

Co-funded by the European Union

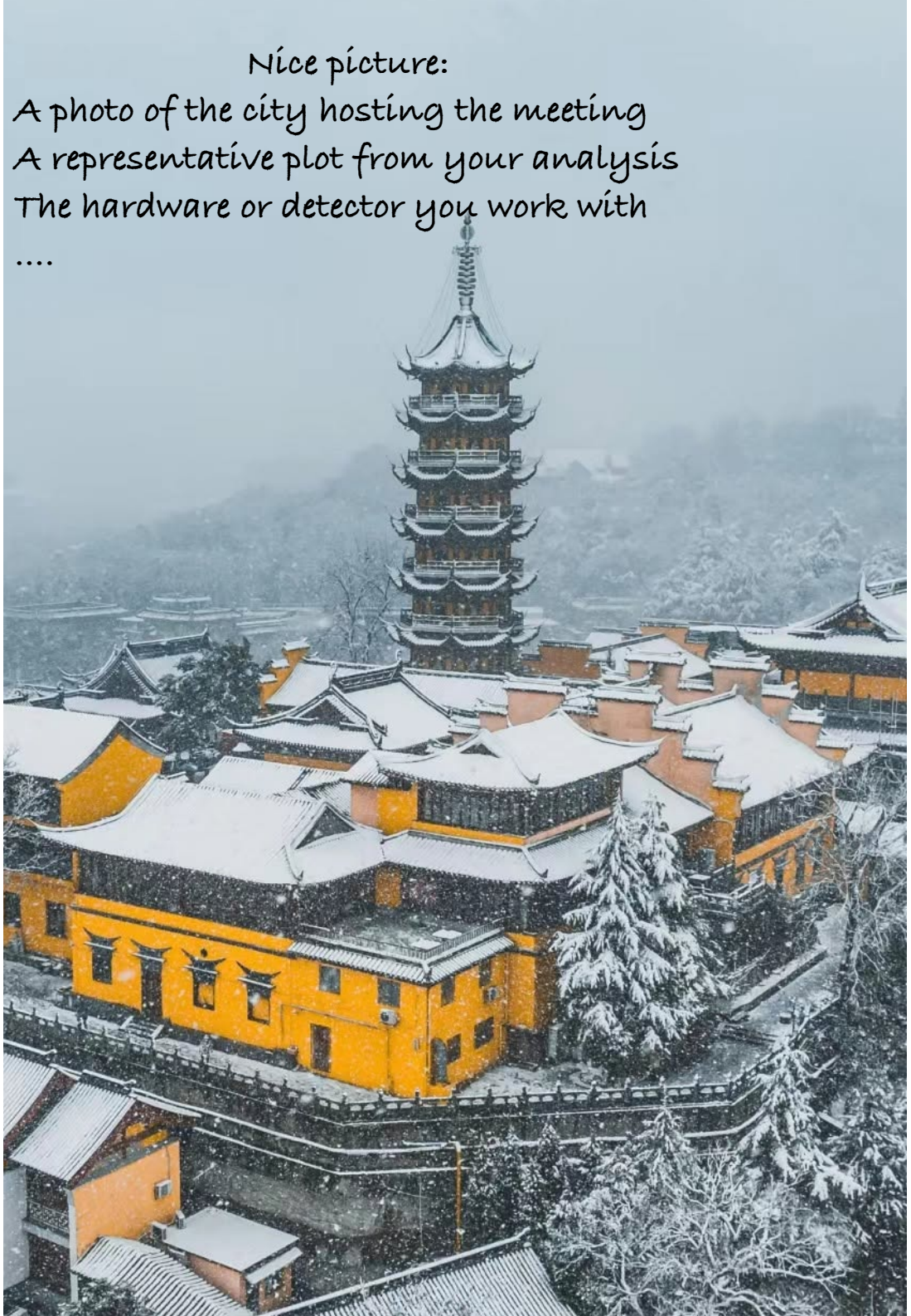
How to present like a **rockstar**

Meihong Liu

Jilin Uni. & DESY

Belle II China Winter School 2026
18.11.2026 @ Nanjing

meihong.liu@desy.edu



Nice picture:
A photo of the city hosting the meeting
A representative plot from your analysis
The hardware or detector you work with
....

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Your Funding

Your institute

Your collaboration

How to present like a **rockstar**

Catchy Title

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Your email

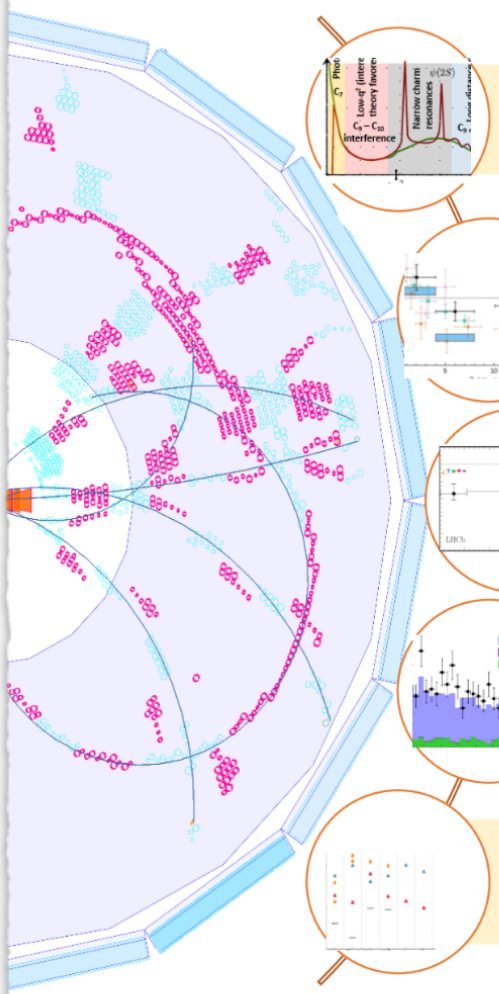
meihong.liu@desy.de

Tell people where you are and what the destination is going to be:



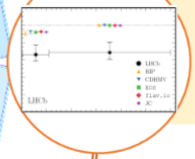
This means not necessarily providing an outline, but to remind people what the next steps are or why you are looking at something

Outline



Introduction

Angular Analyses



LFU ratios : R(K*) and R(K)

LFV decays

Recent Belle II result : Search for $B \to K^{+}\nu\nu$

For long talks great! For a 15 min talk, likely overkill

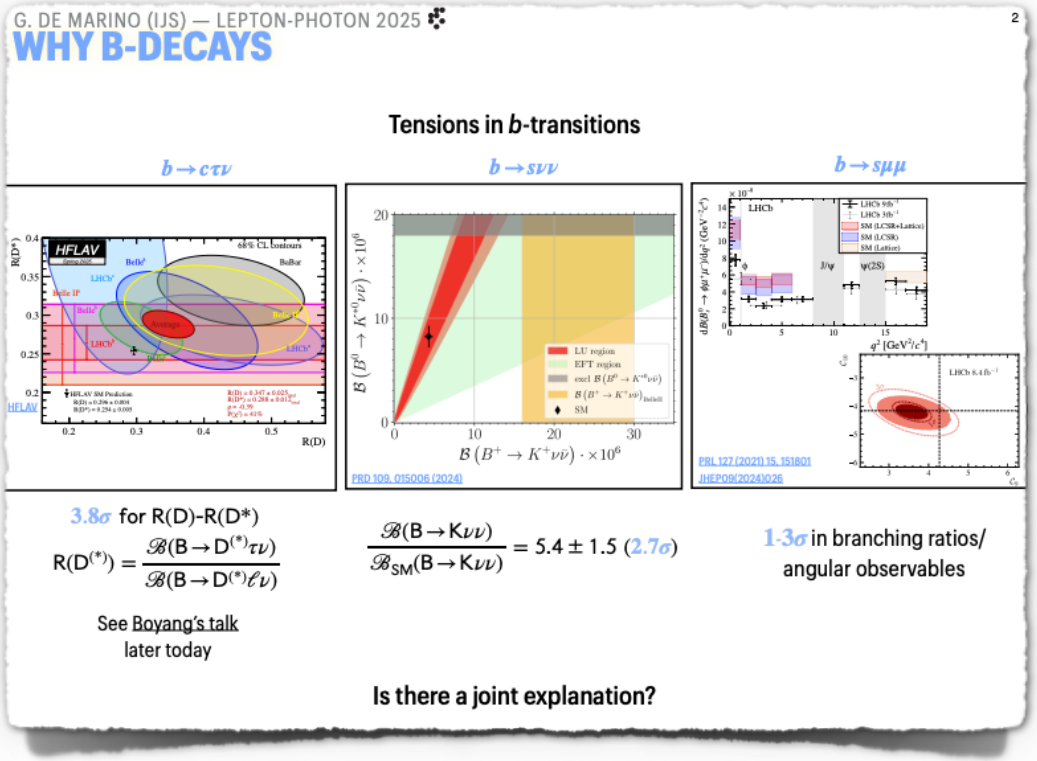
Where/how to find our ‘’ONE PIECE’’



