DUÇÃO À INVESTIGAÇÃO

MEFT – 5º ANO

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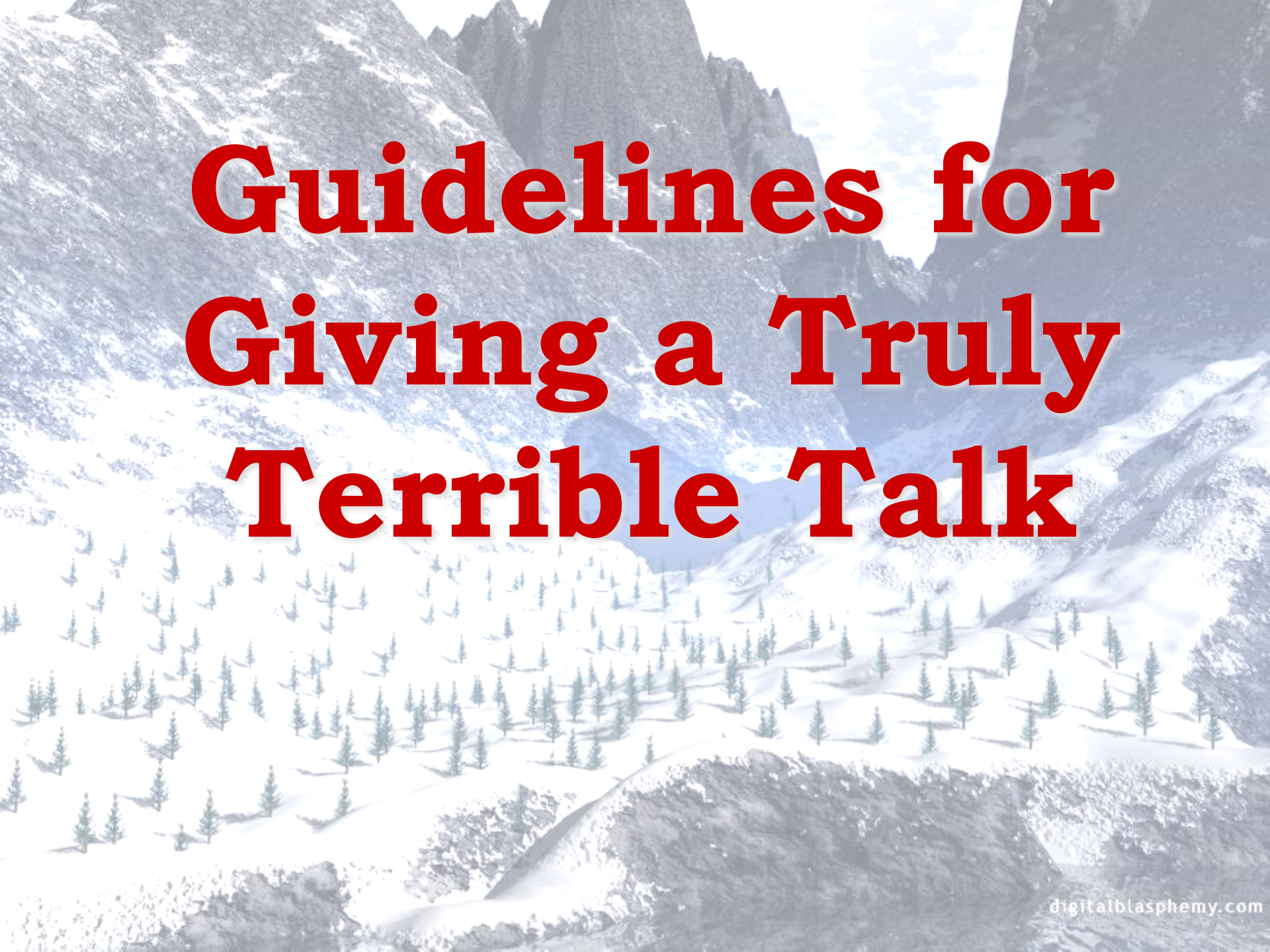
DF
DEPARTAMENTO
DE FÍSICA
TÉCNICO LISBOA

Communication in Science

Simplicity = Efficiency

What are you going to talk about?
To whom?
Where?
How?


Guidelines for Giving a Truly Terrible Talk
digitalblasphemy.com

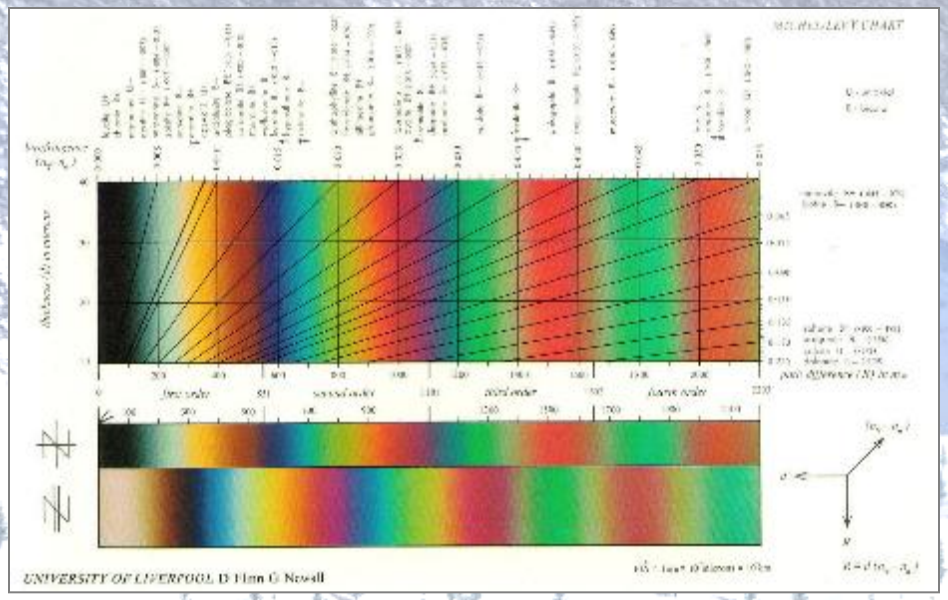

Rules for Using Slides
Powerpoint tip: use an irrelevant background!
digitalblasphemy.com

1. Use lots of slides.

- A rule of thumb is one slide for each 10 seconds of time allotted for your talk.
- If you don't have enough, borrow the rest from the previous speaker, or cycle back and forth between slides.

Powerpoint Tip: avoid high contrast text, which is easy to read and which might enable some audience members to follow your talk.

2. Put as much information on one slide as possible.



Graphs with dozen or so crossing lines, tables with at least 100 entries, and maps with 20 or 30 units are especially effective; but equations, particularly if they contain at least 15 terms and 20 variables are almost as good.

A high density of details and marginally relevant data usually preempts.

Tip: Never give sources of data or images—let them think they are your own ideas!

Powerpoint tip: use hard-to-read display fonts whenever possible

3. Use small print.

Anyone who has not the foresight to either sit in the front row or bring a set of binoculars is probably not smart enough to understand your talk anyway.

Powerpoint tip: sound effects and animations really give your presentation zip!

4. Use figures and tables directly from publications. Do NOT enlarge images!

- **They will help you accomplish goals 2 and 3 above and minimize the amount of preparation for the talk.**
- **If you haven't published the work, use illustrations from an old publication.**

Don't forget to disparage your visuals by reminding the audience frequently of how bad they are.

