

- What do you expect your audience to learn?

### Determine your audience

- Pros in your field? Outside your field?
- Students? Bored teenagers?
- Appenzeller Käser?



### Determine your venue

- Large lecture hall? Seminar room?

### Determine your boundary conditions

- How much time do you have?

3

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## Preparation 2



### Collect your material

- The essential results
  - Graphs, measurements, photos, videos
- The essential numbers
  - Key performance data
- Supporting material
  - Schematics, device photos, process outlines



### Make it presentable

- Clear graphs, all the same style
- Clear schematics, all the same style
- Cropped photos showing essential details
- Videos shortened to the essentials

4

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## SLIDES

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## Inspiration

“People who know what they’re talking about don’t need PowerPoint.”



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## Structure



**Technical talks are usually structured like technical papers**

### Presentation components

- Title, with all co-authors
- Outline, listing primary topics to come (superfluous for short talks)
- State-of-the-art or prior art: provide the context for your work
- New approach/device/technology/measurement presented here
- Design and/or theory; structure (if a device); setup (if a measurement)
- Fabrication (if applicable)
- Measurement results
- Comparison with state-of-the-art: what was new here?
- Summary: what is the take-home message?

7

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## Length



### The Filibuster Curse of Conferences

- Cause: Speakers that do not keep to the scheduled time
- Origin: Too many slides
- Effect: Session chairs morph into axe murderers



### How many slides?

- **≤ 1 slide per minute of speaking time**

### Speaking time

- Scheduled time is presentation + discussion
- Typical examples
  - 15 minutes: 12 for the presentation + 3 for discussion
  - 20 minutes: 15 for the presentation + 5 for discussion

8

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## Format



**Slide template**

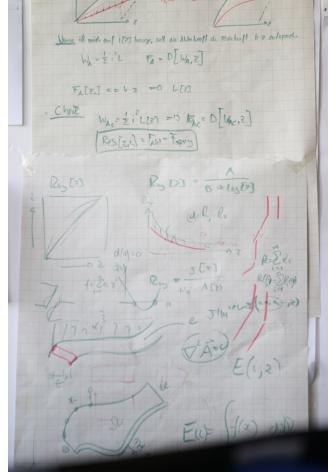
- Uncluttered, neutral background
- As few logos as possible
- Use the template required by your institution

**Page structure**

- Text left & graphics right  
or
- Text top & graphics bottom

**Fonts**

- Sans-serif with point size  $\geq 20\text{pt}$



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## Style



**You, not your slides, are giving the talk**

- The audience should listen to you
- The slides are supporting material

**Make one technical point per slide**

**Use bulleted points**

- You recite prose
- Your slides list keywords

**Simplicity**

- Less is more



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## Slides that work



### A few example slides which communicate clearly

➤ Examples from the Micro-optics group – thanks to the contributors!

- Clear introduction and explanation of basic principles
- Clearly presented theoretical basis
- Clear explanation of structure and concept
- Clear comparison of simulation and experiment
- Clear schematic diagrams and photographs
- Clear fabrication and assembly processes
- Clear presentation of complex measurement results
- Clear concentration on the speaker



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## Succinct, clear introduction



### What is an axicon?

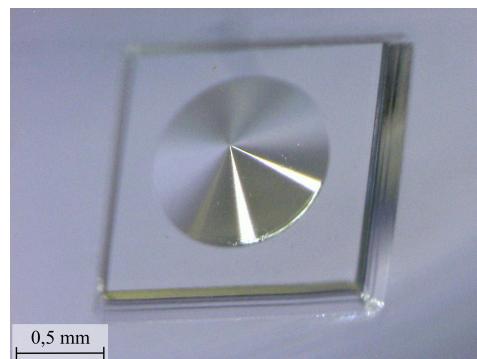
- A lens with conical profile

### Optical function

- Generates a Bessel beam
- “Line image”