Destination should be visiable throughout the voyage

Where/how to find our ''ONE PIECE''

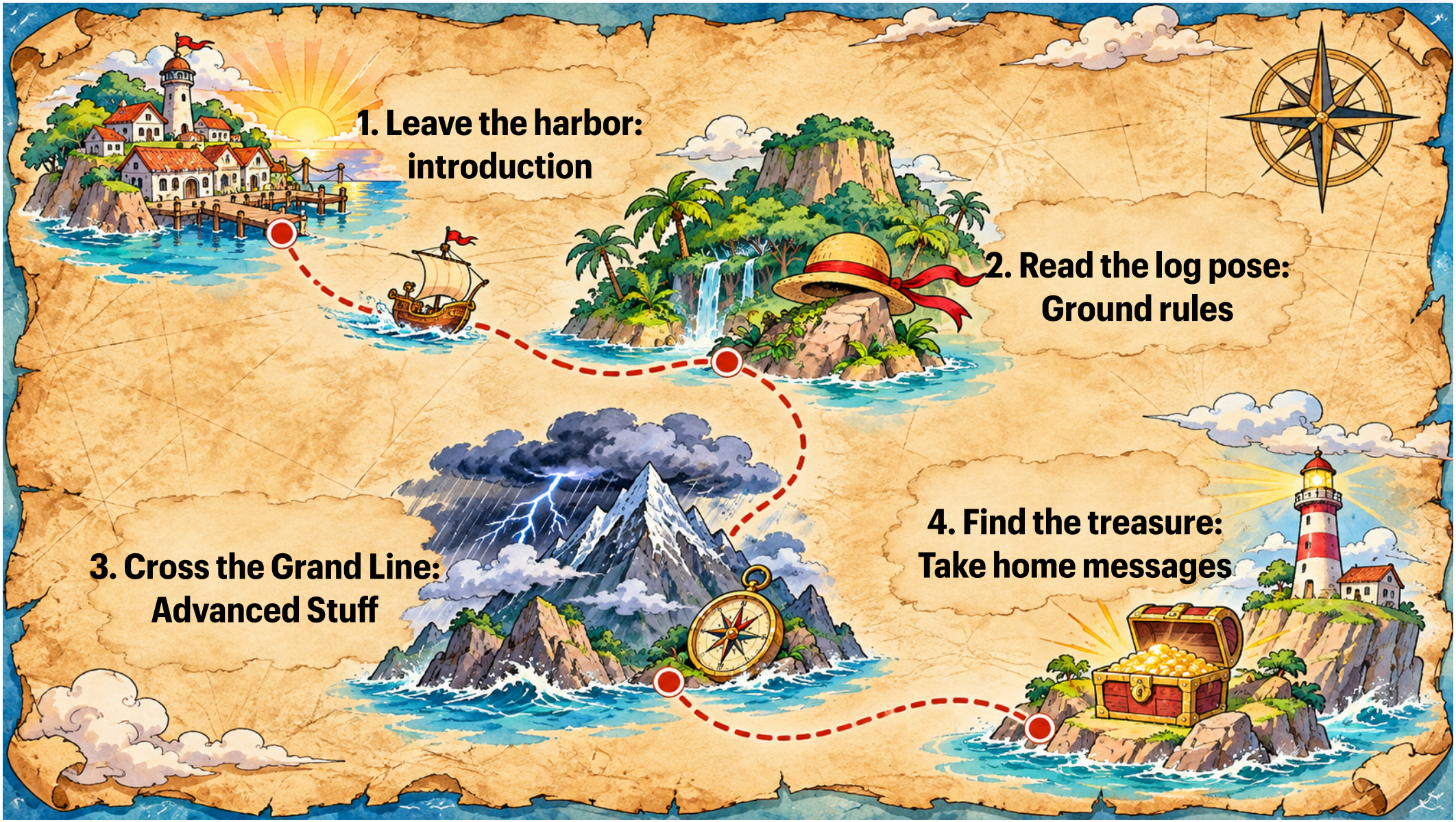
NEW PHYSICS



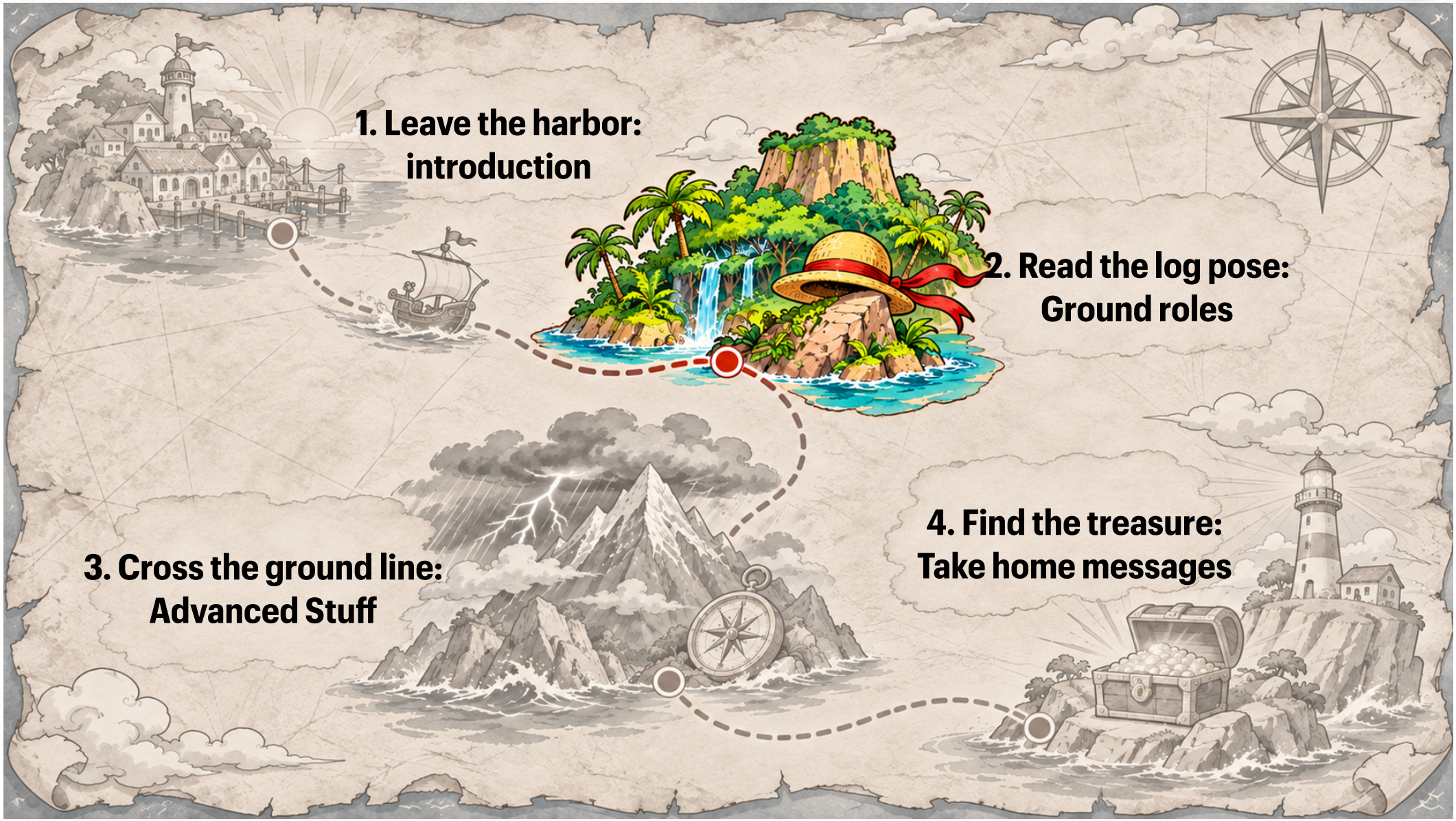


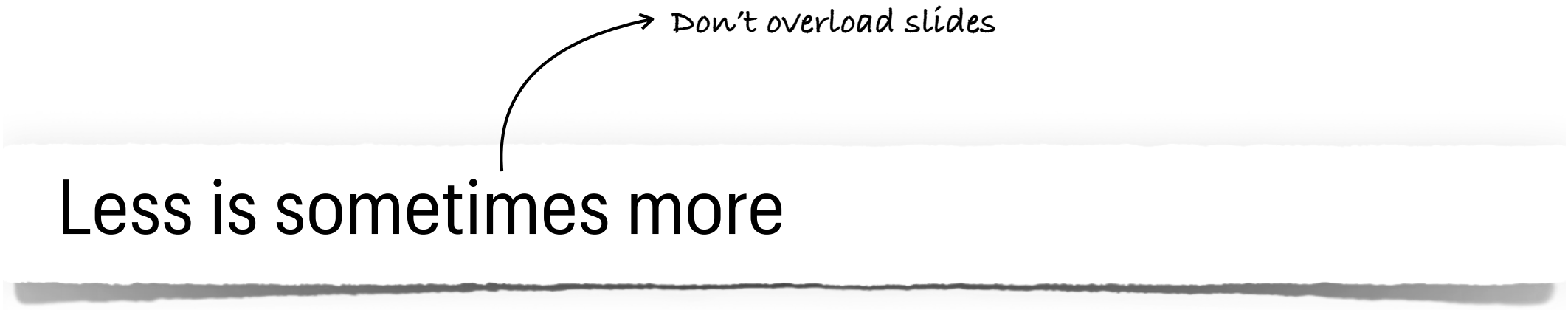
Destination should be visiable throughout the voyage

Travel Guide for Today



Travel Guide for Today





Less is sometimes more

How to make a Good First Impression



Making a first good impression can be vital when looking for a new job. Whether we like it or not, people do judge a book by their cover. The first few seconds with someone can be critical to your career.