- **Only few people in the audience will notice anyway.**

Presentation

- *Powerpoint tip: if you have 128 fonts, try to use them all!*

1. Don't organize your talk in advance.

- It is usually best not to even think about it until your name has been announced by the session chair.
- Above all, don't write the talk out, for it may fall into enemy hands.

Powerpiont tip: Never chcke splleing--let them know you are too important and busy to be bothered with details

2. Never, ever, rehearse, even briefly.

- Talks are best when they arise spontaneously and in random order.
- Leave it as an exercise for the listener to assemble your thoughts properly and make sense out of what you say.

3. Read your visuals to the audience.

- **Discuss each slide in complete detail, especially those parts irrelevant to the main points of your talk.**
- **Don't forget to mumble!**
- **If you suspect that there is anyone in the audience who is not asleep, return to a previous slide and discuss it again.**

4. Face the projection screen and talk as fast as possible, especially while making important points.

An alternate strategy is to speak very slowly, leave every other sentence uncompleted and punctuate each thought with "ahhh", "uhhh", or something equally informative.

Clear your throat, often!

5. Wave the light pointer around the room, or at least move the beam rapidly about the slide image in small circles.

- If this is done properly, it will make 50% of the people in the front three rows (and those with binoculars) sick.

6.Use up all of your allotted time and at least half, if not all, of the next speaker's.

This avoids foolish and annoying questions and forces the chairman to ride herd on the following speakers.

Remember, the rest of the speakers don't have anything important to say anyway. If they had, they would have been assigned times earlier than you.

PowerPoint Tip: use lots of clipart—it distracts from your boring presentation

If there were no hypothetical questions what would this say?

Use PowerPoint

- Dazzle them with 256,000,000 colors!
- Cliché templates!
- Sound Effects!
- Annoying transitions!
- Import video and animations that won't work
- Put an annoying header and footer on every slide

Terrible Presentations 16/17

The End, I hope!

Adapted from an ad for *35-mm Slides: A Manual for Technical Presentations*

By Dan Pratt and Lev Ropes, published by the American Association of Petroleum Geologists, 1978; order from AAPG, Box 979, Tulsa, OK 74101

Adaptation by Steven B. Zwickel, prime suspect

In short:

- Define the goals

  (what should the audience retain)
- Describe the methods
- Present your results
- Take conclusions

In short:

- Respect the time
- Don’t use too much slides(1slide/min)
- One should be able to see what’s in the slides (font size)

In short:

- Plots and tables should be visible
- Don't use too much elements which can potentially distract the audience (colours, animations, etc)

In short:

The level of detail should be adapted to the available time

A 1h seminar is not the same as a 20 min talk!

The worst that can happen:

Finishing your talk without presenting your conclusions because you wasted time with irrelevant details

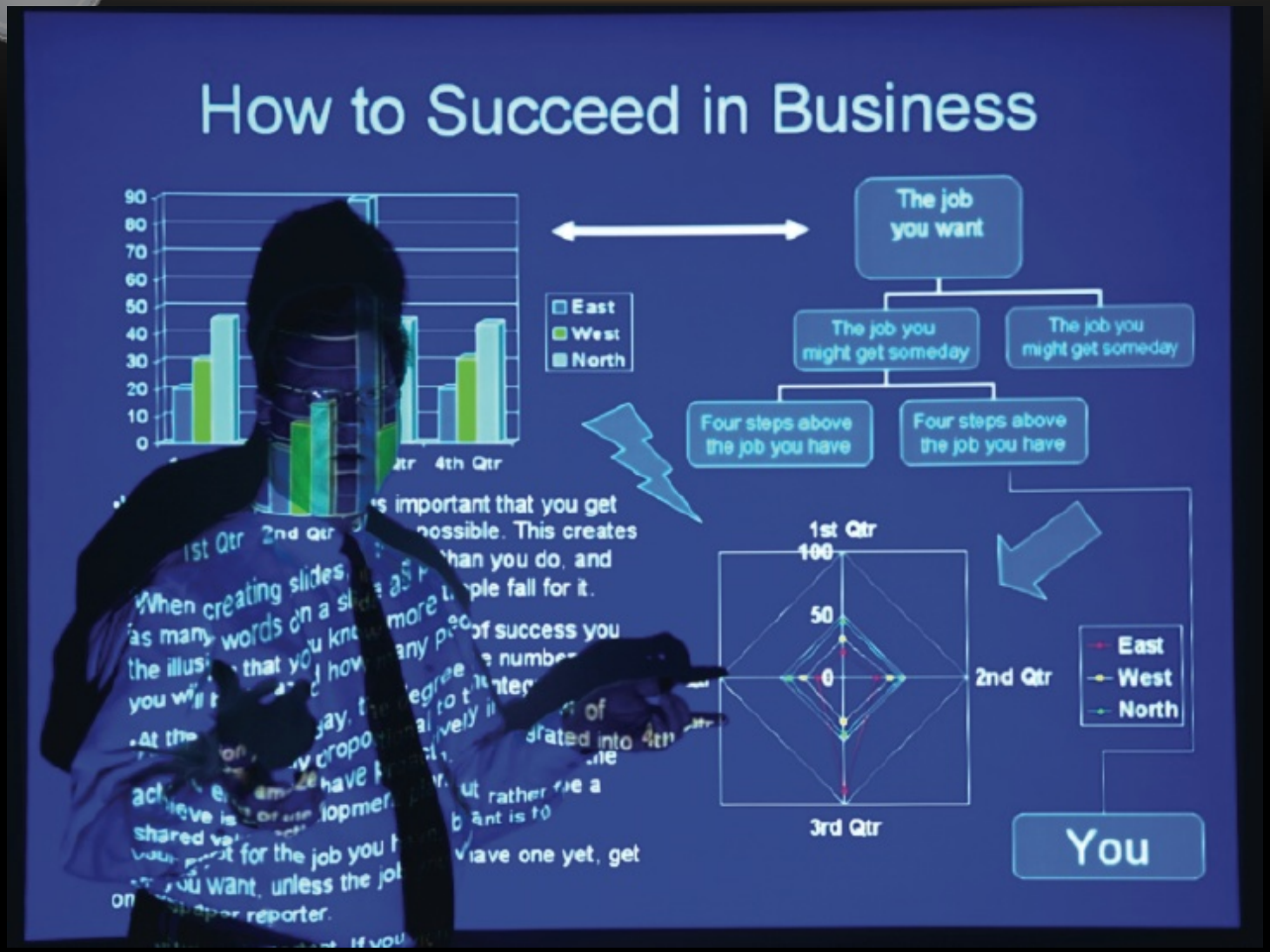
In short:

- Prepare your presentation
- Establish contact with the audience
- Don’t just read what’s in the slides
- Balance between slides and speach

In short:

- Don’t speak too fast
- Use a laser pointer (we are in the 21st century)
- If necessary, bring water!
- Be careful with compatibility issues..

In short:


How to Succeed in Business
The job you want
The job you might get someday
The job you might get someday
Four steps above the job you have
Four steps above the job you have
East
West
North
1st Qtr
2nd Qtr
3rd Qtr
4th Qtr
You

In short:

GERALMENTE AS APRESENTAÇÕES SÃO SEGUIDAS DE PERGUNTAS…

Portanto…

Não falem do que não sabem!

