

Presentation techniques – the do's and don'ts

Martin Weinelt
Freie Universität Berlin

*Die Straße des geringsten
Widerstandes ist nur am Anfang
asphaltiert.*

Walter Kasper

Who is Walter Kasper ?



Kurienkardinal Walter Kasper

What kind of presentation ?

Talk
Sachvortrag

Address
Ansprache

Speech
Meinungsrede

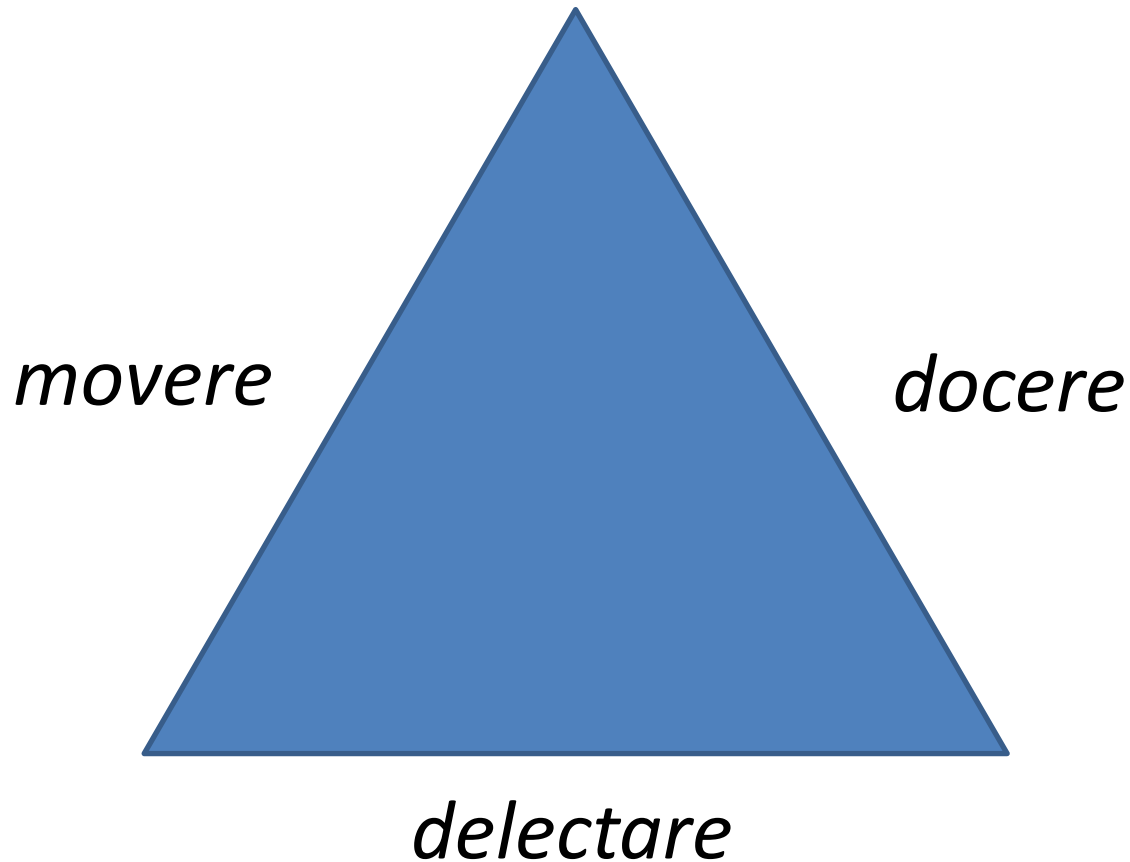
Presentation
Paper
Information
Report
...

Anniversary
Wedding
Toast
After dinner speech
...

Election speech
Discussion
Salary Assessment
...

Sermon (*Predigt*)

Speech objectives according to Cicero



Always at the beginning

Dear Dr. XYZ, magnificence, ...

Good morning ladies and gentlemen ...

Dear coworkers ...

Welcome everybody

Today I am going to talk about:

Presentation techniques – the do's and don'ts

Martin Weinelt
Freie Universität Berlin

Who are you ?