- Be on time. The person you are just meeting is probably not interested in your excuses, even if it is the first time you are late in your whole life. All they are going to know is that you are not keeping up with a previous agreement. The image you are leaving behind is of someone that is not reliable. Make an extra effort and make sure to arrive on time. Too early is always better than too late.
- Be prepared. Before going to your interview you should have done your research about the company, the position you're applying for, and so on. Think about what kind of questions you could be asked, and how you would answer them. In one word, practice!
- Take care of your clothes and your overall grooming. It has been said that 55% can be determined by the person's appearance. So be careful when choosing how to present yourself in an interview. Dress to impress, maintaining in mind the job you are applying to, and when in doubt, choose the most conservative choice.
- Take into consideration non-verbal communication. You might bee feeling nervous, but studies have shown that people who present themselves in a more friendly, confident manner usually have better results. Something as simple as a smile can make a difference.

How to make a Good First Impression

Making a first good impression can be vital when looking for a new job. Whether we like it or not, people do judge a book by their cover. The first few seconds with someone can be critical to your career.

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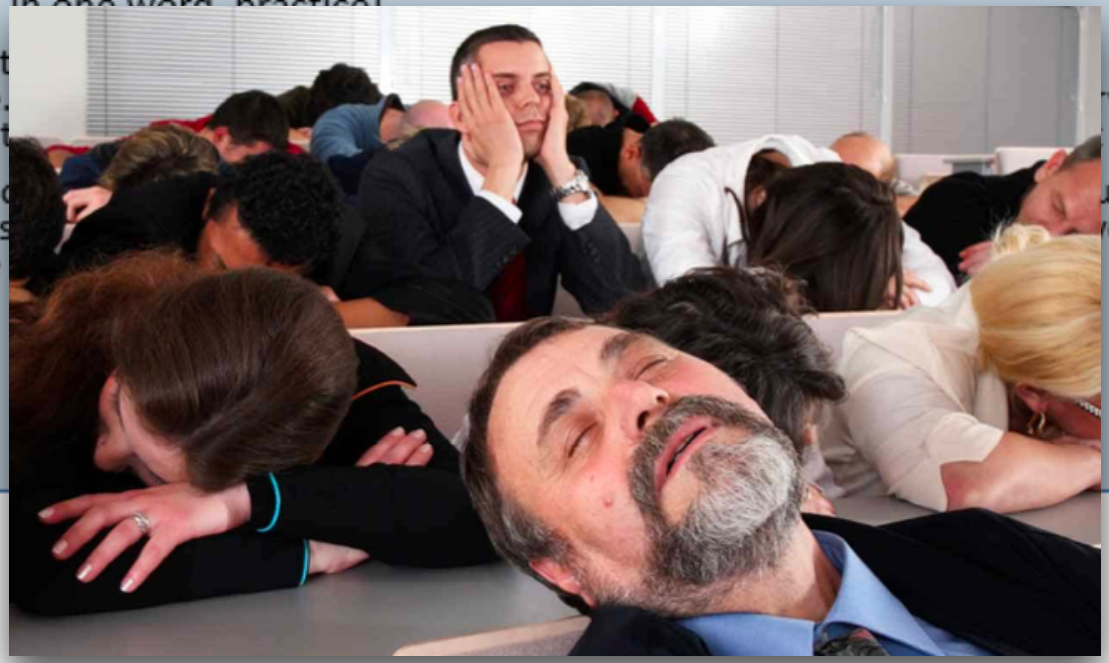


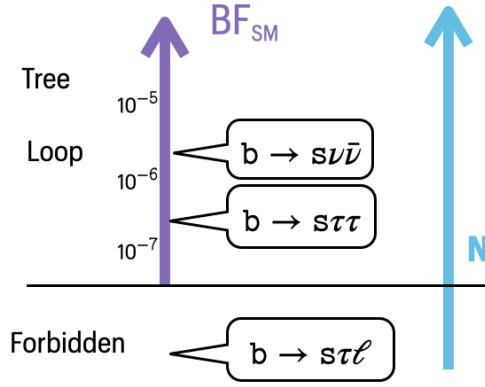
Even motivation, be concise

- Avoid large blocks of text in the same color and font size, as they may overwhelm the audience.
- Include references, but omit the titles of the papers. Add hyperlinks instead.

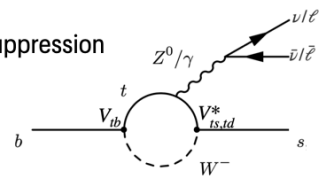
Motivation:

- Flavor-changing neutral-current transitions such as $b \to s$ occur only through loop processes in the Standard Model.
- Their branching fractions are very small because of CKM and GIM suppression.
- The decays $b \to s\nu\bar{\nu}$ and $b \to s\tau\tau$ are rare but allowed in the Standard Model.
- Lepton-flavor-violating decays such as $b \to s\tau\ell$ are essentially forbidden in the Standard Model.
- New physics could enhance these rare decays or generate lepton flavor violation, particularly through interactions involving third-generation particles.
- Belle and Belle II can search for these effects; leptoquarks are one possible new-physics explanation.

Electroweak Penguin and LFV @ Belle (II) experiment



Flavor **C**hanging **N**eutral **C**urrents (FCNC) b → s
occur at **loop level** in the SM
Low BF's due to CKM and GIM suppression



Look for enhancements in FCNC and LFV due to NP contributions
Third generation coupling



[PRL 120 181802 (2018)]

Be clear

- In general, complete sentences are unnecessary.
- Keep each slide concise and easy to understand at a glance.

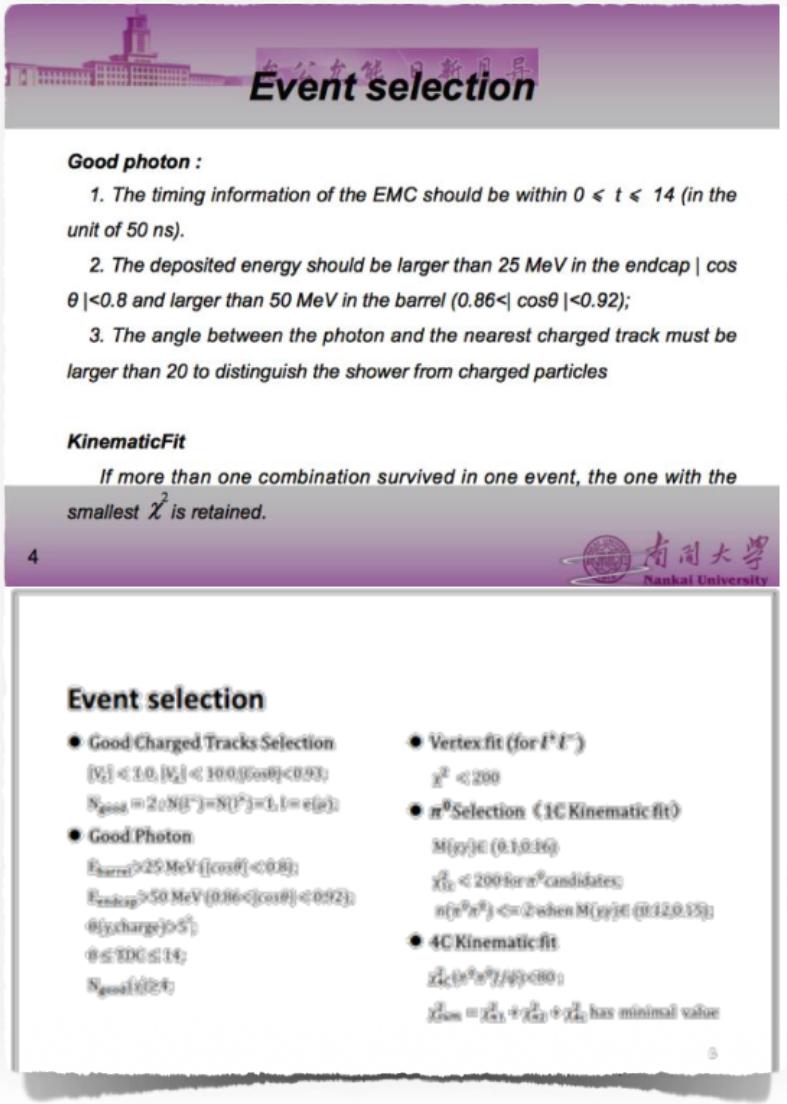
Eg:

💔 ~~The Belle II experiment searches for the~~ rare decays of B mesons ~~that could provide the evidence~~ for physics beyond ~~the~~ Standard Model.

