ETH zürich

# COMSOL ® Design Tool:
# Week 6: Simulations of Optical Components

## Presentation and Report

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# Organization

- Discuss your progress with your supervisor!
- We will set up a team in Microsoft Teams for every group. If you need help from supervisor, write any time
- Finish the slides until 21.05.25
  - Send the slides to your supervisor for feedback!
- Presentations are on 26.05.25!


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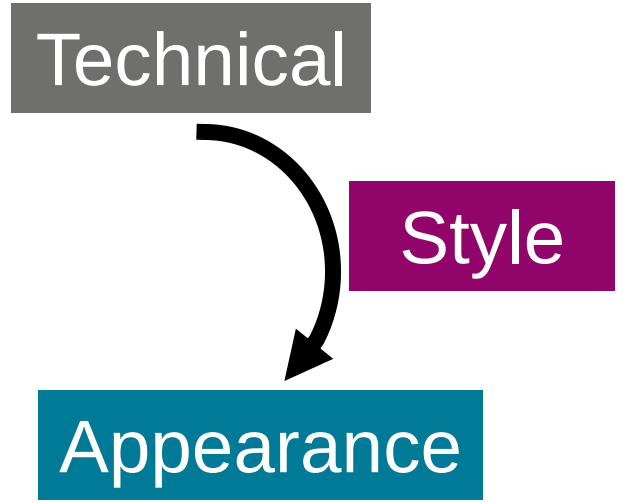
# Why care about presentation skills?

- Good way to communicate ideas, projects, **your work**
- Necessary for any engineer/scientist
- Not easy, needs exercise and lots of work





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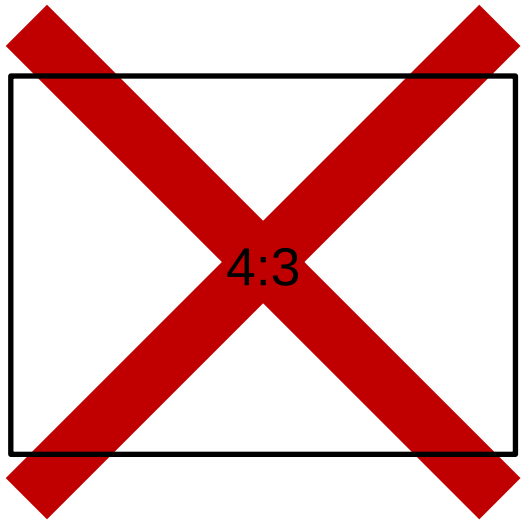
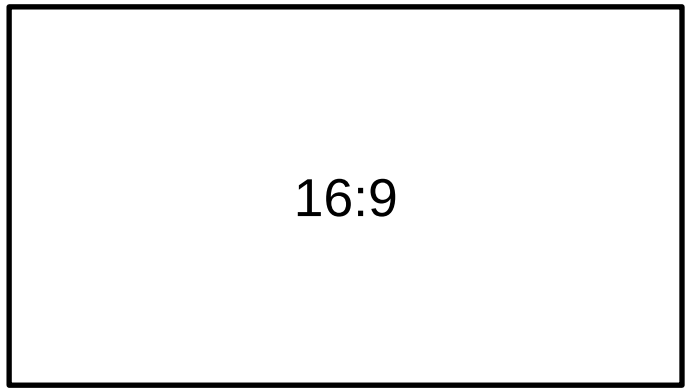
# ETH corporate design

- Powerpoint, OpenOffice & LaTeX templates are online available

- Most beamers today project in a 16:9 aspect ratio





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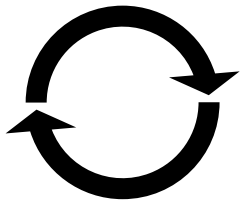
# ETH corporate design


Preparation takes A LOT of time



Rehearse, Rehearse, Rehearse



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# Some tips for presenting – Structure

Big Picture
↓ Application
↓ System
↓ Device

Top-Down

- Your project:
  - Motivation & Applications (latest trends, vision for future application) — Big picture
  - State of the Art (ideas and concepts, challenges, (dis-)advantages) → **CITE relevant papers!** — SotA
  - Theory
  - Simulation / Experimental Configuration
  - Results
  - Conclusion & Outlook (key concepts, features, results)

  — Your work


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# Main stylistic points

- Think about a **storyline**
- Everything should have a **purpose**
  - Text, Illustrations, Plots, Formulas
- Get creative in your design
- **Use text sparingly**

If there is some text, it should have a definite purpose.

Don't just write text because you still have some white space on your slide left and don't want it to look empty.

Another point is that you should be clear and concise on your text/bullet points. Avoid overloading the presentation with a wall of text, such that your audience needs to much time to read the text you put on the slide while you are explaining things.