The Catcher:

*Die Straße des geringsten
Widerstandes ist nur am Anfang
asphaltiert.*

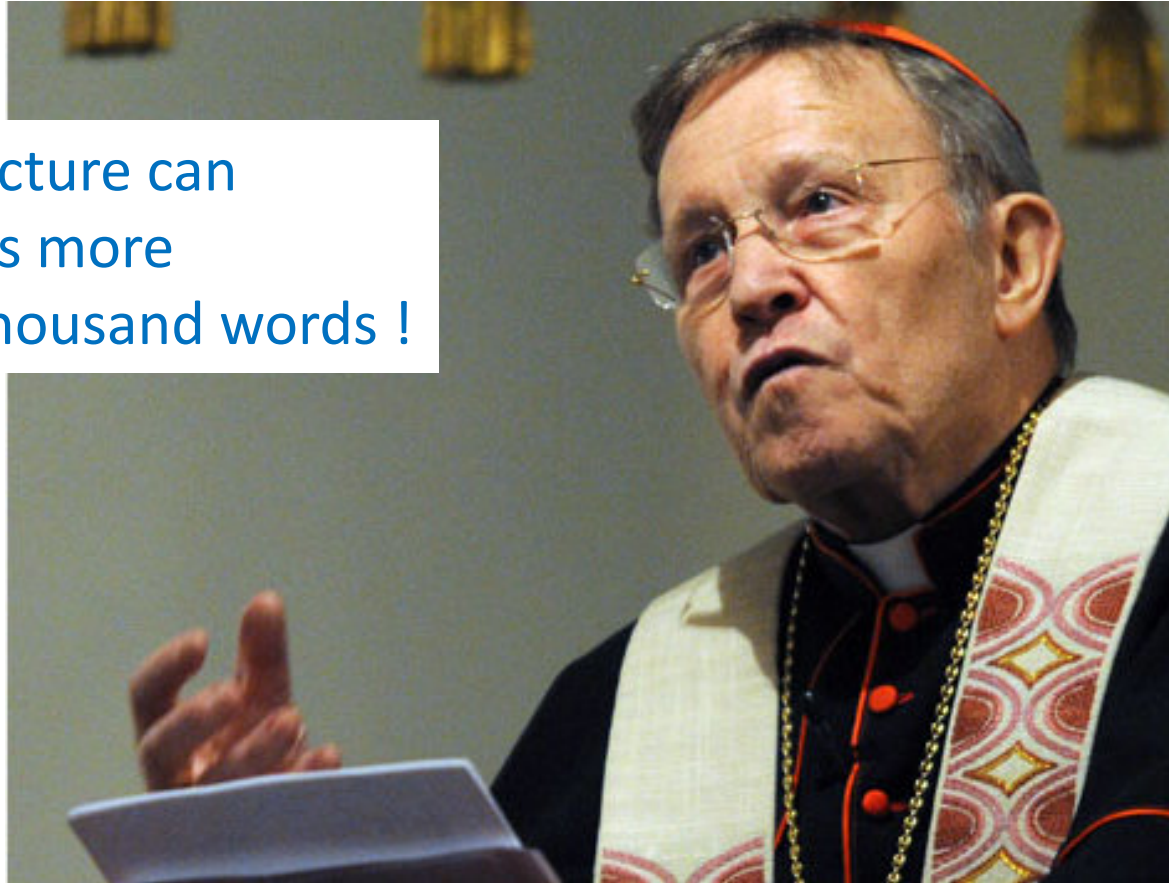
This needs time to digest !

Walter Kasper

who is this ?

Who is Walter Kasper ?

One picture can
express more
than thousand words !



Kurienkardinal Walter Kasper

So what ?

There are different kinds of presentations

Talk
Sachvortrag

Address
Ansprache

Speech
Meinungsrede

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...

Election speech
Discussion
Salary Assessment
...

Highlight with ovals, circles, hexagons

Sermon (*Predigt*)

Emphasize with color

... and a speech can have several goals

Use adequate forms:

The triangle:

Three equally important
missions

movere

docere

delectare

Emphasize: Cicero is one of „the speakers“

according to Cicero

A person can only concentrate for a few minutes !
Introduce a (funny) break, where the audience can relax !

Outline

1. The body of a presentation
2. The implementation of a presentation

1. The body of a presentation

1. Topic and Outline
2. Realization (main part)

2.1. Motivation

- ## 2.2. Analysis (central questions)
- Synthesis (answer to central questions)
- AS ... AS ...

Theory / Abstraction
(general background, scientific basis)

What have we learned ?

3. Conclusion
4. Final statement (thank coworkers, thank you for your attention)
5. Discussion

Topic, titles, subtitles, headlines

- A title is better unambiguous than too short:

Electron lifetimes

Lifetimes of image-potential states at semiconductor surfaces

- Choose a descriptive title, avoid gobbledygook:

2PPE at Cu(119)

The role of steps in interband scattering at the Cu(119) surface

don't raise expectations which you can't deliver

The role of steps in electron dynamics at the Cu(119) surface

- Please write your title legibly:

Twophotonphotoemission

Two-photon photoemission

The Outline

Your goal: give a structured overview
pique the audience's curiosity

Less is more: avoid long lists

A 10 minute talk does not necessarily need an outline.

This outline has no content !