❤️ Belle II searches for rare B-meson decays as probes of physics beyond Standard Model

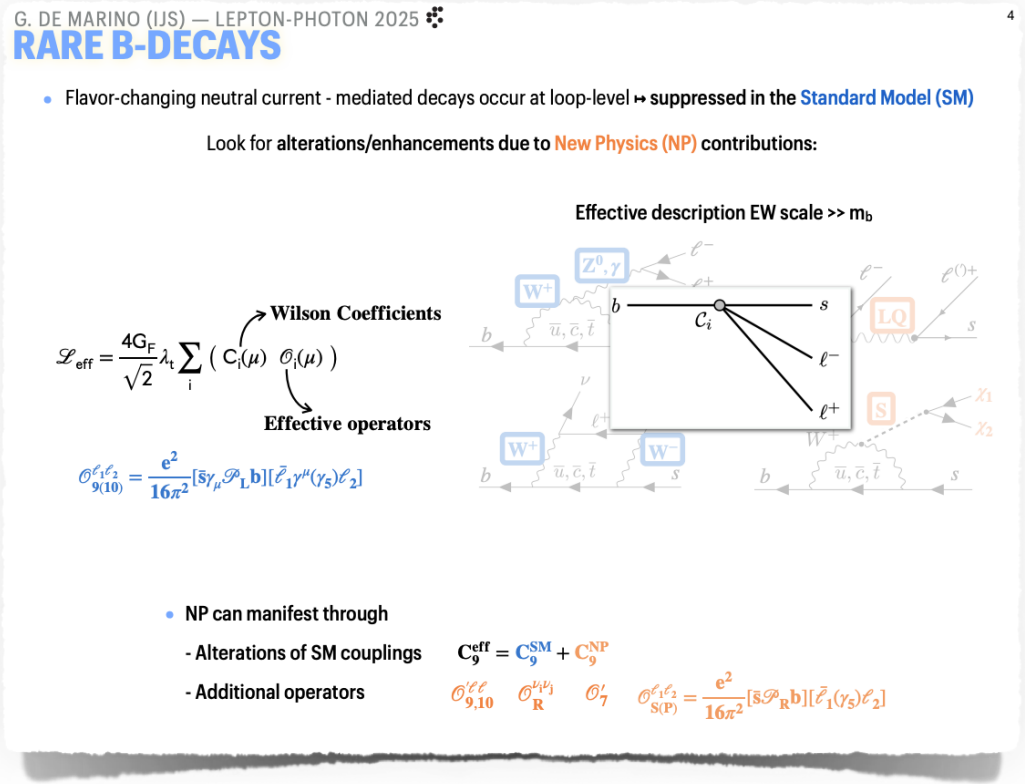
- Avoid putting too many details on the slide. Explain them verbally instead.
- Present the structure and logical relationships clearly.
- Use clear, high-quality images.

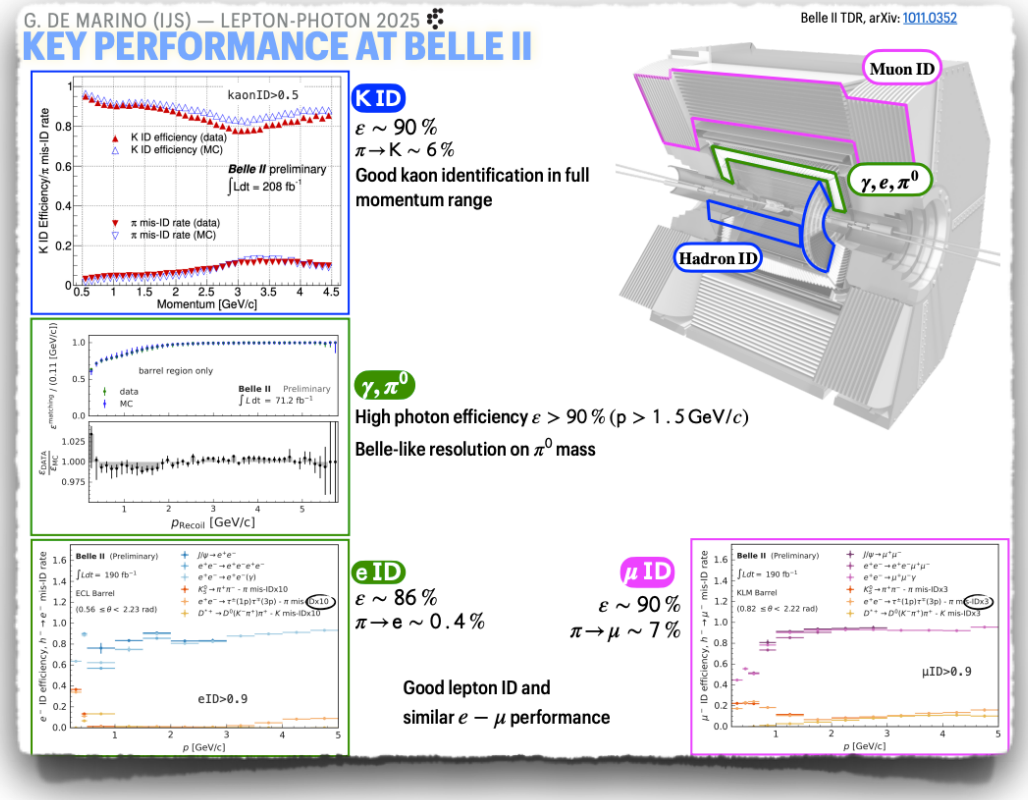
Give u a bad example



Visualize whenever possible

- **Color for emphasis:** keywords, take-home messages, somewhere you want to highlight
- **Consistent color coding:** one color per decay channel or topic
- Break complicated things down

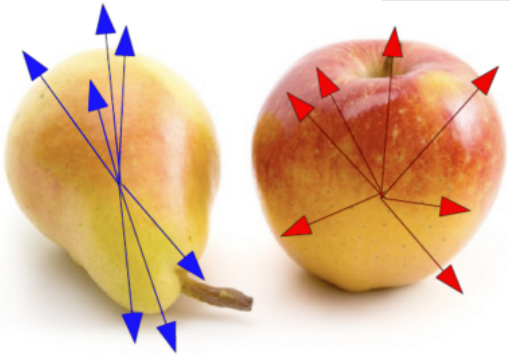




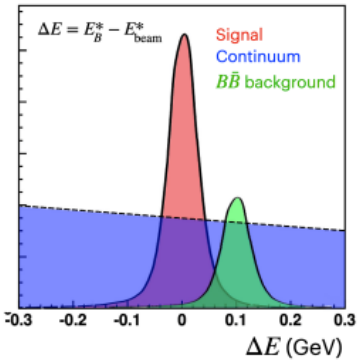
Use interesting way to explain better

- Do it in your own way!