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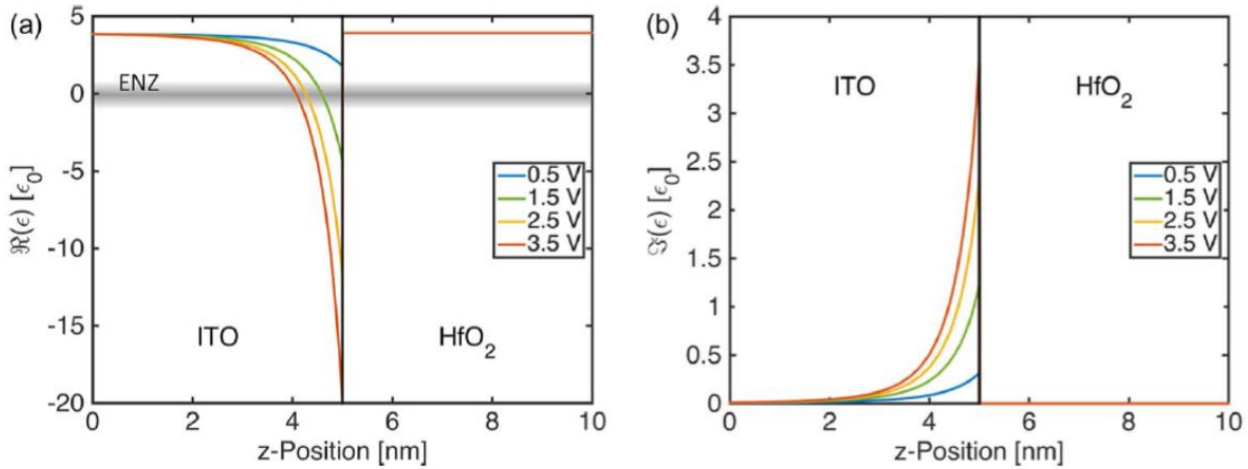
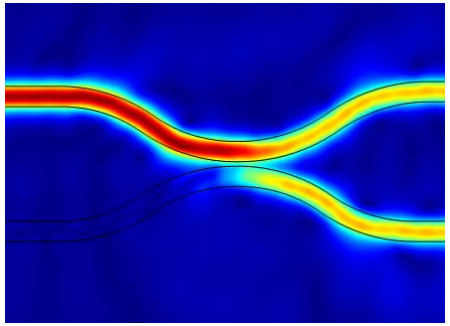
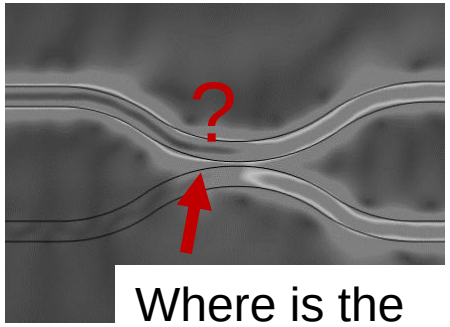
# Science-related tips

- Subfigures using (a), (b)
- Plots
  - Axes labels
    - same size
    - Units on [..]
  - Text large enough
- Colormaps
  - Jet/Rainbow are ambiguous
- Caption:
  - Number, Title, Key message




Source: U. Koch et al., IEEE Photonics J., vol. 8, no. 1, pp. 1-13, Feb 2016






Where is the maximum?

Unambiguous!



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# Science-related tips

Number

Title

Key message

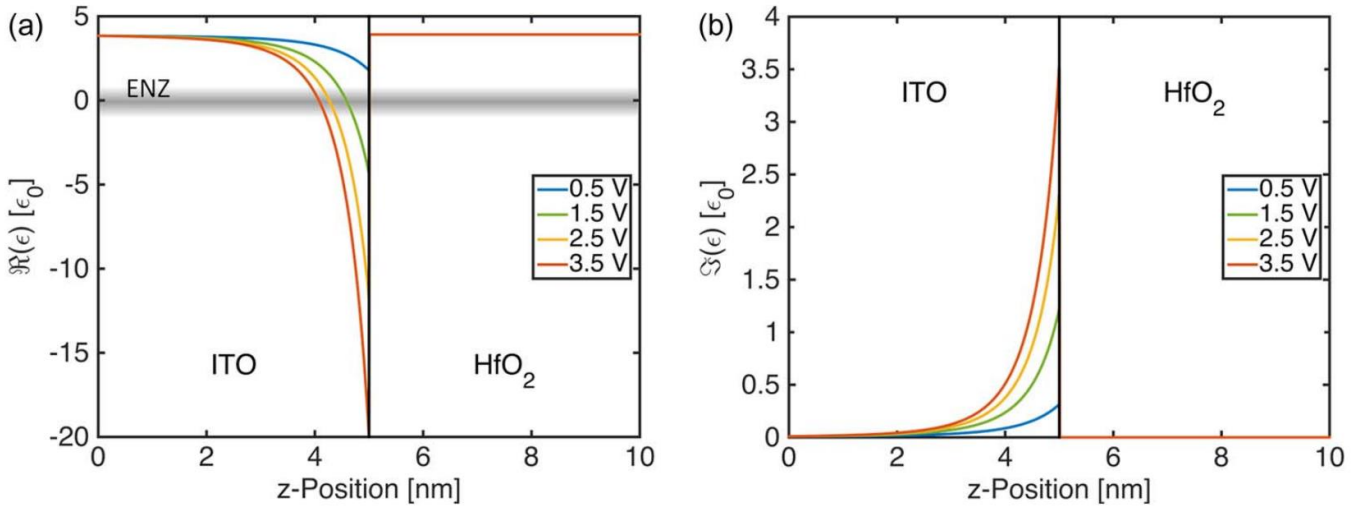


Fig. 4. (a) Real part of the permittivity of ITO and $HfO_2$ for voltages between 0.5 V and 3.5 V. At a certain voltage, the permittivity of ITO crosses zero, which is where the strongest modulation will occur due to a strong field enhancement in the ENZ region (shaded). It will be very important that the spatial extent of the permittivity curves with values around ENZ is almost constant for voltages above 1.2 V. (b) Imaginary part of the permittivity of ITO for various voltages. The imaginary part increases at the interface because of free carrier absorption.



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# Relax

- Everyone is nervous when presenting
- The audience wants to understand
- Exercise



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