1. Introduction
2. Results
3. Summary

Outline

- Time scale of magnon emission (iron)

Phys. Rev. Lett. **105**, 197401 (2010)

- Exchange scattering (cobalt)

Phys. Rev. Lett. - July 2011

- Faster than magnetism - breaking a magnet (gadolinium)

Phys. Rev. Lett. **106**, 127401 (2011)

New results from HHG experiment

Please wait while system is restarting



Motivation

- Surprising, but a typical problem
- Ideally something that is part of the audience's experience
- Something everybody should know or might want to know
- Create curiosity
- *Movere, docere, delectare*

Please think of a renowned expert on semiconductor physics. The audience is waiting with great and friendly expectations...

... and then he presents slides with graphs nobody can read or understand

Uniaxially stressed silicon: Fine structure of the exciton and deformation potentials

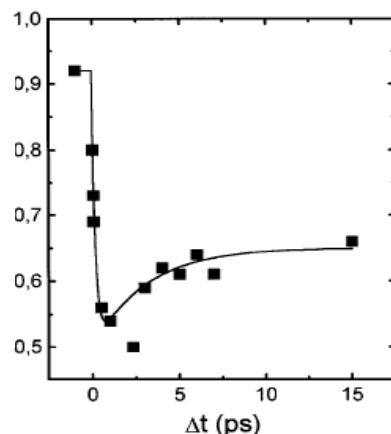
J.-C. Merle,* M. Capizzi, and P. Fiorini
Istituto di Fisica, Università di Roma, Roma, Italy

A. Frova
Istituto di Fisica, Università di Modena, Modena, Italy
 (Received 17 January 1978)

I. INTRODUCTION

The interest in the investigation of fine spectral structures of the exciton in semiconductors and in the determination of its basic parameters (effective Rydberg, excited states, splitting, intrinsic broadening) has been mainly promoted by the recent development of the physics of electron-hole systems at high densities. On the other hand, theoretical analyses in terms of the effective-mass approximation have now become available. Their verification by a thorough experimental characterization of the exciton can justify, for instance, the validity of the static screening assumption and elucidate the role of the Coulomb part in the more general context of impurity problems. Experimentally, current-modulation techniques do allow standards of resolution which are adequate on a $\frac{1}{10}$ -meV scale, characteristic of excitonic splittings in indirect-gap semiconductors.

The main origin of the exciton splitting, in absence of external perturbations, is the degeneracy of the hole, combined with the mass anisotropy of the electron which prevents the negative charge from being spherically distributed around the hole. Exchange effects may also play a role, although they are generally believed to be of minor impor-



The main origin of the exciton splitting, in absence of external perturbations, is the degeneracy of the hole, combined with the mass anisotropy of the electron which prevents the negative charge from being spherically distributed around the hole. Exchange effects may also play a role, although they are generally believed to be of minor importance in indirect semiconductors. We shall hereafter call Δ' the overall splitting, as observed experimentally, and Δ the part due to the mass anisotropy alone. The materials which have received so far the most attention are germanium, silicon, and gallium phosphide. The situation in germanium is fairly well established.¹ For GaP, which pres-

Analysis ...