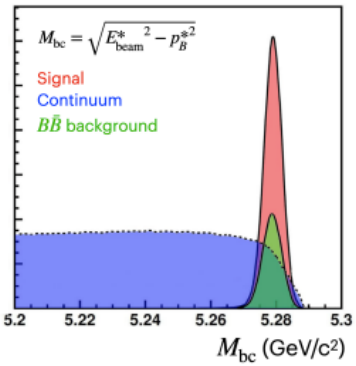
Plots made by Sebastiano Raiz



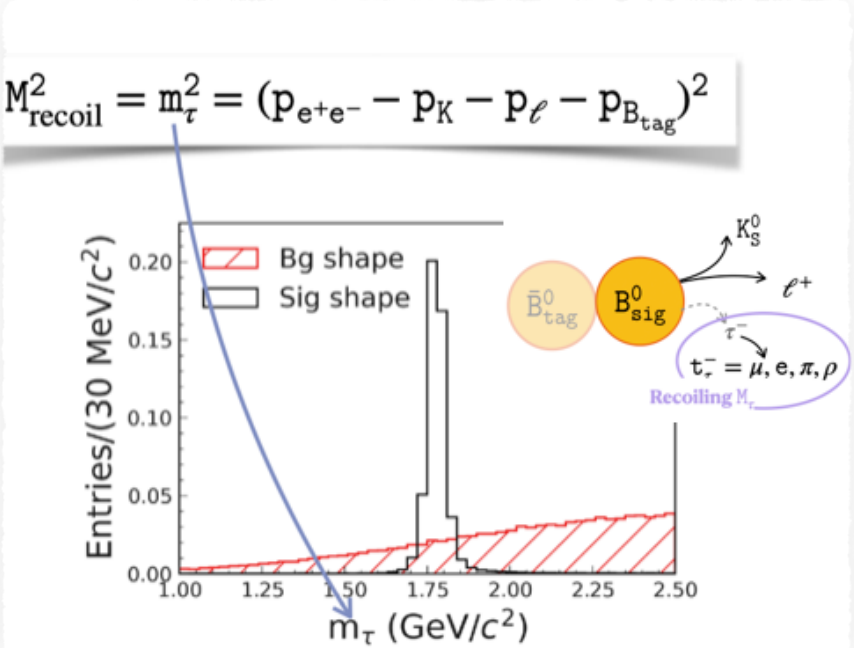
$q\bar{q}$ events $B\bar{B}$ events

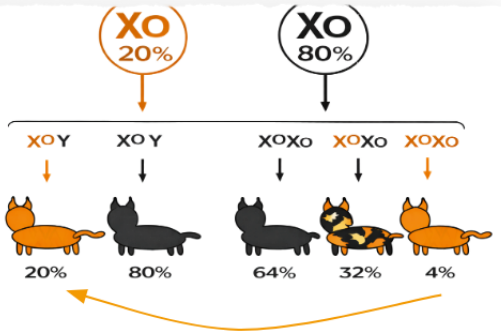


Separate signal from $q\bar{q}$ and misidentified B's.



Separate B-events from $q\bar{q}$.

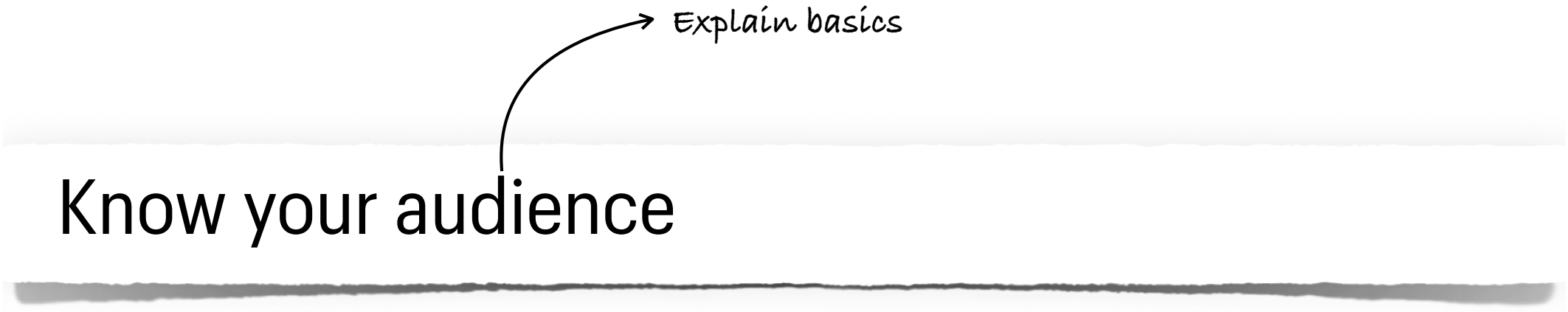




e x-feed channels

sign any reasonable uncertainty
and signal sides were untagged.

l-side only, visible increase in


Explain basics
Know your audience

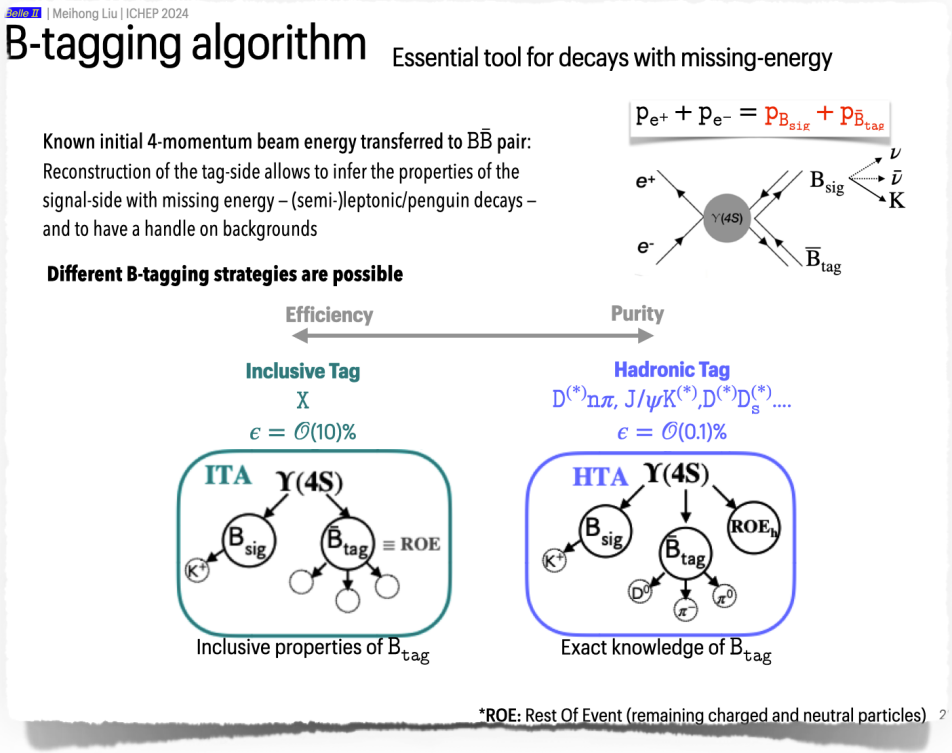
Explain well

- Avoid unexplained jargon
- Explain essential concepts
- Choose right level of detail
- Focus on what matters to audiences