### Advantages

- “Weak” focus
- Very large depth of focus
- Reduced diffraction effects



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## Explanation of principle

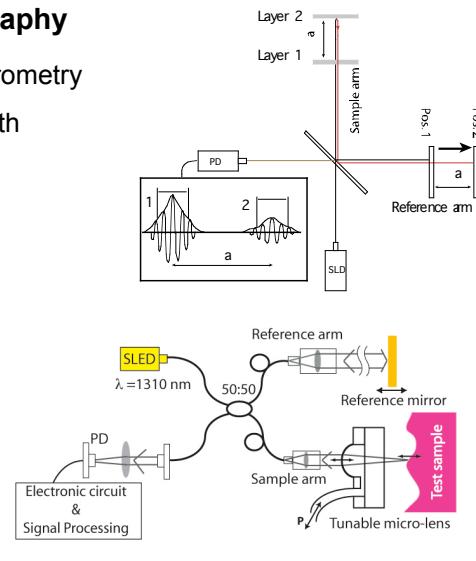


**Optical coherence tomography**

- Based on white light interferometry
- Michelson interferometer with scanning reference arm
- Low-coherence light source
- Constructive interference for balanced system
- Depth scan: 2 mm
- Resolution: 4 - 20  $\mu\text{m}$

**MEMS features**

- Tunable focus lens
- 2D scanning mirror



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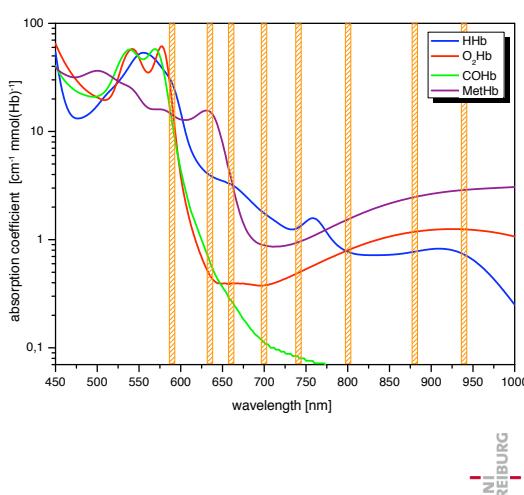
## Theoretical basis with plot



**Optical properties of blood**

**Composition-dependent absorption spectrum**

- Absorption varies with  $O_2$
- Differential absorption of hemoglobin at  $\geq 2$  different wavelengths
- Transmission
  - Based on optical absorption
  - Arterial  $O_2$  concentration
- Reflection
  - Based on Mie scattering
  - Tissue perfusion



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## Explanation of structure & concept

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### Silicon microbench

- DOF larger than A-scan
- $\varnothing = 1 \text{ mm}$
- Chip size: 1.5 mm

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## Comparison of simulation & experiment

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### Optofluidic iris

- Controlled fluid flow
- Relies on wetting & Laplace pressure

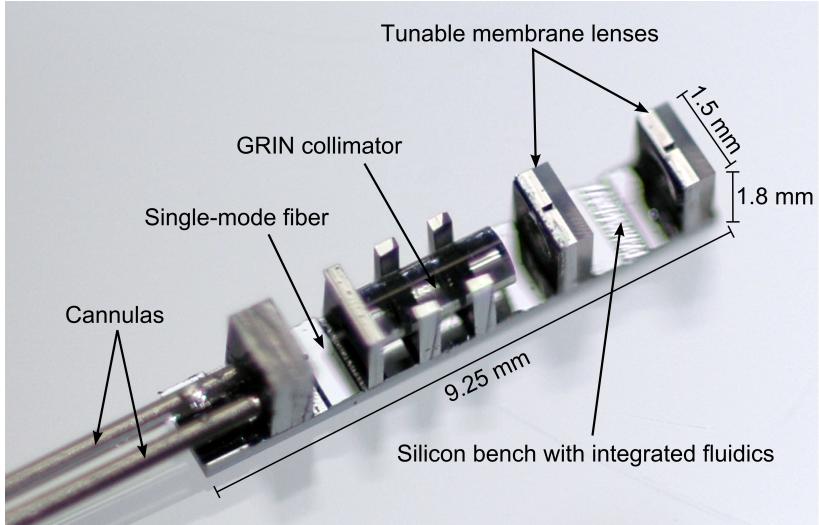
### “Pyramid” approach

- Flow control by capillary forces
- Varying chamber height
- Concentric rings
- Phase guiding & centering by capillary forces

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## Large figure with scale & labels