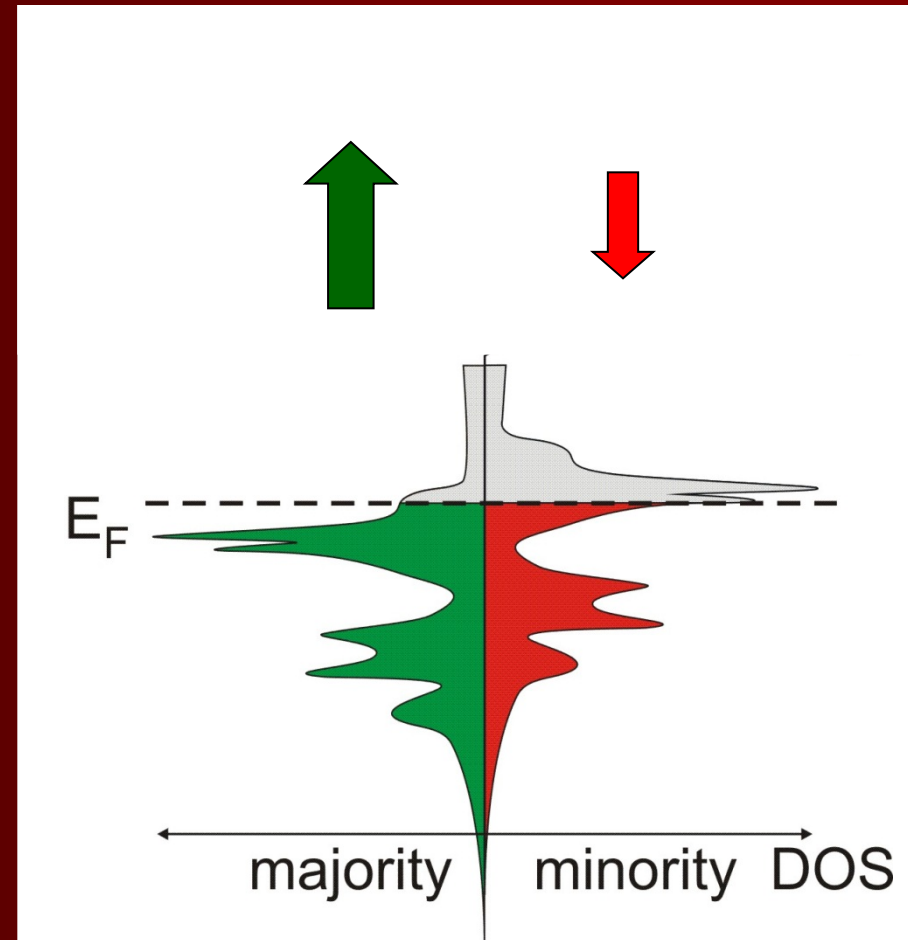
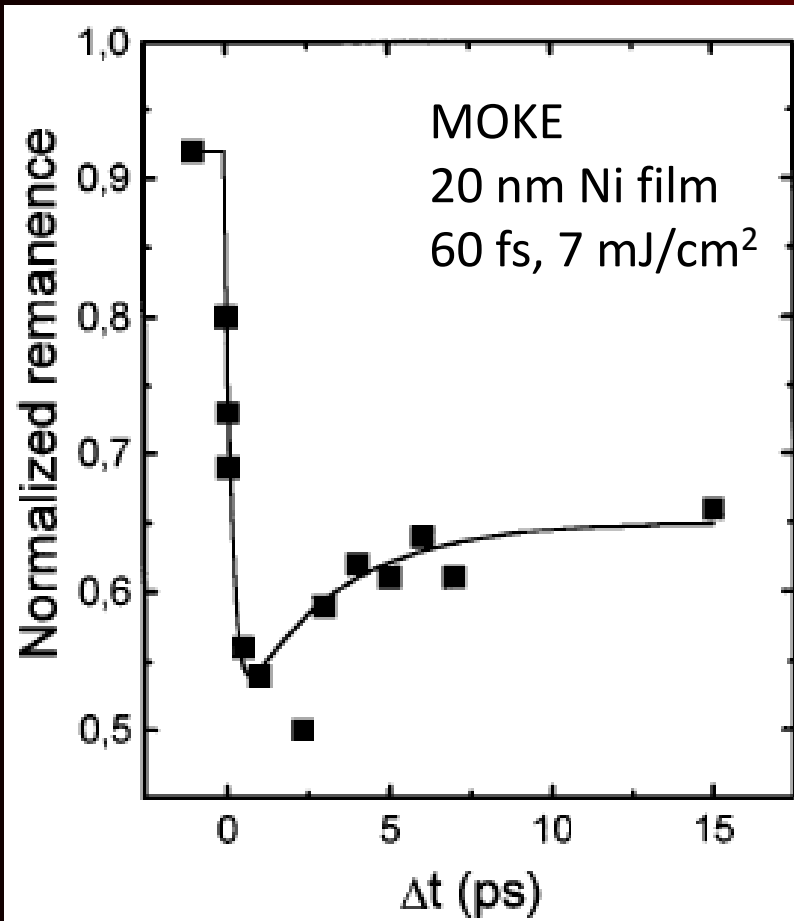
what did he do wrong ?

unfortunately ...

- Figure too small
- Axis not labeled
- Graph has no annotation
- Too much, too small text
use only key words, write left to right, 18 pt
- Headline too small
- Conclusion missing
- no colors for emphasis
- no picture for illustration

... Synthesis

Ultrafast magnetism ?



What are the microscopic processes ?

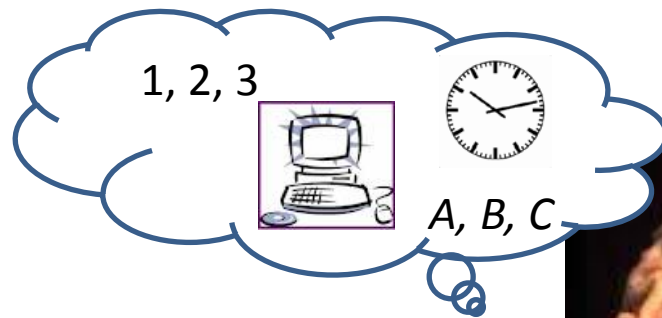
Theory, abstraction

- Femtosecond demagnetization upon laser excitation
 - Observed behavior universal for itinerant ferromagnets
-
- The presentation is as essential as the content