H(ZZ→4l) Results

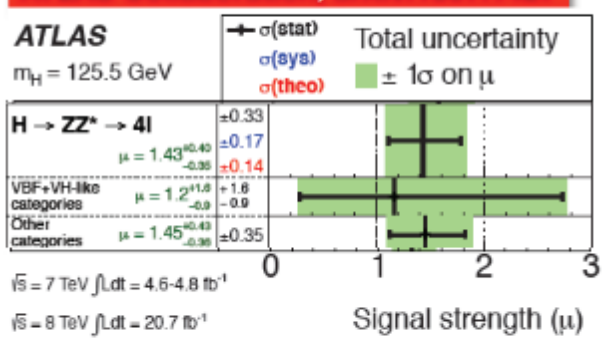
BROWN

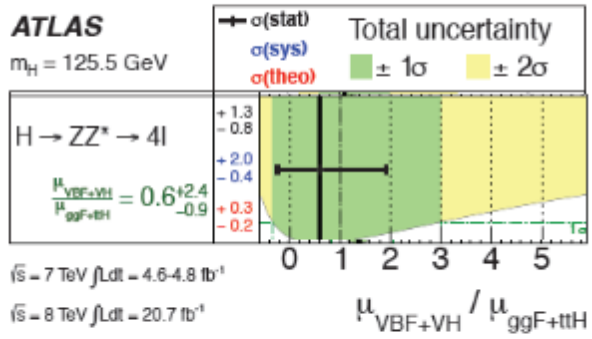
Greg Landsberg - Higgs Bosons in the SM and Beyond - EPS 2013

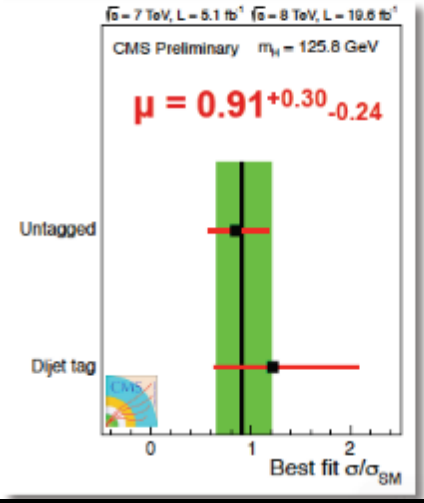
Slide 17

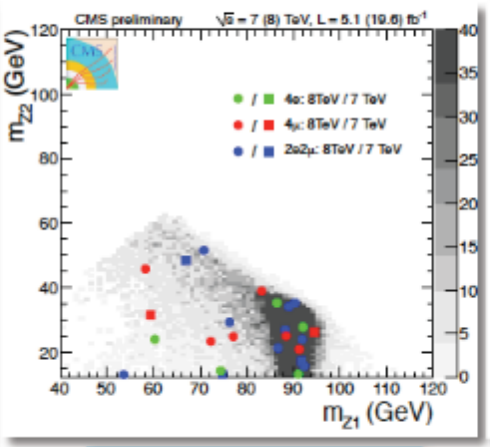
ATLAS Collaboration, arXiv:1307.1427

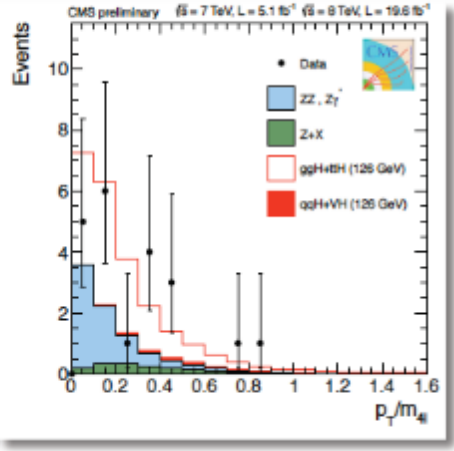
$m_H = 124.3^{+0.6}_{-0.5}{}^{+0.5}_{-0.3}$ GeV











CMS PAS HIG-13-002

$m_H = 125.8 \pm 0.5 \pm 0.2$ GeV

BCJ

Gravity and Gauge Theory

kinematic numerator — color factor

gauge theory:

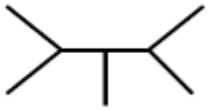
$$\frac{1}{g^{n-2}}\mathcal{A}_n^{\text{tree}}(1,2,3,\ldots,n) = \sum_i \frac{n_i\, c_i}{\prod_{\alpha_i} p_{\alpha_i}^2}$$

sum over diagrams with only 3 vertices

$$c_i \sim f^{a_1 a_2 b_1} f^{b_1 b_2 a_5} f^{b_2 a_4 a_5}$$

Assume we have:

$$c_1 + c_2 + c_3 = 0 \quad \Leftrightarrow \quad n_1 + n_2 + n_3 = 0$$



Then: $c_i \Rightarrow \tilde{n}_i$ **kinematic numerator of second gauge theory**

gravity:

$$-i\left(\frac{2}{\kappa}\right)^{(n-2)} \mathcal{M}_n^{\text{tree}}(1,2,\ldots,n) = \sum_i \frac{n_i\, \tilde{n}_i}{\prod_{\alpha_i} p_{\alpha_i}^2}$$

Gravity numerators are a double copy of gauge-theory ones!

This works for ordinary Einstein gravity and susy versions!

Cries out for a unified description of the sort given by string theory!