Don't assume everybody is an expert



No one outside of Belle II understands 'HAD FEI tag'
~hadronic B tagging

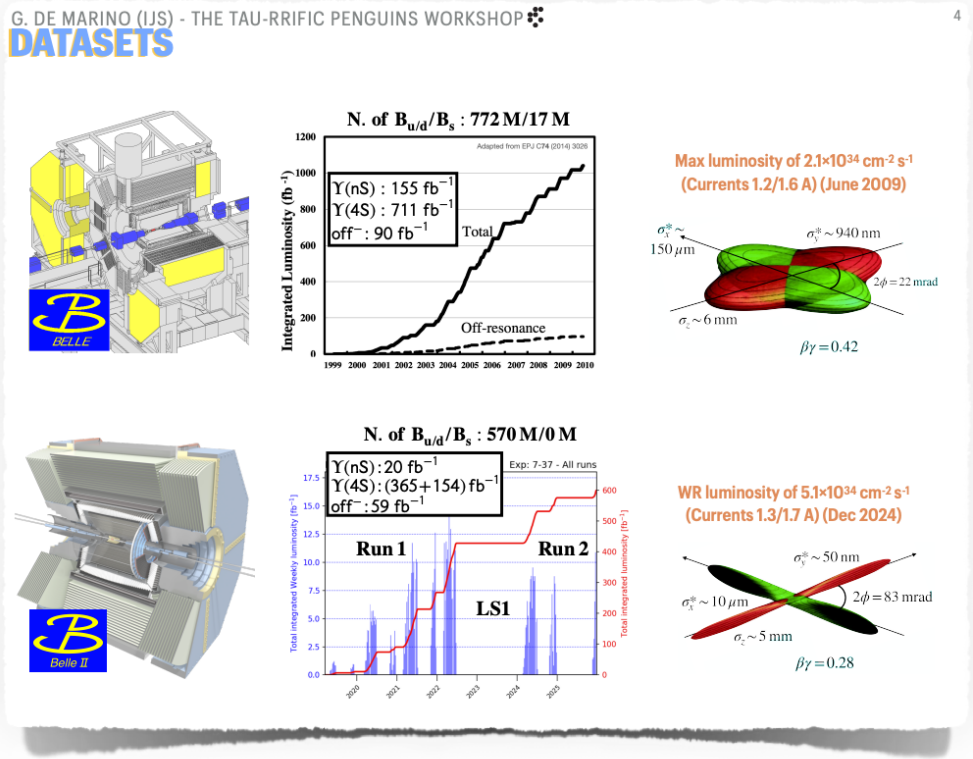


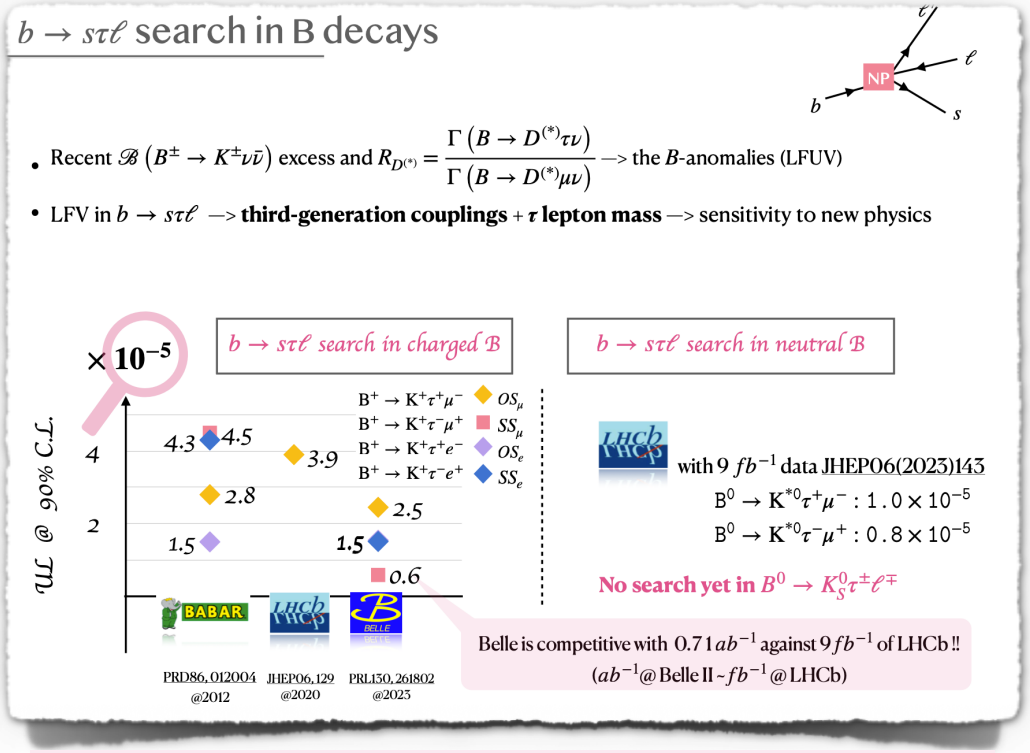
What is B tag at B factory?

Explain well

- Avoid unexplained jargon
- Explain essential concepts
- Choose right level of detail
- Focus on what matters to audiences

Don't assume everybody is an expert
People like to hear what they already know (to some extent)





Belle is competitive with $0.71\,ab^{-1}$ against $9\,fb^{-1}$ of LHCb !!
(ab^{-1}@ Belle II ~ fb^{-1}@ LHCb)

Explain well

- Avoid unexplained jargon
- Explain essential concepts
- Choose right level of detail
- Focus on what matters to audiences

use bottom line!

Sebastiano Raiz

Belle II | Meihong Liu | Belle II Germany 2026

Validation of the $X_s'\gamma$ modeling

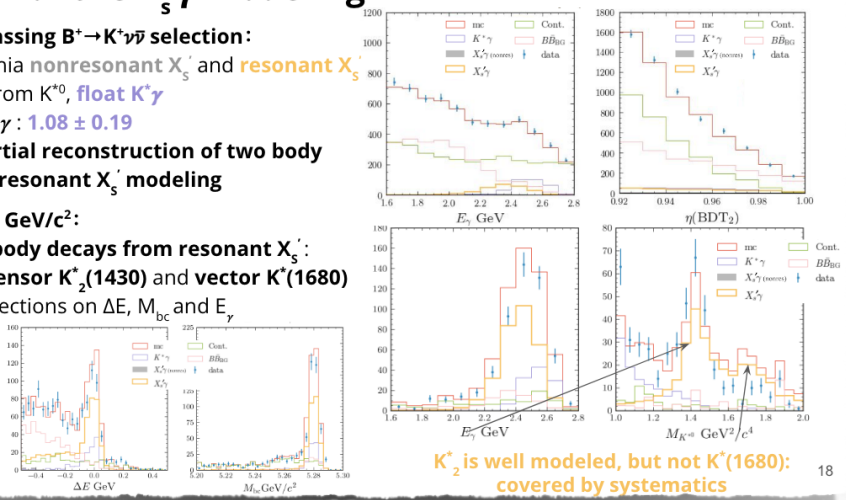
χ^2/dof: 24.4/20

2. Fit for events passing $B^+ \to K^+\nu\bar{\nu}$ selection:

- Fixing the pythia nonresonant X_s' and resonant X_s' to fit results from K^{*0}, float $K^+\gamma$
- Fit result of $K^*\gamma$: 1.08 ± 0.19
- **Validates partial reconstruction of two body decays from resonant X_s' modeling**

3. Fit in $m(K^-\pi^+) > 1$ GeV/c^2:

- Validate **two body decays from resonant X_s'**:
  - mainly **tensor $K^*_2(1430)$** and **vector $K^*(1680)$**
- Apply tight selections on ΔE, M_{bc} and E_γ



K^*_2 is well modeled, but not $K^*(1680)$: covered by systematics

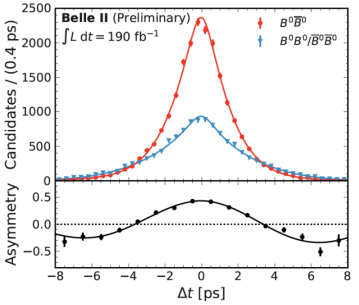
18

Lifetime and mixing results

$\tau_{B^0} = 1.499 \pm 0.013(\mathrm{stat}) \pm 0.008(\mathrm{syst})$ ps

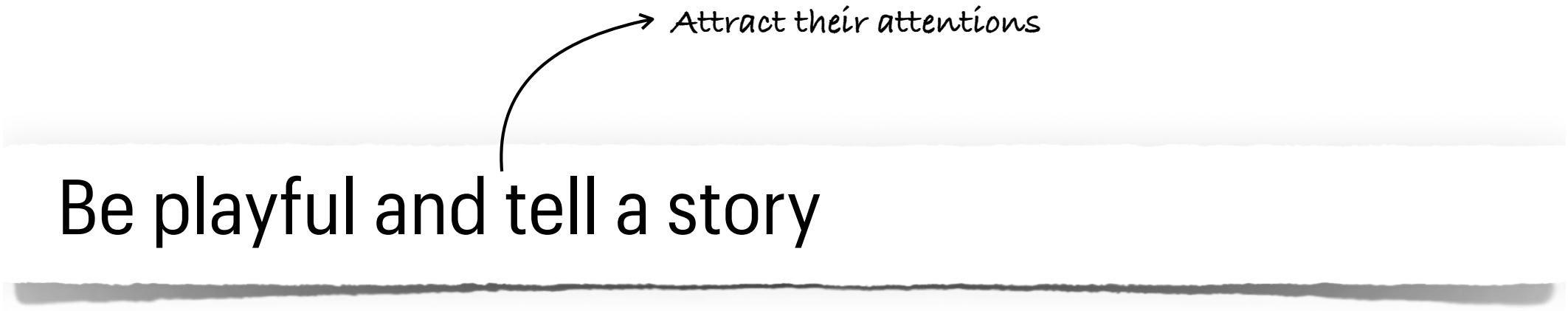
$\Delta m_d = 0.516 \pm 0.008(\mathrm{stat}) \pm 0.005(\mathrm{syst})$ ps^{-1}

Not yet competitive with global best results, but systematic uncertainties already on par with best Belle/Babar results.



Milestone in Belle II program: we are fully ready for time-dependent analyses (e.g. sin2ß).

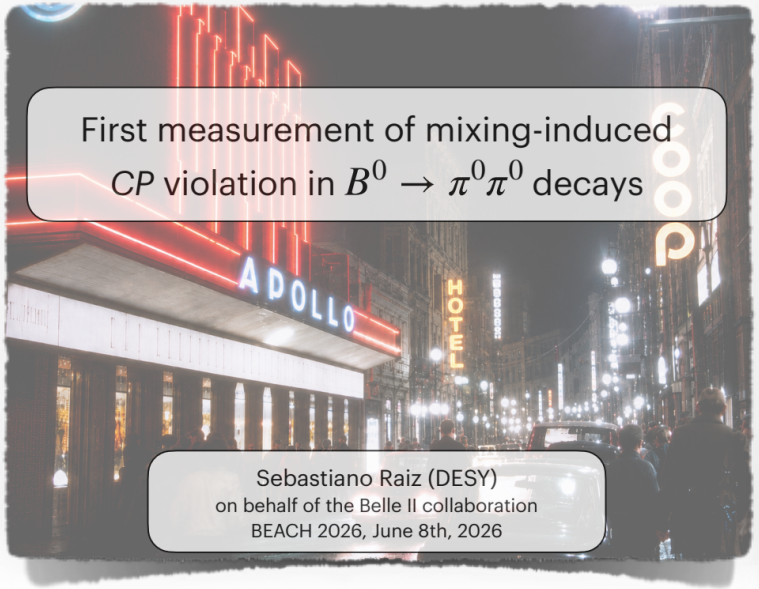
Next step: improve precision by using also $B^0 \to D^{*-}l^+\nu$ modes.