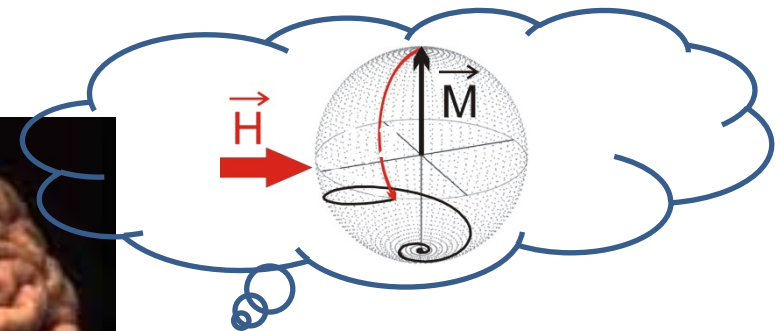
2. The implementation of a presentation

Meist sind die anderen Laien.

Wenn dich ein Laie nicht versteht, heißt es noch lange nicht, dass Du ein Fachmann bist.



analytic
verbal
digital
logical
Time cognition



holistic
creative
analog
intuitive
3d cognition



Human beings remember:

20 % of what we listen to

30 % of what we see

50 % of what we listen to and see

80 % of what we do ourselves

90 % of what we teach

Es ist nichts im Geist, was nicht zuvor in den Sinnen war.

Aristoteles

Try to use all senses !

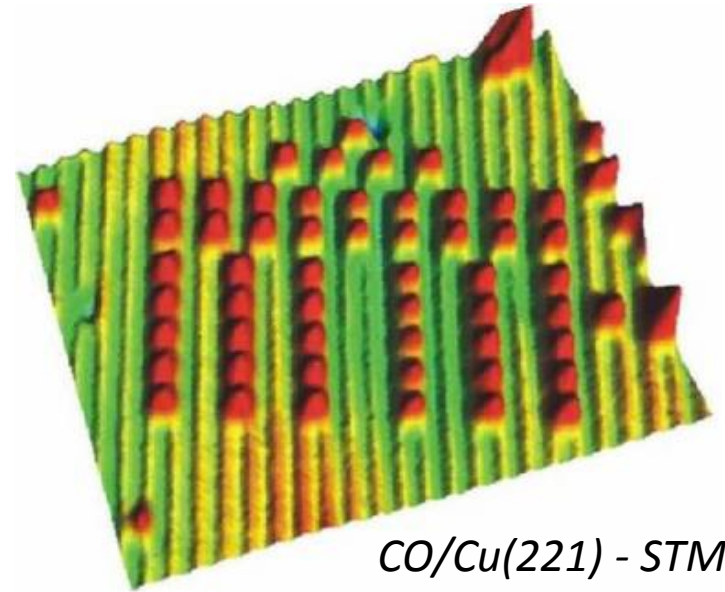
What do you think, if you read:
purple cow



Always talk about what the audience sees,
Always show, what you talk about

Visualization – Composition of slides

- A visualization must be self-explanatory
- Less is better than more (use empty space)
- Structure - use special forms, combine to logical blocks
- The brain can at most recognize 7 topics
- Divide complex explanations into logical sub-steps
- Emphasize important data and conclusions
- Pay attention to reading practice (left to right, top to bottom)
- A sketch must be twice as simple and three times bigger than in a publication



Text elements

- Use only key words
- Only 8 lines per slide (18 pt)
- State messages „lifetime is twice as large“ instead of „lifetime values“
- Use colors that make sense: important (red), water (blue), gold (yellow)
- Use colors consistently throughout the talk (the purple cow !)
- Use only black and three colors per slide