Tree level proof, ZB, Dennen, Huang, Kiermaier; Bjerrum Bohr, Damgaard, Vanhove

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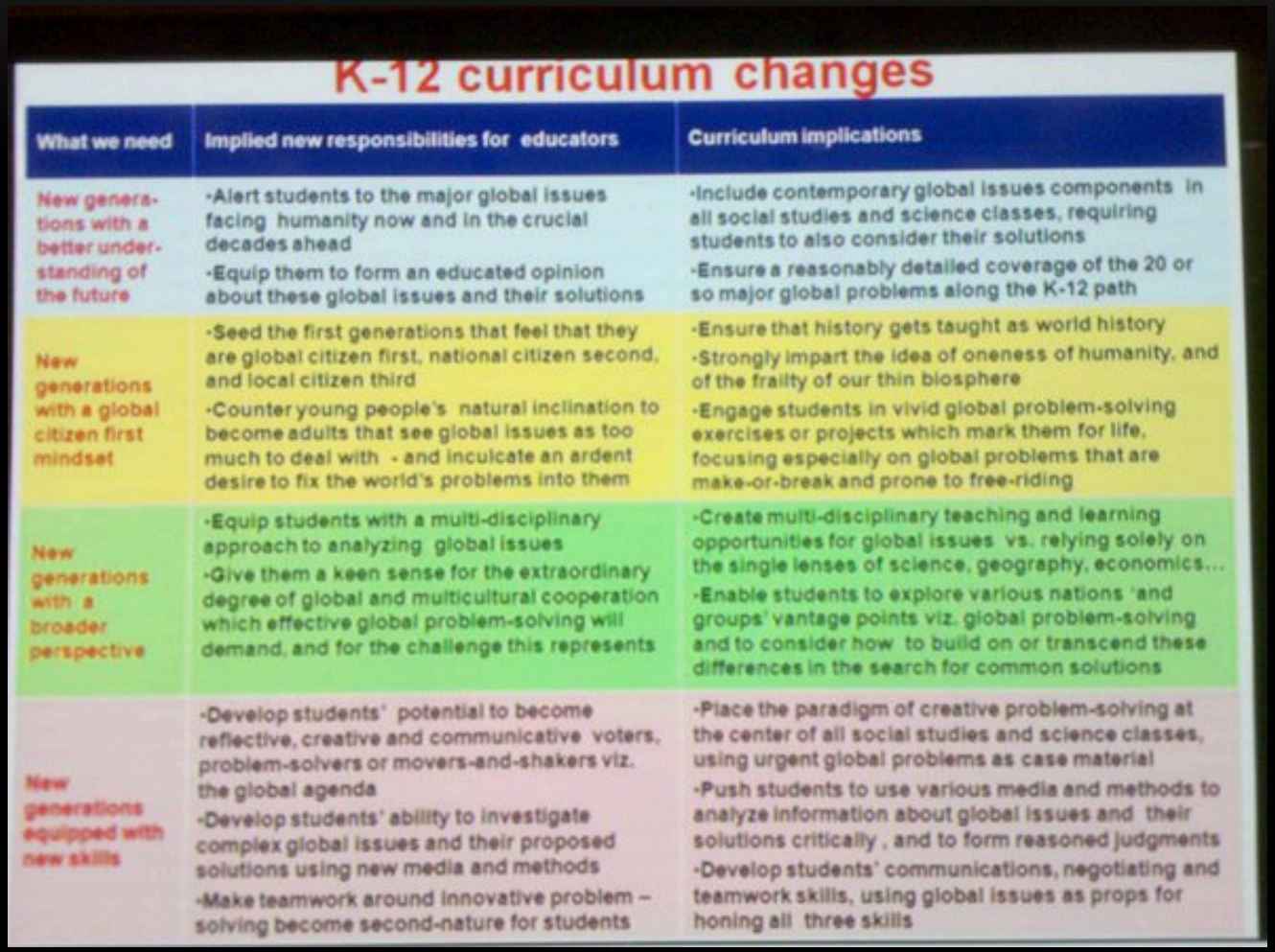
Type 2 Diabetes Mellitus

- In type 2 DM (previously called adult-onset or non-insulin–dependent), insulin secretion is inadequate
- The disease generally develops in adults and becomes more common with age.
- Plasma glucose levels reach higher levels after eating in older than in younger adults, especially after high carbohydrate loads, and take longer to return to normal, in part because of increased accumulation of visceral and abdominal fat and decreased muscle mass.
- Type 2 DM is becoming increasingly common in children as childhood obesity has become epidemic: 40 to 50% of new-onset DM in children is now type 2

Astronomy

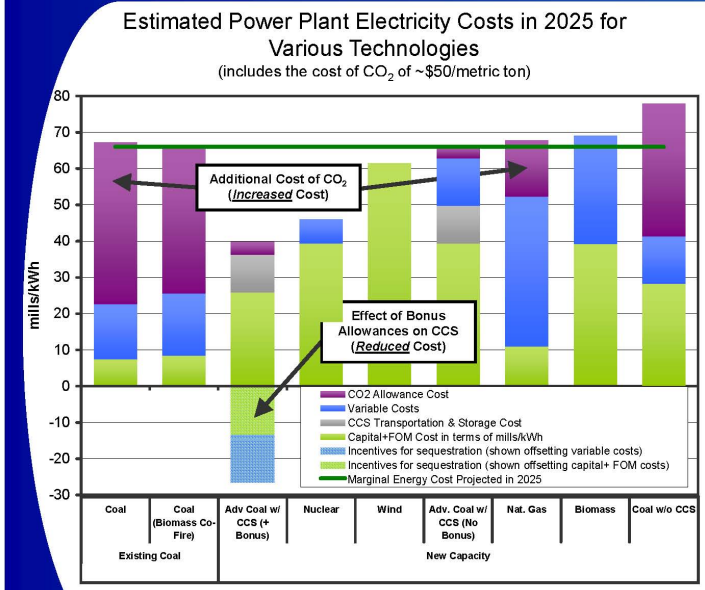
- In 1966 a man described that he saw a UFO at Presque Isle
- He tried to work with a sketch artist to show what he saw
- There were scratch marks on his vehicle and strange triangular prints in the sand
- He also said that he saw many lights that approached shore near dusk



K-12 curriculum changes

What we need	Implied new responsibilities for educators	Curriculum implications
New generations with a better understanding of the future	·Alert students to the major global issues facing humanity now and in the crucial decades ahead ·Equip them to form an educated opinion about these global issues and their solutions	·Include contemporary global issues components in all social studies and science classes, requiring students to also consider their solutions ·Ensure a reasonably detailed coverage of the 20 or so major global problems along the K-12 path
New generations with a global citizen first mindset	·Seed the first generations that feel that they are global citizen first, national citizen second, and local citizen third ·Counter young people's natural inclination to become adults that see global issues as too much to deal with - and inculcate an ardent desire to fix the world's problems into them	·Ensure that history gets taught as world history ·Strongly impart the idea of oneness of humanity, and of the frailty of our thin biosphere ·Engage students in vivid global problem-solving exercises or projects which mark them for life, focusing especially on global problems that are make-or-break and prone to free-riding
New generations with a broader perspective	·Equip students with a multi-disciplinary approach to analyzing global issues ·Give them a keen sense for the extraordinary degree of global and multicultural cooperation which effective global problem-solving will demand, and for the challenge this represents	·Create multi-disciplinary teaching and learning opportunities for global issues vs. relying solely on the single lenses of science, geography, economics… ·Enable students to explore various nations 'and groups' vantage points viz. global problem-solving and to consider how to build on or transcend these differences in the search for common solutions
New generations equipped with new skills	·Develop students' potential to become reflective, creative and communicative voters, problem-solvers or movers-and-shakers viz. the global agenda ·Develop students' ability to investigate complex global issues and their proposed solutions using new media and methods ·Make teamwork around innovative problem – solving become second-nature for students	·Place the paradigm of creative problem-solving at the center of all social studies and science classes, using urgent global problems as case material ·Push students to use various media and methods to analyze information about global issues and their solutions critically , and to form reasoned judgments ·Develop students' communications, negotiating and teamwork skills, using global issues as props for honing all three skills

Near-Term Power Plant Economics with CO_2 Allowance Costs



- To illustrate the economics of operating existing and new power technologies, the chart shows the cost of various technologies when the projected CO_2 allowance prices are included.
- Projected CO_2 allowance prices of roughly $50/ton in 2025 increase variable costs of existing plants powered by fossil fuels to the point where many are likely to shut down.
- However, S. 2191 provides significant incentives for CCS technology for coal plants in the form of bonus allowances, resulting in earlier penetration of advanced coal with CCS.

Notes: For the case with bonus allowances, the variable, capital, and fixed O&M costs are actually an aggregate of the solid part and the hashed part but the net cost is only the solid part. For this illustrative calculation, EPA used a conservative efficiency metric for existing coal plants (10,500 Btu/kWh), which most plants currently meet or exceed. The marginal energy cost is defined as the cost of production of the most expensive unit operating in that hour. It includes the cost of fuel, variable O&M cost and the cost of environmental allowances. The capital costs used here are from IPM v3.01, which relies upon EIA capital cost data from AEO 2005. More recently, capital costs have increased with increasing international demand for raw materials. It is not clear how the market will respond to these price increases and whether these increased costs will be sustained over the period of the analysis.