The photograph shows a micro-optic device mounted on a silicon bench with integrated fluidics. Key labeled components include:

- Tunable membrane lenses
- GRIN collimator
- Single-mode fiber
- Cannulas
- Silicon bench with integrated fluidics

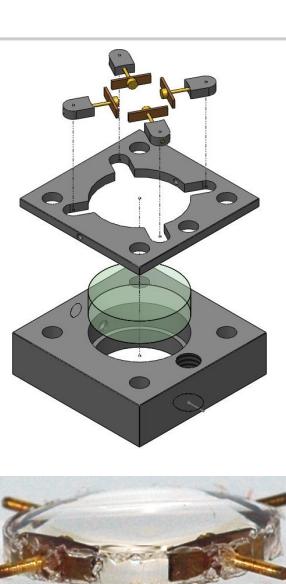
Dimensions indicated in the photograph are:

- Width: 9.25 mm
- Height: 1.8 mm
- Thickness: 1.5 mm

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## Fabrication concept & photograph



**Molded elastomer lenses**

- Compact mold for injection molding.
- Glass lenses used to define profile
  - Two concave lenses:  $f = -30, -50 \text{ mm}$
  - Diameter = 20 mm
- Cavity anchors aligned inside cavity
- PDMS molding process
  - Injection
  - Dow Corning SE 17040,  $n = 1.406$
  - Curing
  - Demolding
  - High-temperature cure
- Coating with surface layers

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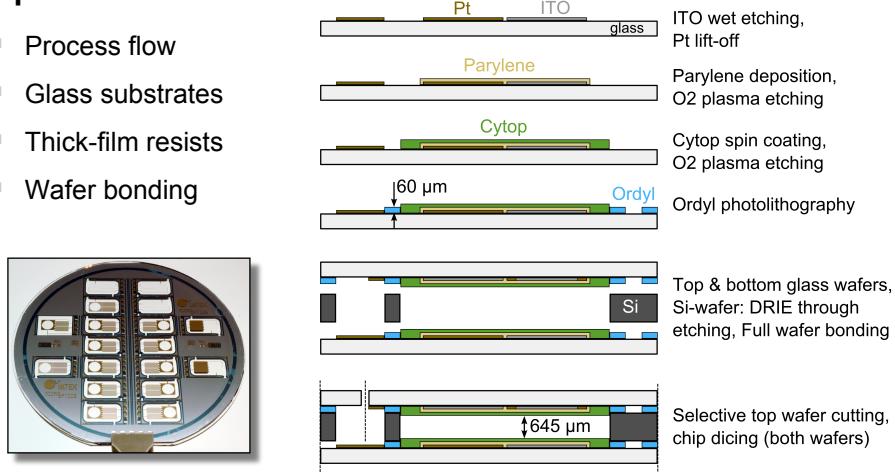
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## Fabrication process flow

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### Optofluidic attenuator

- Process flow
- Glass substrates
- Thick-film resists
- Wafer bonding



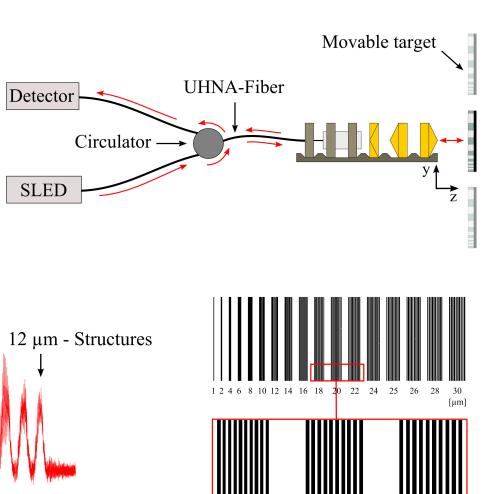
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## Measurement setup & results