- Light-colored text on dark background reduces the readability by 30 %

- Red on green is a no-go

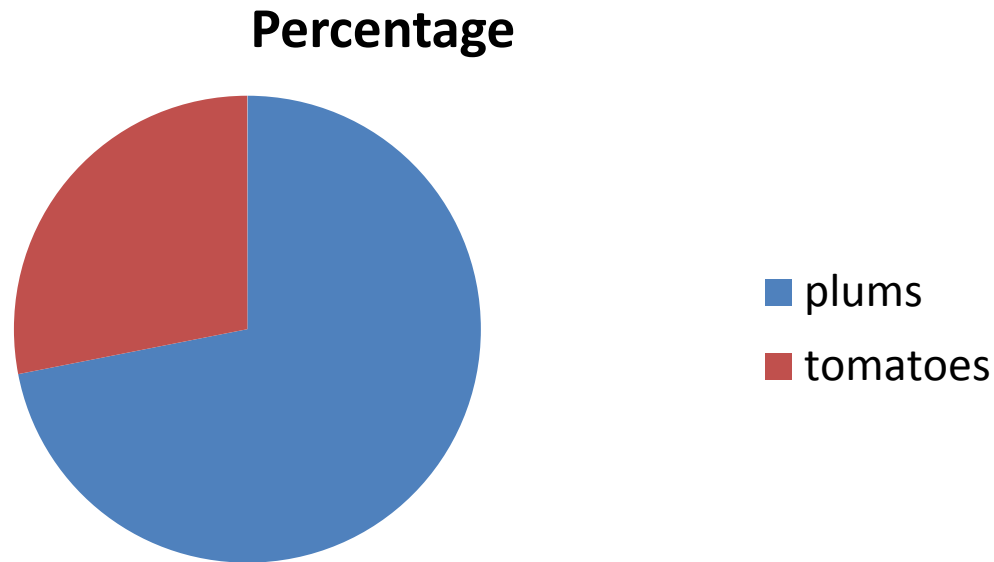
Color increases

- readability by 40 %
- comprehensibility by 73 %
- retentivity by 85 %

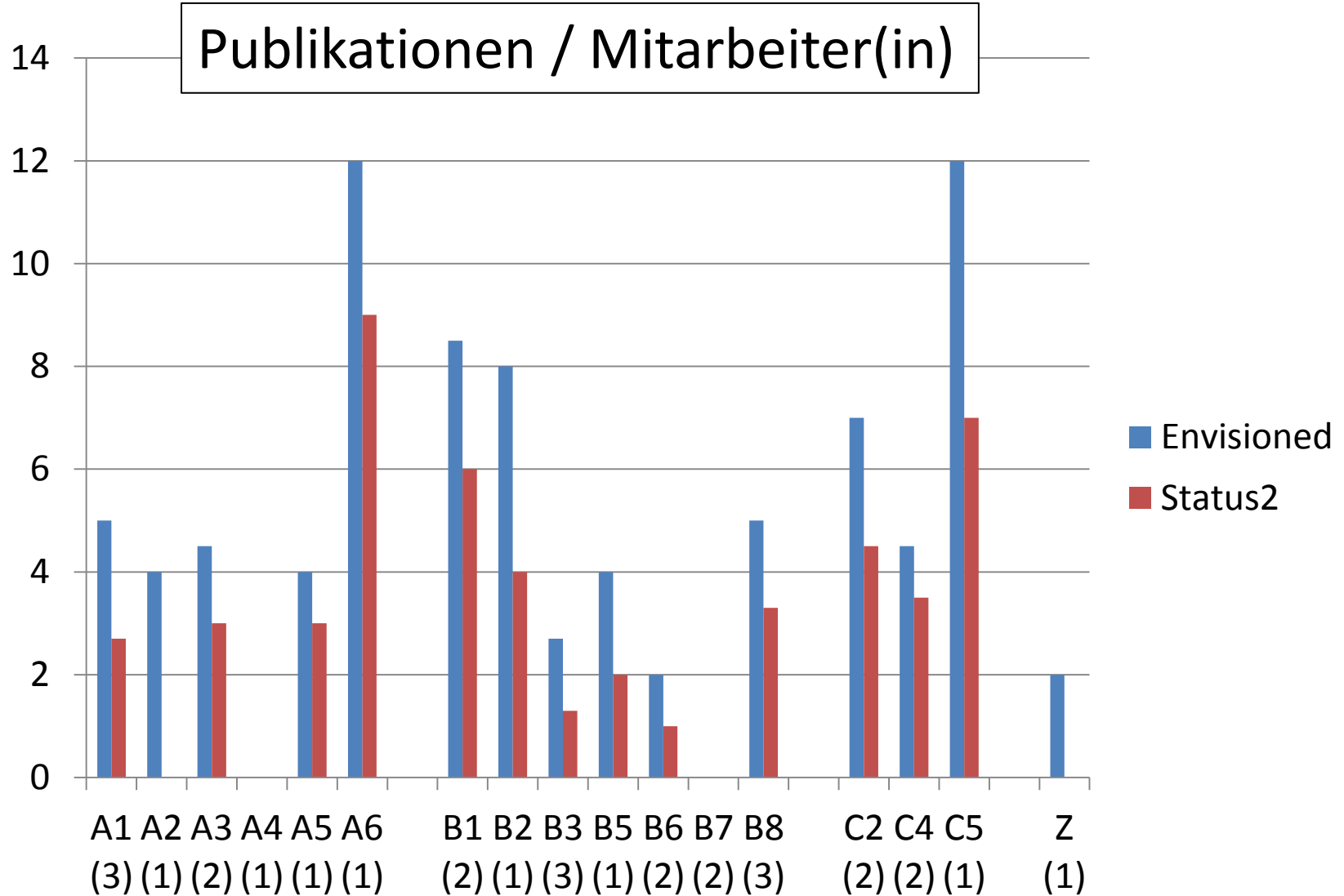
(Harvard University)