EPA Analysis of S. 2191

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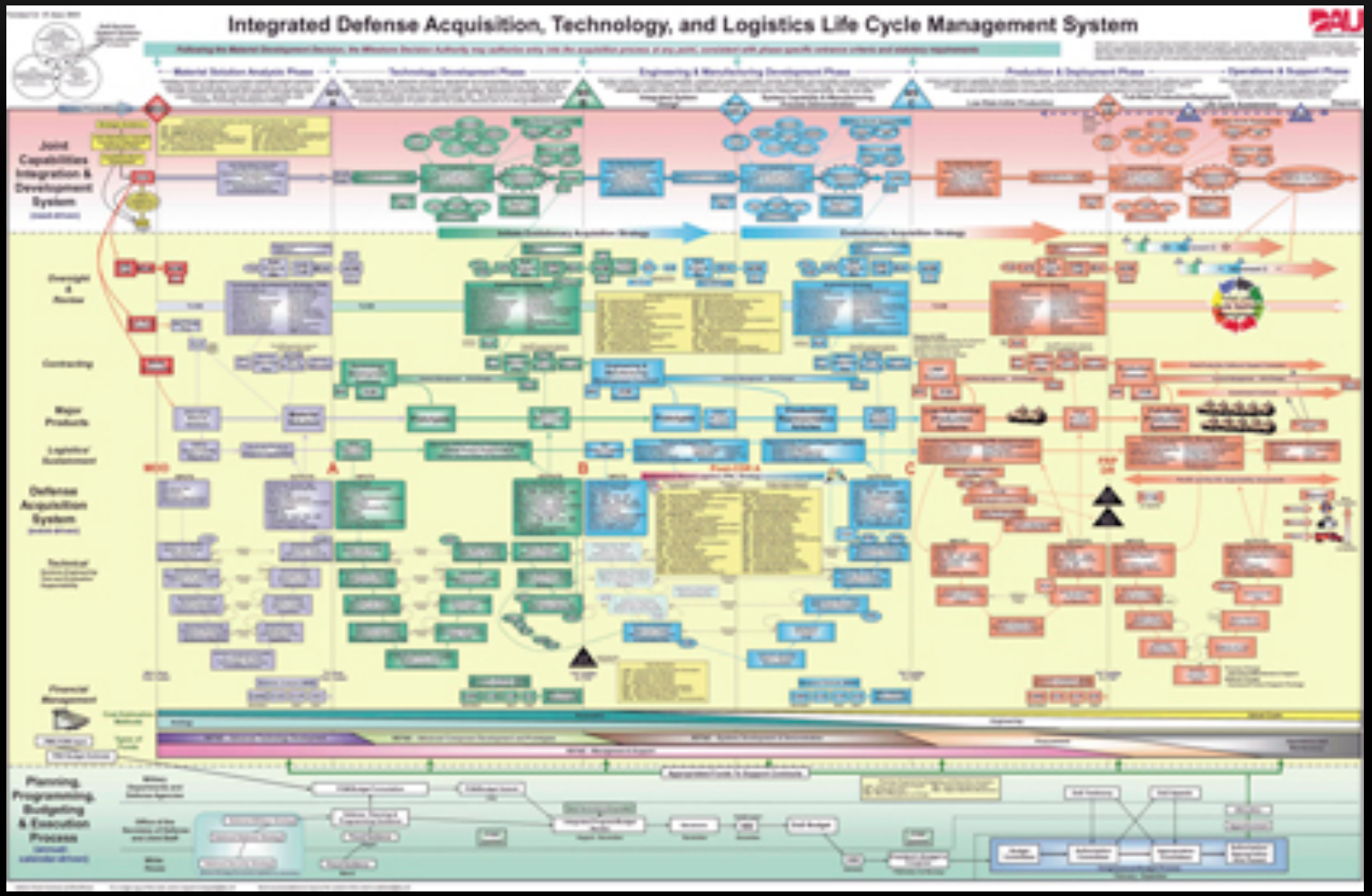

Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System
Joint Capabilities Integration & Development System
Defense Acquisition System
Planning, Programming, Budgeting & Execution Process

US Wireless Market – Q2 2010 Update

Executive Summary

The US wireless data market grew 6% Q/Q and 22% Y/Y to exceed $13.2B in mobile data service revenues in Q2 2010 - on track so far to meet our initial estimate of $54B for the year.

Having narrowly edged NTT DoCoMo last quarter for the first time, Verizon Wireless continued to maintain its number one ranking for the 1H 2010 in terms of the operator with the most mobile data revenues (though the difference was thinner than the amoeba membrane). The total wireless connections for Verizon were almost 100M with 92.1M being the traditional subscriber base. Rest of the 3 top US operators also maintained leading positions amongst the top 10 global mobile data operators.

Sprint had the first positive netadd quarter in 3 years and has been slowly and steadily turning the ship around. T-Mobile did better on the postpaid netadds but overall additions declined again. The larger question for the market is if 4 large players can stay competitive. Generally, the answer is no. But these are different times and there are a number of permutations and combinations that are possible.

The US subscription penetration crossed 95% at the end of Q2 2010. If we take out the demographics of 5 yrs and younger, the mobile penetration is now past 100%. While the traditional net-adds have been slowing, the "connected device" segment is picking up so much that both AT&T and Verizon added more connected devices than postpaid subs in Q2 2010. Given the slow postpaid growth, operators are fiercely competing in prepaid, enterprise, connected devices, and M2M segments.

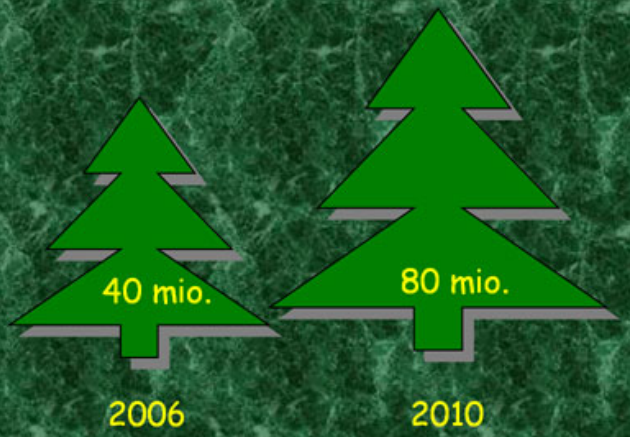
Data traffic continued to increase across all networks. By 1H 2010, the average US consumer was consuming approximately 230 MB/mo up 50% in 6 months. US has become ground zero for mobile broadband consumption and data traffic management evolution. While it lags Japan and Korea in 3G penetration by a distance, due to higher penetration of smartphones and datacards, the consumption is much higher than its Asian counterparts. Given that it is also becoming the largest deployment base for HSPA+ and LTE, most of the cutting edge research in areas of data management and experimentation with policy, regulations, strategy, and business models is taking place in the networks of the US operators and keenly watched by players across the global ecosystem.