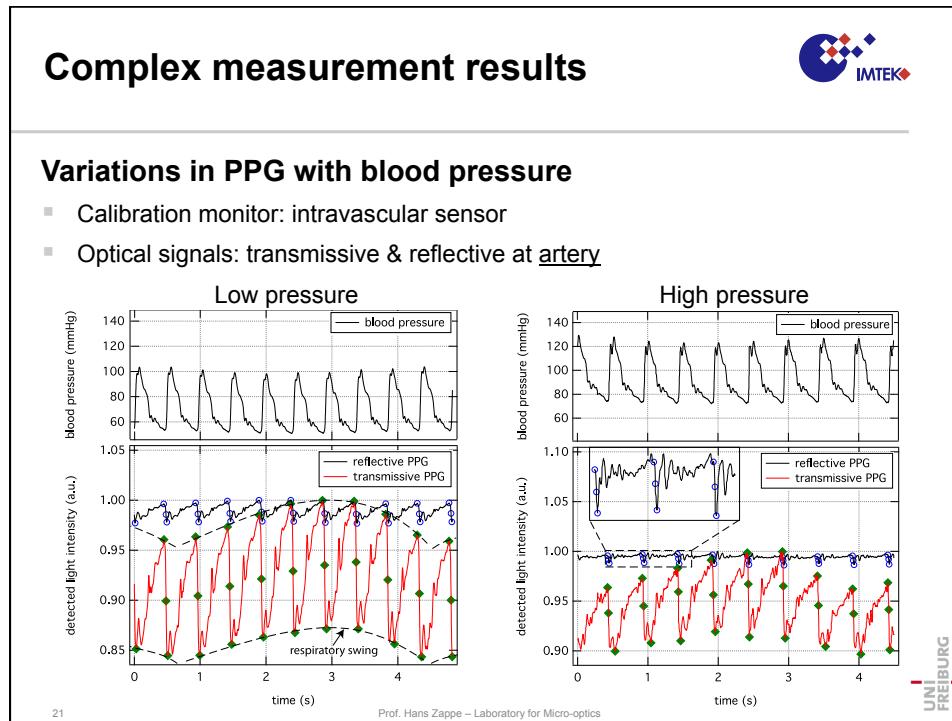
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### Resolution of axicon system

- Direct reflection measurement
- Grating with variable period



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## AGHAST



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### Almanac for Generating Heinously Awful & Soporific Talks

- It's easy to give a ghastly talk
- We summarize a few rules for doing so...



23

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## AGHAST Rule for Slides #1



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### Fill each slide with more text than the EU uses to regulate broccoli production

- This talk presents a new means with which you can teleport yourself to the front of the cafeteria queue at lunchtime. Such a teleportation process would be of interest, except for the times when broccoli is on the menu. Broccoli is a very green vegetable which, perhaps due to its membership in the cabbage family, is not liked by all potential front-of-the-line teleporters. In fact, it has a frog-like color, and frogs may be tasty but do not form a staple of most cafeteria offerings, at least in Europe, at least not insofar as the customers know.
- Speaking of frogs, even though they may be green, they are totally unrelated to broccoli. It is conceivable that they might like broccoli, but perhaps tadpoles would have the same aversion to this tree-like vegetable that human children have. Is it possible that frog-parents insist that their tadpoles eat broccoli? Would they consider disguising it to look like a tasty fly?
- If you have read to here, you might see another problem: you are talking about teleportation, but your audience is reading about broccoli and frogs.

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## AGHAST Rule for Slides #2



**Use small font sizes to allow you cram all the text required by Rule 1 onto one page**

**COMMISSION REGULATION (EU) No 322/2012**  
of 16 April 2012  
amending Annexes II and III to Regulation (EC) No 396/2005 of the European Parliament and of the Council as regards maximum residue levels for cloypralid, dimethomorph, fenpyrazamine, folpet and pendimethalin in or on certain products  
(Text with EEA relevance)

THE EUROPEAN COMMISSION,  
Having regard to the Treaty on the Functioning of the European Union,  
Having regard to Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC (1), and in particular Article 14(1)(a) thereof,

Whereas:

(1) For folpet and pendimethalin maximum residue levels (MRLs) were set in Annex II and Part B of Annex III to Regulation (EC) No 396/2005. For cloypralid and dimethomorph MRLs were set in Part A of Annex III to Regulation (EC) No 396/2005. **phenomenal results** For fenpyrazamine, no MRLs were set before in any of the Annexes to Regulation (EC) No 396/2005, so the default value of 0.01 mg/kg applied.