Be playful and tell a story

Be playful, tell a story

1. A picture of Florence 20 years ago

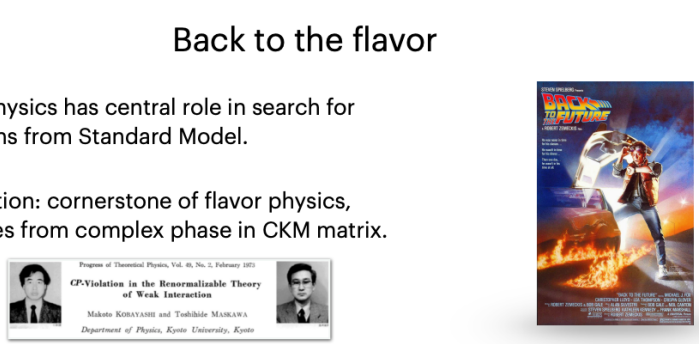


2. Introduction links movie 'back to the future'

Back to the flavor

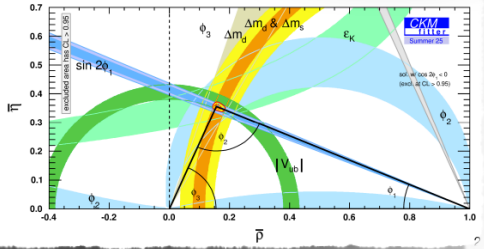
Flavor physics has central role in search for deviations from Standard Model.

CP violation: cornerstone of flavor physics, originates from complex phase in CKM matrix.



Precision measurements over-constrain CKM picture.

Mismatch could hint at physics beyond the SM.



3. Old, classical ways of TDCPV

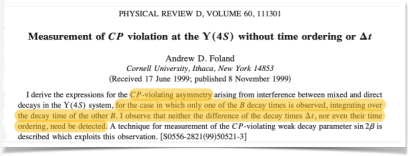
Is this the only way?



4. New technology + old method

Back in time

We found out that it was already known.





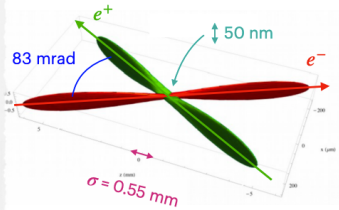
Forgotten due to success of Δt measurements. Also, not the right time:

Technology was missing

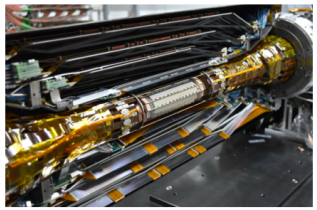
Key enablers



Nano-beam scheme



Vertex detector



5. Method works!

Validation with $B^0 \to J/\psi K^0_S$

Validation in Belle II data from measurement of $\sin 2\phi_1$ with t_{tag} using 6k $B^0 \to J/\psi K^0_S$ signal candidates.

Measure

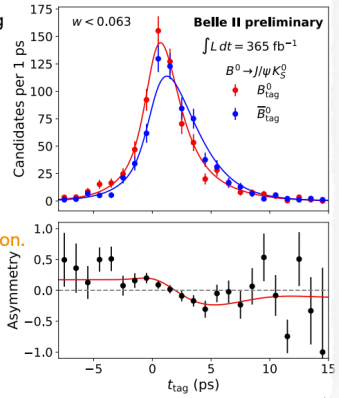
$$\sin 2\phi_1 = 0.84 \pm 0.10$$

Agrees with Δt-based measurement (0.724 ± 0.035)

Do observe time-dependent *CP* violation.



The method works!



Not difficult, but you need to think and design!

ICHEP 2024 was held in Prague, hometown of Kafka

Connect B physics with three of Kafka's novels

e^+e^- *B* factory highlights

Jim Libby - Indian Institute of Technology Madras







22/7/2024 B factory highlights - Jim Libby 1

Outline

1. **The Castle**
   - Why e^+e^- at Y(4S)?
   - Cabibbo-Kobayashi-Maskawa matrix measurements
2. **The Trial**
   - Results related to *B* anomalies
3. **The Metamorphosis**
   - Beyond *B* physics
   - Belle II status and plans



Franz Kafka: 1883-1924

22/7/2024 B factory highlights - Jim Libby 5

Link CKM with 'The Castle'

The Castle

Tale of K.'s relentless, unavailing struggle with an inscrutable authority in order to gain access to the Castle.



22/7/2024 B factory highlights - Jim Libby 6

The Castle

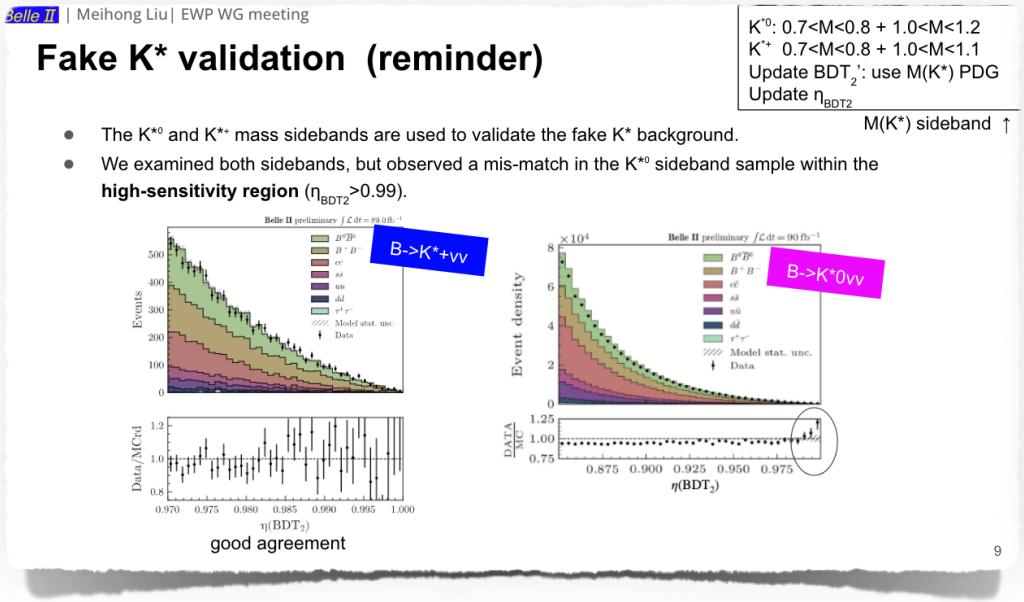
Tale of **our** relentless, unavailing struggle with an inscrutable **standard model** in order to gain access to **BSM**.