As we had forecasted, the tiered pricing structure for mobile broadband touched the US shores with AT&T becoming the [illegible]jor operator to change its pricing plan based on consumer consumption. We will see the pricing evolve over the [illegible] quarters as the US mobile ecosystem adjusts to the new realities and strategies for mobile data consumption.

Sustainable Marketing

- What makes products feel sustainable?
- Is sustainable "cool"?
- How do customers respond to "green campaigning"?

- Sales volume for "green products" doubled in the last 4 years:



POSTERS

POSTER SESSION ARE MORE INFORMAL

AND

ALLOW FOR A DIRECT CONTACT WITH THE AUDIENCE

POSTERS

POSTERS MUST FOLLOW THE SAME RULES AS SLIDES

SIMPLICITY

Avoid too much detail (you are there to answer specific questions)

POSTERS

Timetable Parellel Sessions

Scientific Programme

Contribution List

Create Account (speakers, poster presenters and conveners)

Information for session conveners

Instructions for speakers

Instructions for posters

Poster List and Posters

Parallel and plenary session maps

Support

info@eps-hep2013.eu

The posters will be on display for the entire duration of the conference (i.e. both during parallel sessions at the KTH Campus and during the plenary session at the Aula Magna on the Stockholm University Campus).

Poster size

The **poster format size** is strictly **portrait A0**. Poster presenters are kindly asked to bring with them an A0 printed copy of their posters as no poster printers will be available at the conference venues.

Poster installation

Poster installation will commence **on Thursday July 18, 2013** in the *morning* **at the KTH Campus**.

Poster rooms at the KTH Campus for the different sessions are the following:

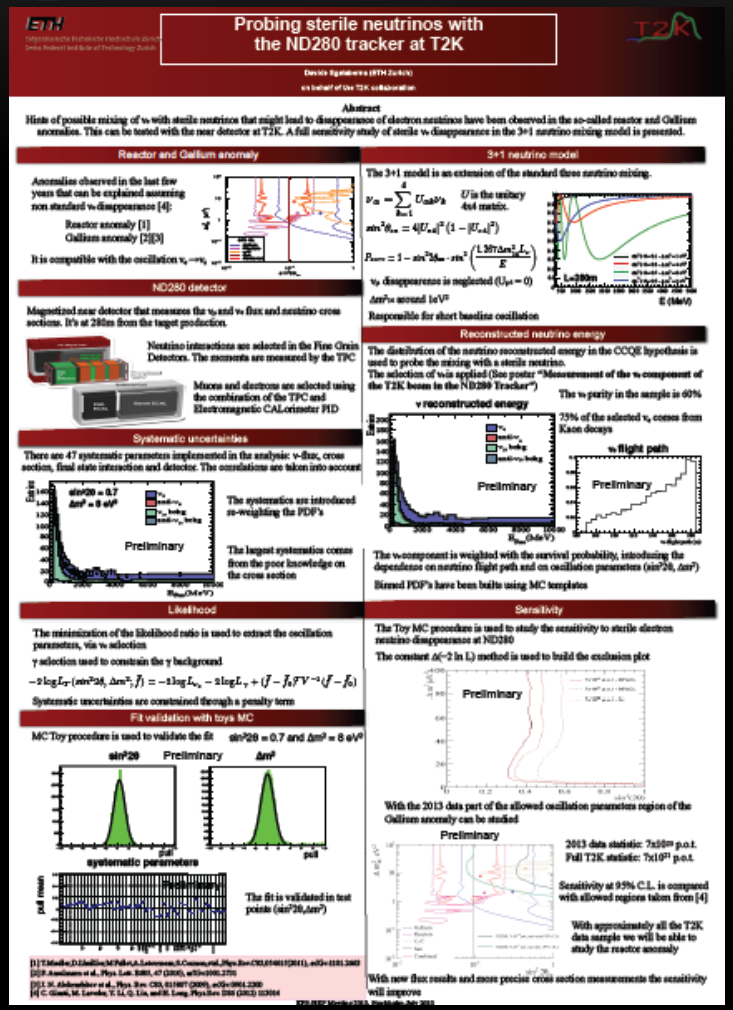
E34: QCD
E35: Higgs and New Physics
D34: Top and Electroweak Physics, Ultrarelativistic Heavy Ions, Detector R&D and data handling, Accelerators
D35: Astroparticle Physics, Flavour Physics and Fundamental Symmetries, Cosmology and Gravity, Neutrino Physics

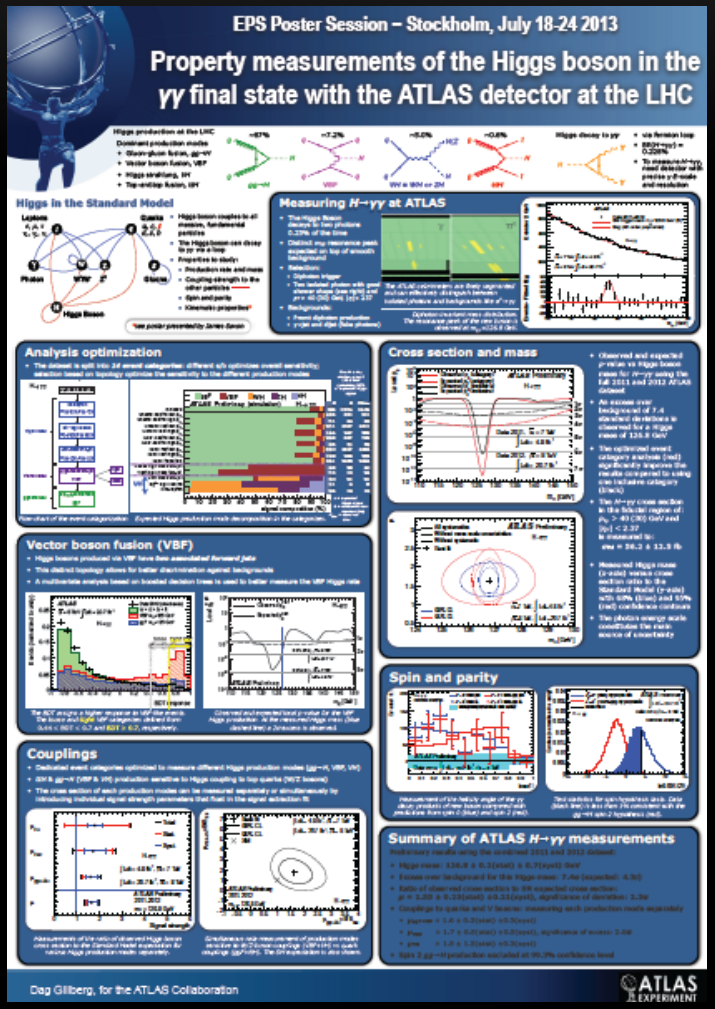
On Saturday July 20, 2013 the posters will be taken down by the local organizers.

On Monday July 22, 2013 the posters will be reinstalled by the local organizers **at the Aula Magna**.