Figures, diagrams

- Not too many details
- Label every line and axis (sufficient, few numbers)
- Emphasize important conclusions
- Change the figure according to your needs

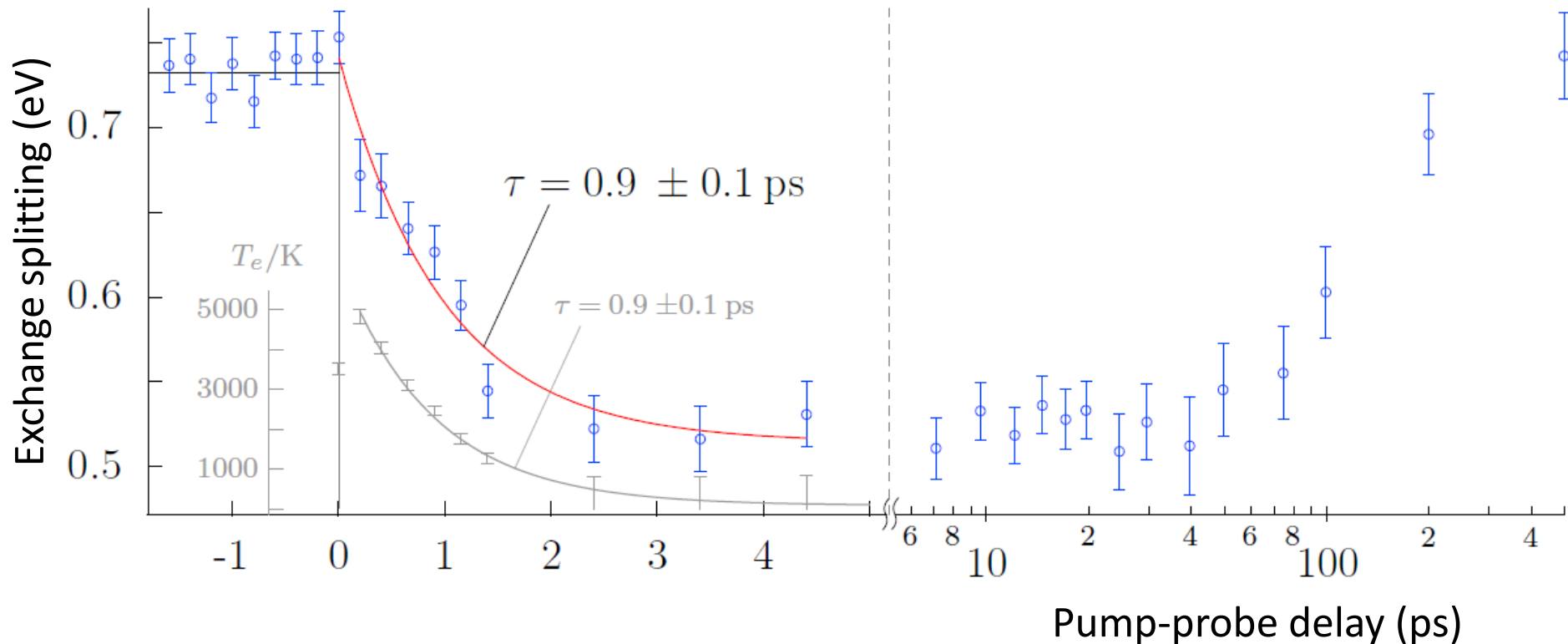


Ranking



Data points, error bars and fits

Gadolinium (1.2 mJ/cm^2)