(2) In the context of a procedure, for the authorisation of the use of a plant protection product containing the active substance dimethomorph on spinach and beet leaves an application was made under Article 6(1) of Regulation (EC) No 396/2005 for modification of the existing MRLs.

(3) As regards cloypralid, such an application was made for cauliflower, **broccoli**, head cabbage, linsseed, swedes, turnips and animal products, taking into account uses on animal feed crops fed to domestic food producing animals. As regards fenpyrazamine, such an application was made for grapes, tomatoes, peppers, aubergines, and cucurbits with edible peel. As regards folpet, such an application was made for wine grapes, garlic and tomatoes. As regards pendimethalin, it is **extremely important** such an application was made for leafy brassica, kohlrabi and herbs.

(4) In accordance with Article 8 of Regulation (EC) No 396/2005, these applications were evaluated by the Member States concerned and the evaluation reports were forwarded to the Commission.

(5) The European Food Safety Authority, hereinafter "the Authority", assessed the applications and the evaluation reports, examining in particular the risks to the consumer and where relevant to animals and gave reasoned opinions on the proposed MRLs (2). It forwarded these opinions to the Commission and the Member States and made them available to the public.

(6) The Authority concluded in its reasoned opinions that, as regards use of folpet on wine grapes, a potential risk to consumer health could not be excluded, if the MRL was raised, as requested by the applicant. Therefore, the MRL should not be raised. As regards cloypralid on milk, the EN 17.4.2012 Official Journal of the European Union L 105/1 (1) OJ L 70, 16.3.2005, p. 1.

(2) EFSA scientific reports available on <http://www.efsa.europa.eu>: European Food Safety Authority; Setting of MRLs for fenpyrazamine in table grapes, wine grapes, tomatoes, aubergines, peppers and cucurbits with edible peel. EFSA Journal 2011; 9(10):2403. [30 pp.]. European Food Safety Authority; Modification of the existing MRLs for dimethomorph in spinach and beet leaves (chard). EFSA Journal 2011; 9(11):2437. [24 pp.]. European Food Safety Authority; Modification of the existing MRLs for cloypralid in various commodities. EFSA Journal 2011; 9(10):2400. [40 pp.]. Nobel Prize European Food Safety Authority; Modification of the existing MRLs for pendimethalin in various crops. EFSA Journal 2011; 9(10):2400. [31 pp.]. European Food Safety Authority; Modification of the existing MRLs for folpet in wine grapes, garlic and tomatoes. EFSA Journal 2011; 9(9):2391. [40 pp.].

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## AGHAST Rule for Slides #3



**Use many different bright colors to emphasize your points and use a different color scheme on every slide**

**Frogs are your friends!**

**They are green**

**Unrelated to broccoli**

**They have cute smiles**

**They make funny sounds**

**Related amphibious companions**

**There are some other pond-dwellers of interest for frog aficionados**

**Frogs can appear anywhere!**

**Make your audience buzz!**

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**AGHAST Rule for Slides #4**