Poster floors at the Aula Magna for the different sessions are the following:

POSTERS


Probing sterile neutrinos with the ND280 tracker at T2K
Abstract
Reactor and Gallium anomaly
3+1 neutrino model
ND280 detector
Reconstructed neutrino energy
Systematic uncertainties
Likelihood
Sensitivity
Fit validation with toys MC
Preliminary


EPS Poster Session – Stockholm, July 18-24 2013
Property measurements of the Higgs boson in the γγ final state with the ATLAS detector at the LHC
Higgs in the Standard Model
Measuring H→γγ at ATLAS
Analysis optimization
Cross section and mass
Vector boson fusion (VBF)
Spin and parity
Couplings
Summary of ATLAS H→γγ measurements
Dag Gillberg, for the ATLAS Collaboration
ATLAS EXPERIMENT

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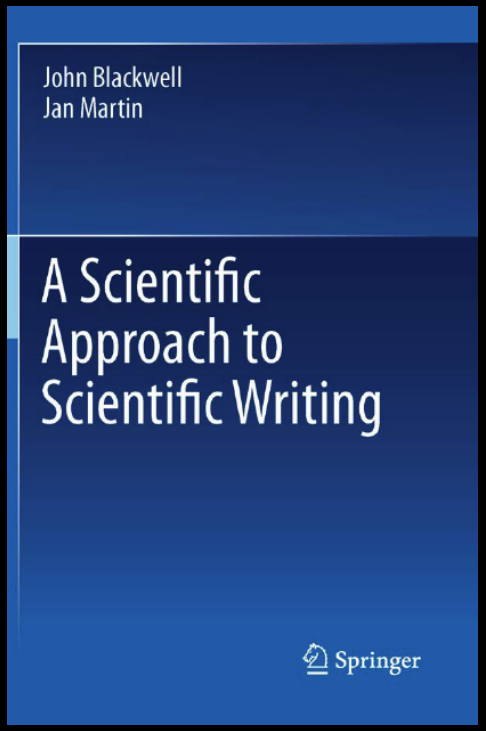
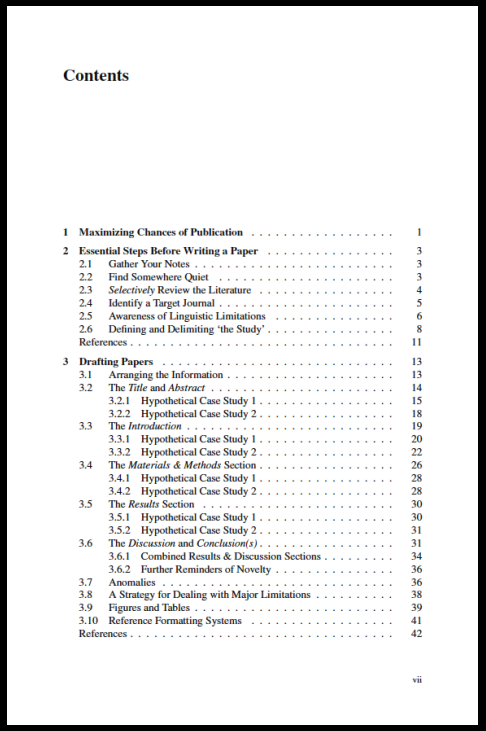
Duke | GRADUATE SCHOOL
SCIENTIFIC WRITING RESOURCE





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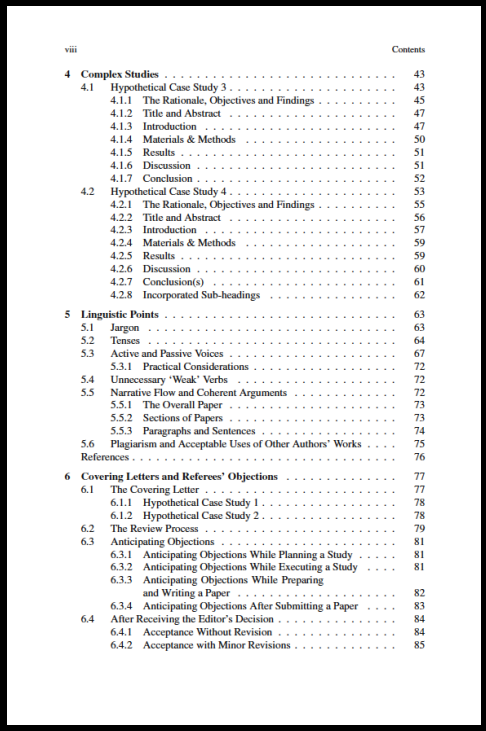

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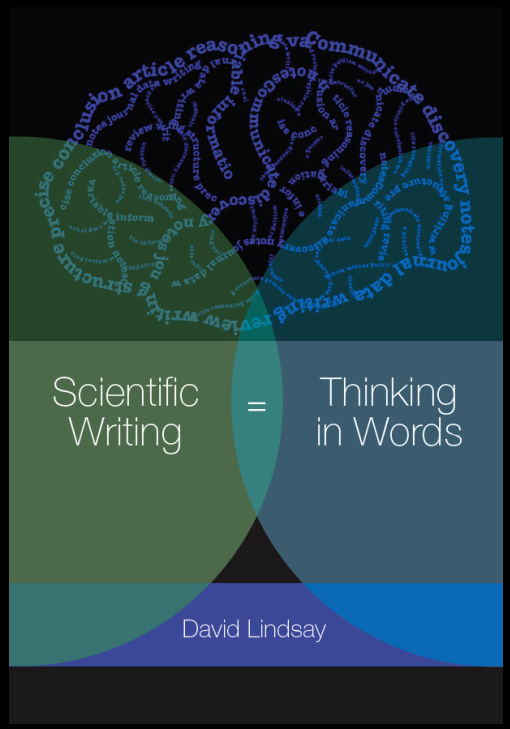

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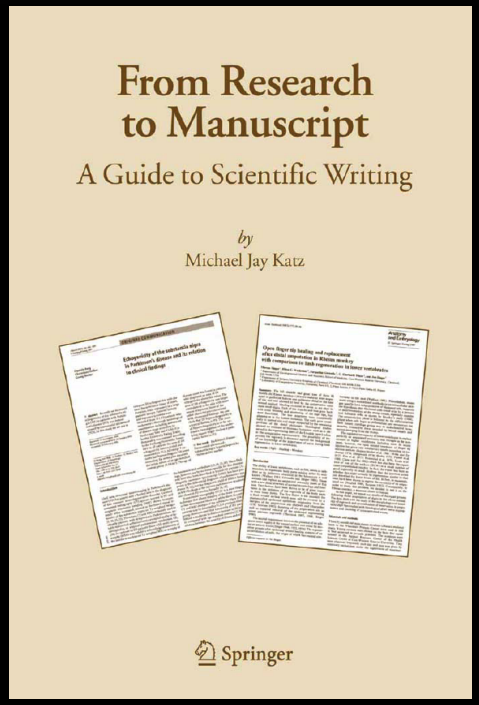