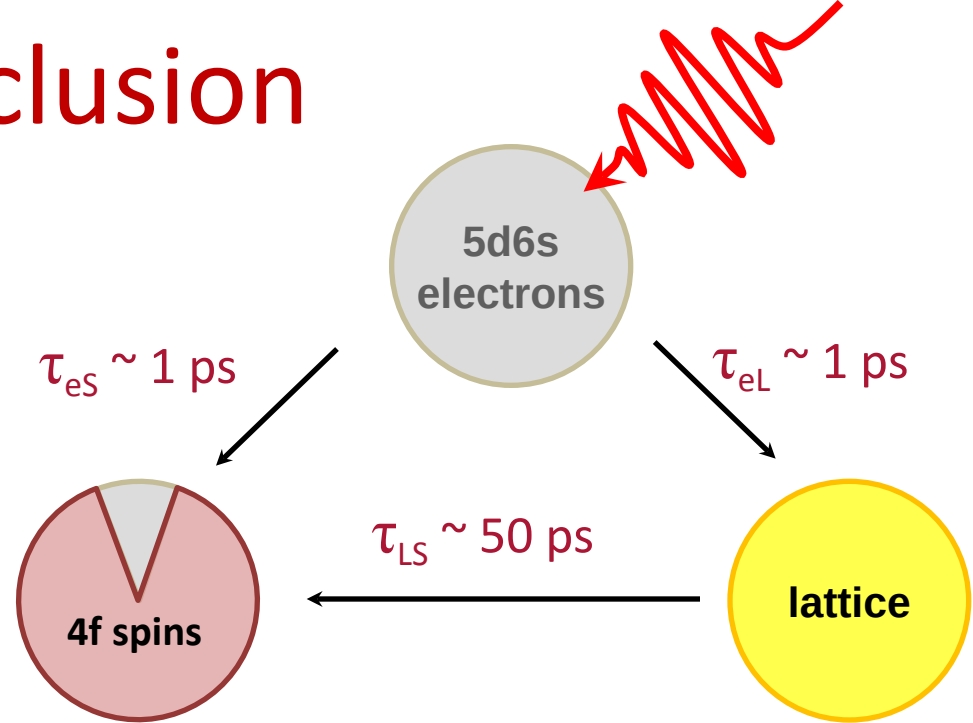
Ultrafast 1ps demagnetization

Conclusion

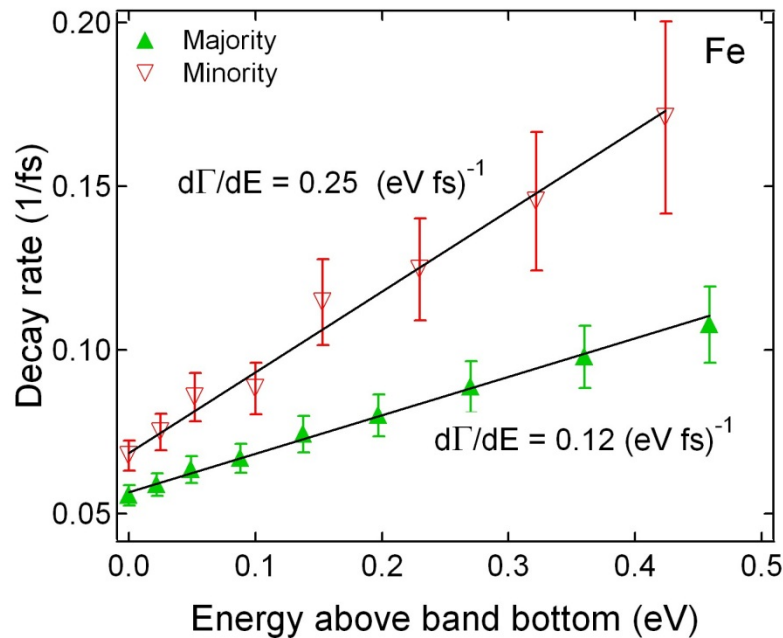
- Ultrafast demagnetization in Gd and Tb upon laser excitation
- Time-scale of spin-dependent RKKY interaction
„Breaking a magnet“
- The demagnetization in Tb is stronger and faster due to its spin lattice coupling via MCA
- fs - spin-lattice contribution
- Hysteresis demonstrates electronically and a thermally driven demagnetization processes

Conclusion

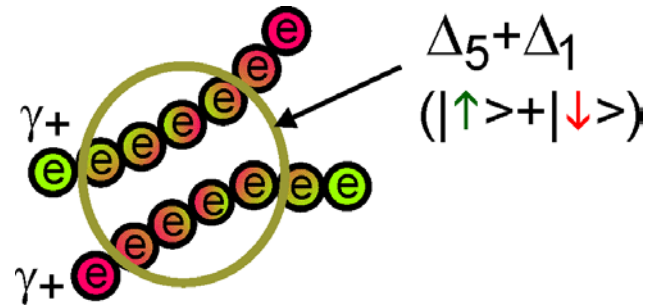
Magnetization
dynamics in Gd



Ultrafast magnon emission



Hot spots



Thank you !

Anke B. Schmidt, Martin Pickel, and Markus Donath
(Univ. Münster)

Andreas Goris, Ilja Panzer, and Kristian Döbrich

Robert Carley, Kristian Döbrich, Björn Frietsch, and
Martin Teichmann

Philippe Wernet, Olaf Schwarzkopf (HZB – BESSY)

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Thank you !

MBI



third party funding



Outlook: LIMO to a nasty question

- Loben (Commend)
- Interesse zeigen (Show interest)
- Eigene Mängel erwägen (Own shortcomings)
- Offen bleiben (Keep conclusion open)