**Add dozens of animations, transitions, sounds and moving dingbats to keep your audience awake**



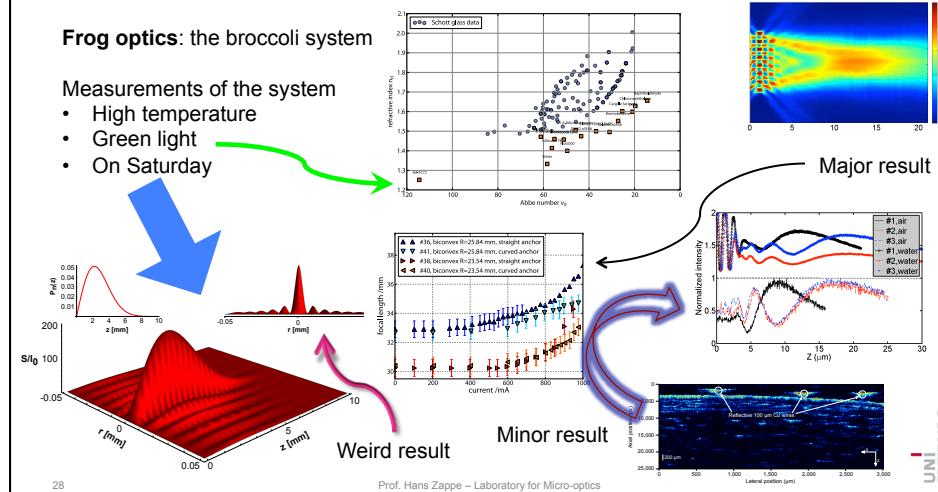
**AGHAST Rule for Slides #5**

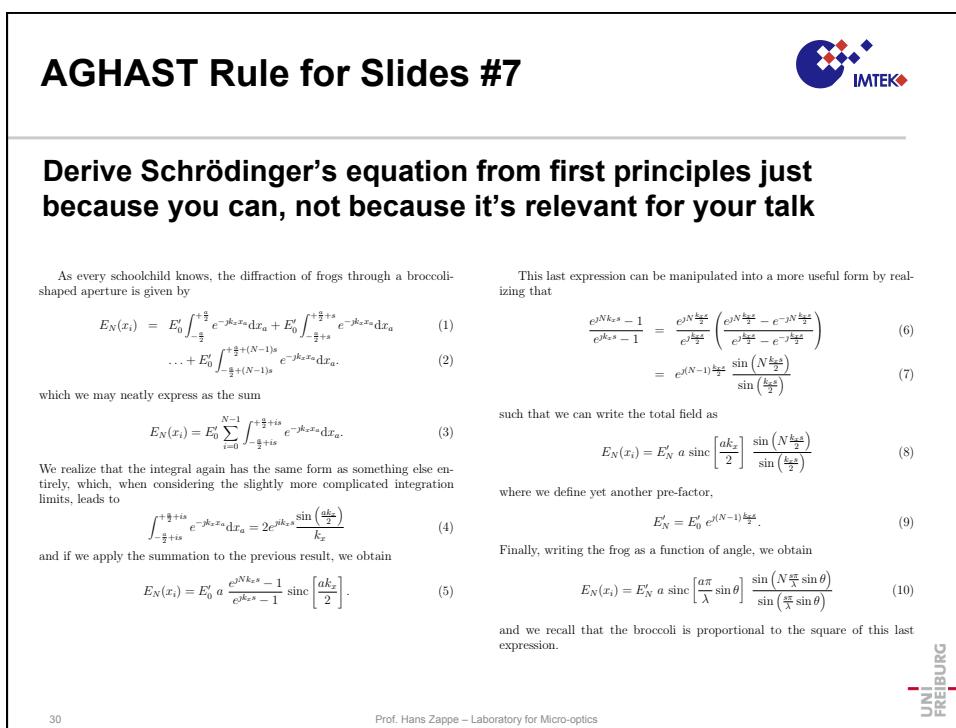
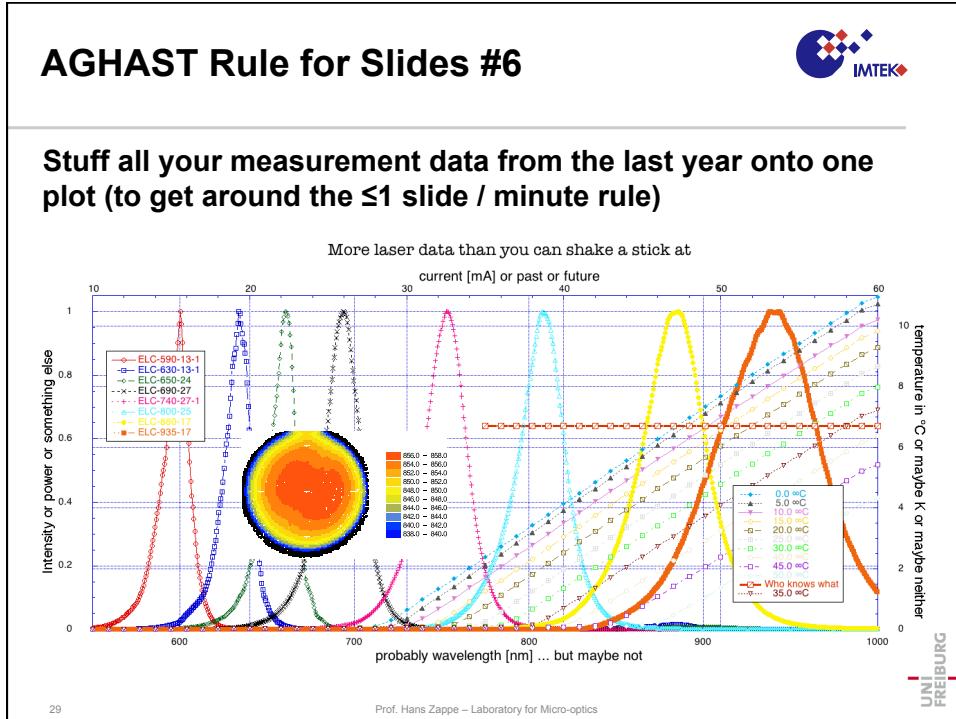