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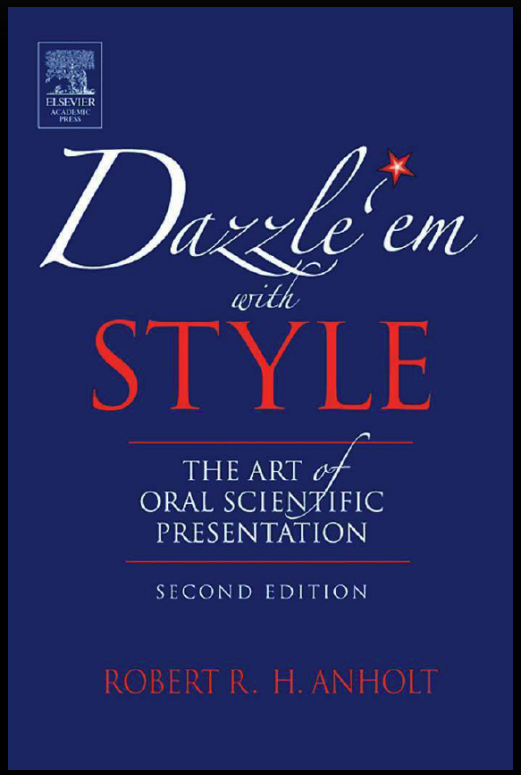

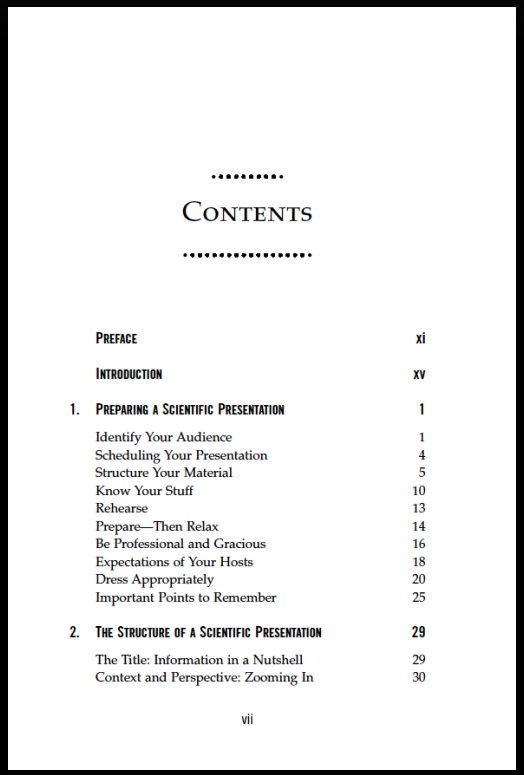

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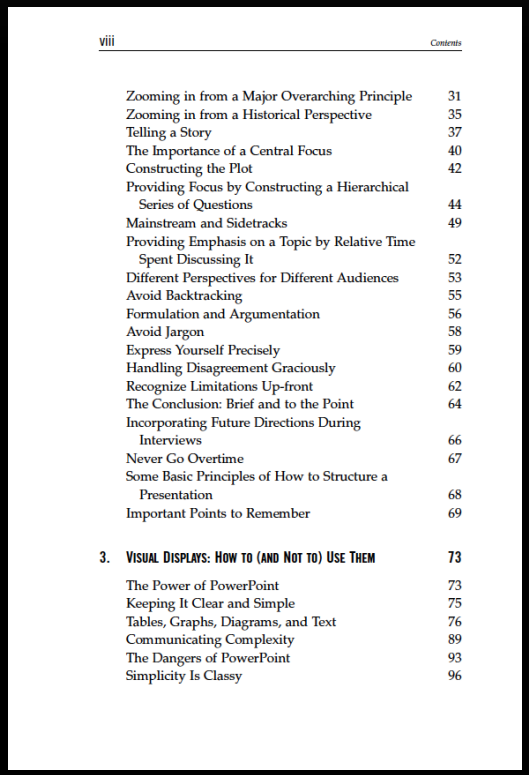

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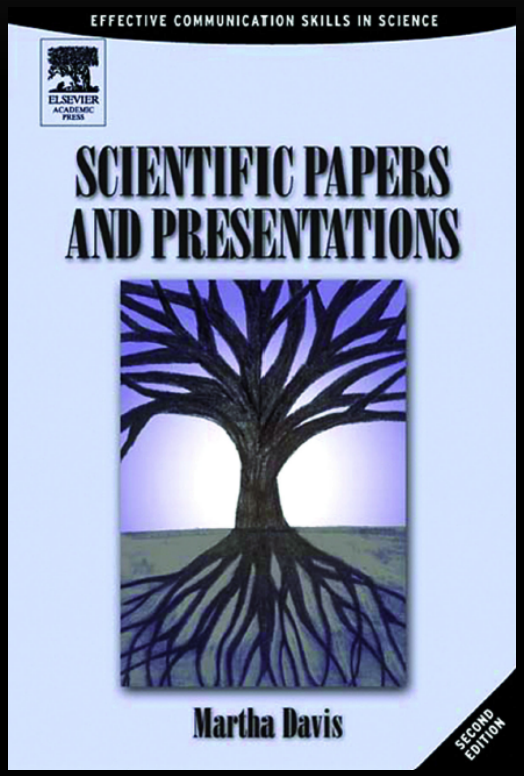

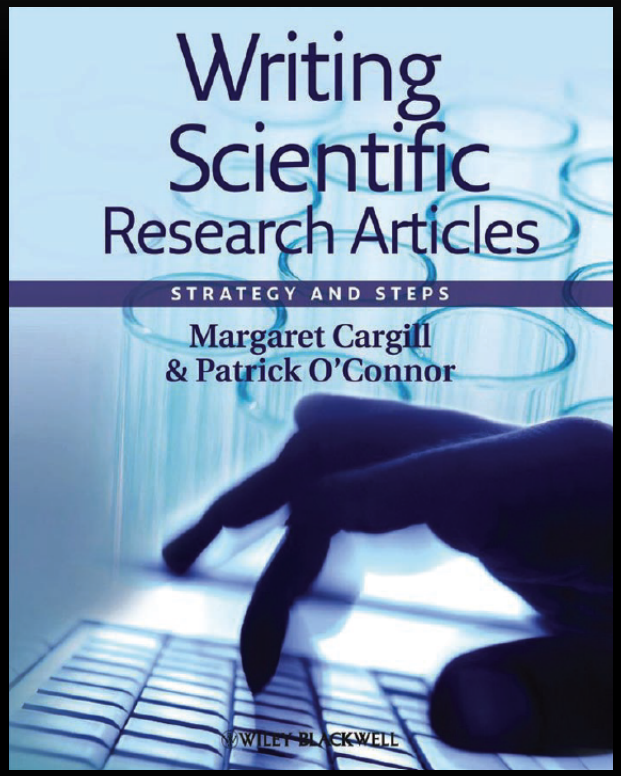

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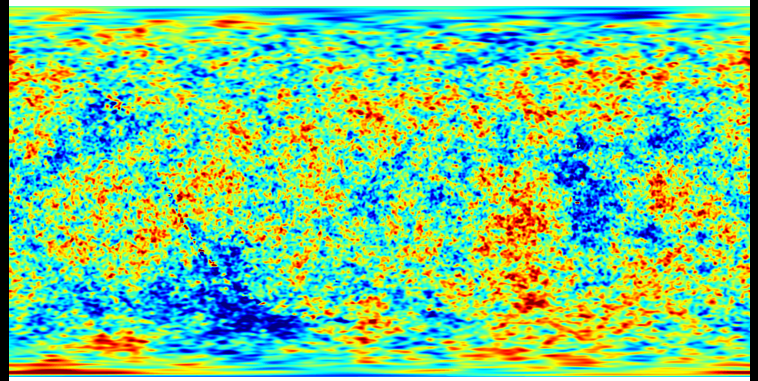

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