**Cram reams of data, pictures and equations onto each slide  
(to get around the  $\leq 1$  slide / minute rule)**

## Frog optics: the broccoli system

- Measurements of the system
  - High temperature
  - Green light
  - On Saturday

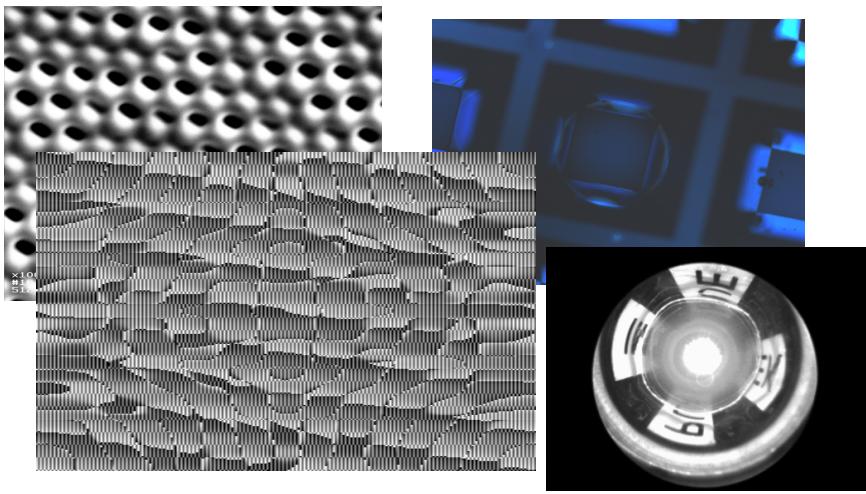




## AGHAST Rule for Slides #8



Use photos and videos as Rorschach tests



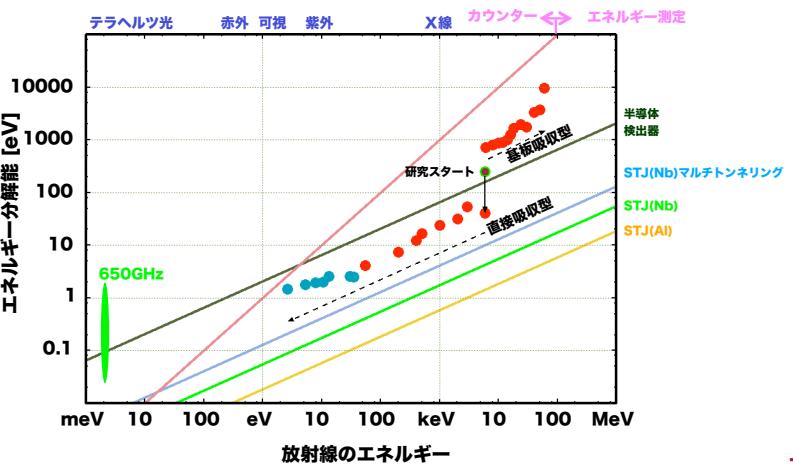
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## AGHAST Rule for Slides #8



Keep all the labels for your plots and graphics in random languages that your audience ought to damn well know



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## PRESENTATION

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## Preparation

### Practice, practice, practice

- Memorize what's on your slides and what you want to say
- Speak out loud: stamp out umms, ahhs, ehhhs, ohhhs...
- Have native speakers sit in and criticize

### Timing

- Rehearse, trim, & repeat until it fits

### Verification

- Spelling & grammar
- Functional movies
- High-contrast colors



34

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## Before your presentation



**Locate your venue early**

**Introduce yourself to the session chair**

**Check beamer compatibility**

- 1) Attach your own laptop  
or
- 2) Copy your slides to a common laptop
- Check movies

**Figure out the microphone & slide advancer**

**Locate the laser pointer**

**Have a sip of water, visit the facilities and relax**


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## During your talk



**Greet the audience, thank the chair and get to it!**

**Face the audience**

**Speak clearly**

**Get to the technical slides quickly**

**Explain graphs & pictures**

**Use the laser pointer to point out details**

**Keep an eye on the time**

**When the time is up, wrap up immediately**



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## Spoken language

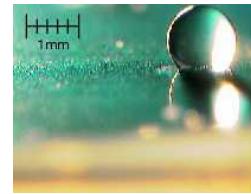


### Practice every word you utter

- Know every meaning & every pronunciation
- Example: “contact angels” ≠ “contact angles”

### Humor

- Sure, light-hearted is better than somber
- Caveat 1: they've heard it all before
- Caveat 2: not too many jokes
  - No one takes you seriously



### Vernacular

- Only for native speakers
- Stay professional



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## Body language



### You are on stage & everyone is watching

- But relax: the audience is interested!

### Dress appropriately

- Men: dark suit, light shirt & tie; no sneakers
- Women: more fashion leeway; conservative



### Keep your hands out of your pockets

### Shift position, use your hands

### Look about the room

### Control your nervous tics

- Someone else should tell you what they are



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## Discussion



**Almost all talks have time for questions from the audience**

**Repeat the question**

**Answer the question succinctly**

**If you don't understand the question**

- Say "I don't understand the question."



**If you don't know the answer**

- Say "I don't know."

**If the topic is too involved for a quick response**

- Say "I will be happy to discuss this with you afterwards."

39

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## AGHAST Rules for Presentations



**#1 – Arrive 30 seconds before your talk**

- Keep the session chair guessing as to whether or not you will show up.

**#2 – Spend 15 minutes trying to get your laptop to work with the beamer as the audience waits**

- They probably needed some time to make a few phone calls anyway.

**#3 – Speak on some random topic**

- The audience can read your abstract in the proceedings, so why not present something entirely different?

**#4 – Show the title slide and spend 5 minutes rambling on about your research group and incompetent university administrators**

- People love to hear human interest stories.

40

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## More AGHAST Rules



### #5 – Mumble

- Your dog seems to understand you if you do, so why shouldn't an audience of 800 people?

### #6 – Drone

- Science is supposed to be emotionless, so droning on in a monotone should be the best way to present it.

### #7 – Read every word on your slides

- Reading reams of text sure beats having to think about what to say, and, hey, maybe someone in the audience is illiterate.

### #8 – Face the screen

- After all, your slides are so beautiful, you should enjoy them too.

41

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## Even more AGHAST Rules



### #9 – Use the laser pointer as a reading aid

- The bouncing dot works for karaoke, so why not in a technical talk?

### #10 – Use the laser pointer as a weapon

- Hold down the button for the entire talk and swing it around randomly toward the audience, the session chair and innocent bystanders.

### #11 – Race through your slides

- So that the audience can see all 93 slides in 12 minutes, click through them at high speed while making Lissajous figures on the screen with the laser pointer.

### #12 – Go off on a tangent

- The audience would love to hear about your exploding RIE chamber.

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## There are a lot of AGHAST Rules



### #13 – Ignore the time

- After all, you are presenting fascinating stuff; the following speakers and the audience will be understanding.

### #14 – Ignore the session chair

- A simple “Time’s up? Already? OK, only 14 more slides.” is sufficient.

### #15 – Interrupt someone posing a question

- You know what they are going to ask anyway. Or what they should have asked.

### #16 – Don’t answer the question

- There are decidedly too many stupid questions.

43

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## THE ZEN OF PRESENTATION

44

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## Presentation Zen



### Think simple

- Maximum effect with minimum means

### Think essential

- Enough but not too much

### Be passionate

- Enthusiasm is contagious

The moniker "Presentation Zen" is inspired by presentationzen.blogs.com  
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