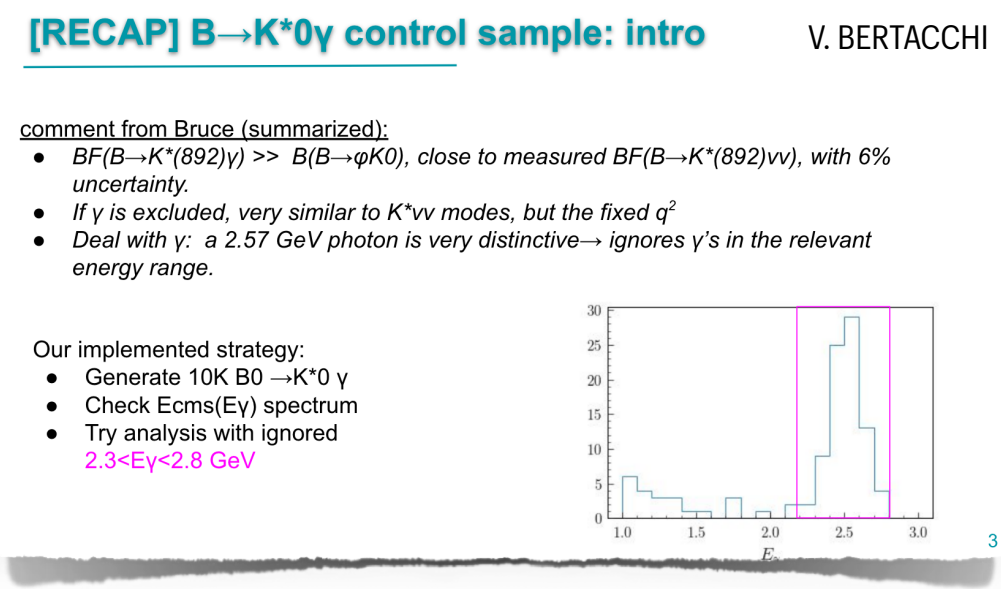


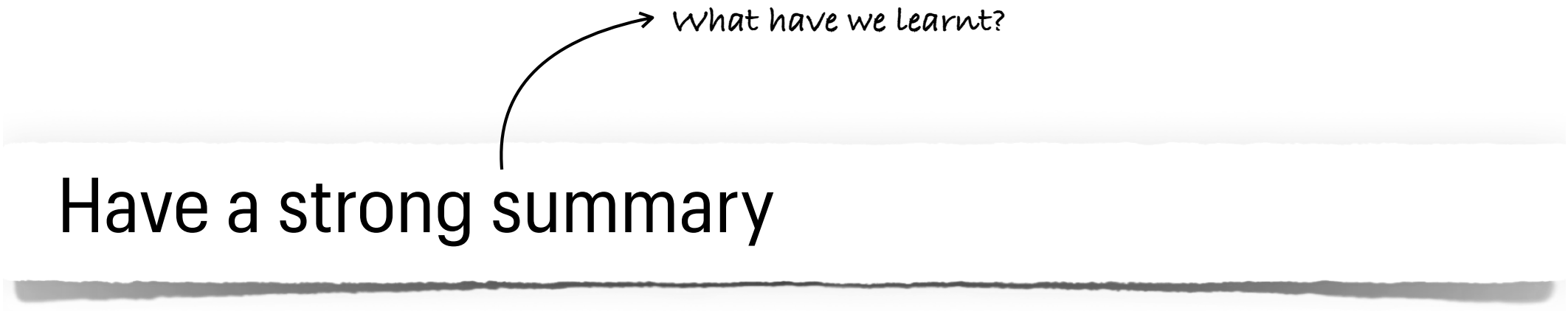
22/7/2024 B factory highlights - Jim Libby 7

Different Talks, Different Approaches

- **Conference talk:** Be engaging and playful, but keep the main message clear.
- **Working-group talk:** Skip familiar background. For an update, a recap slide followed by new results may be sufficient.
- **Collaboration-wide talk:** Explain details unfamiliar to other groups and prepare thorough backup slides.
- **PhD defence:** Be precise, cautious, and ready to justify every choice.

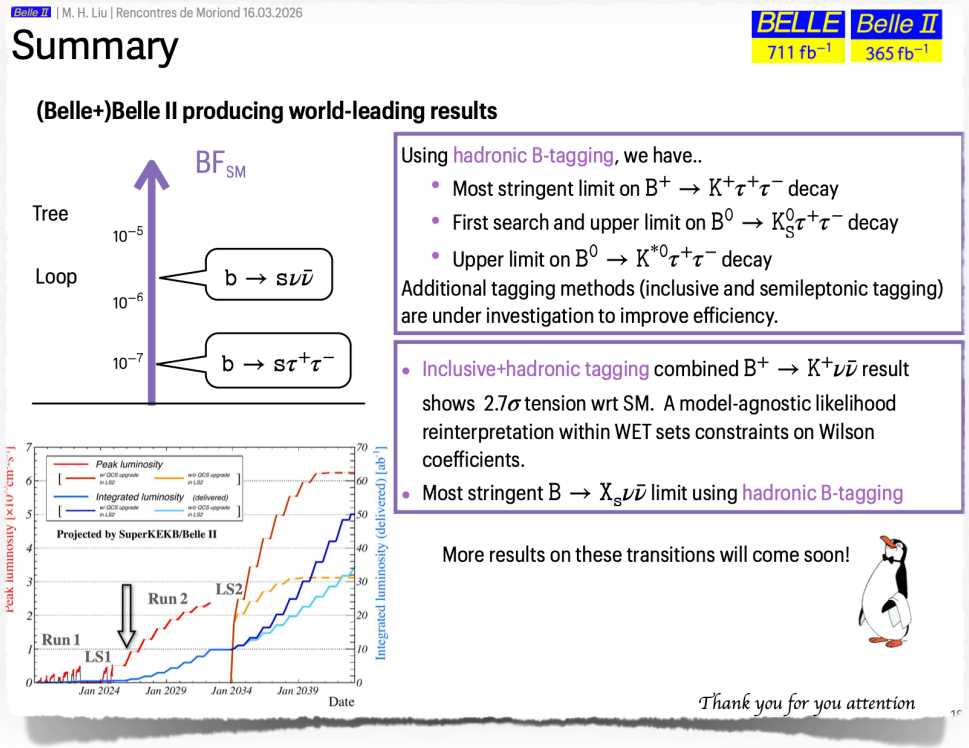


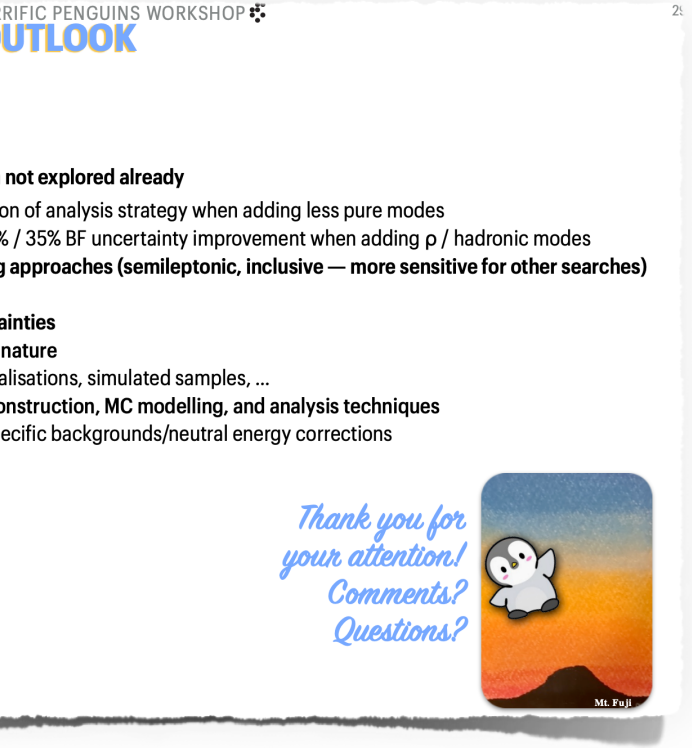


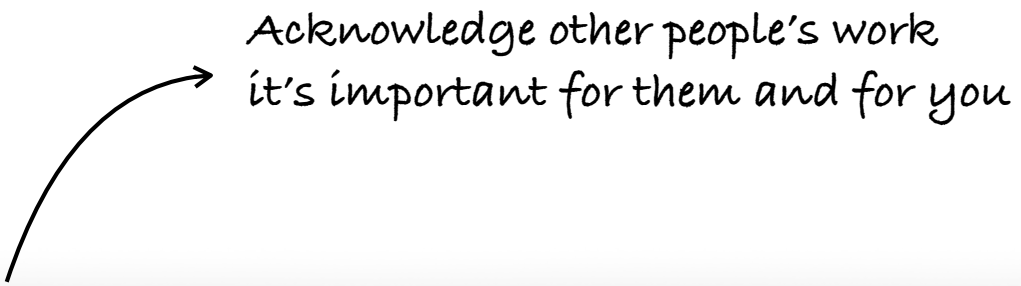

What have we learnt?
Have a strong summary

How to summarize

- Do not repeat every point from your slides.
- **Restate only the key messages you want the audience to remember.**
- End with the next steps or future plans. Maybe
- Please do NOT make a slide just for 'Thank You' They should be thankful for your wonderful slides and hardworking, if you are



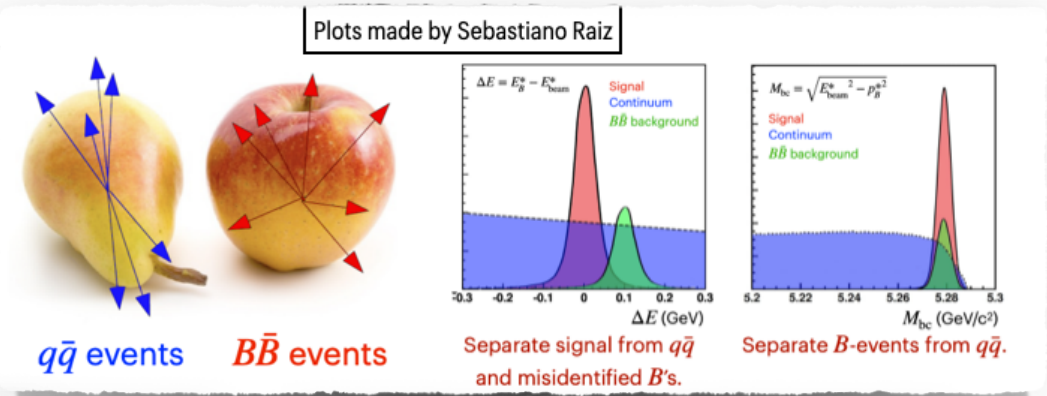


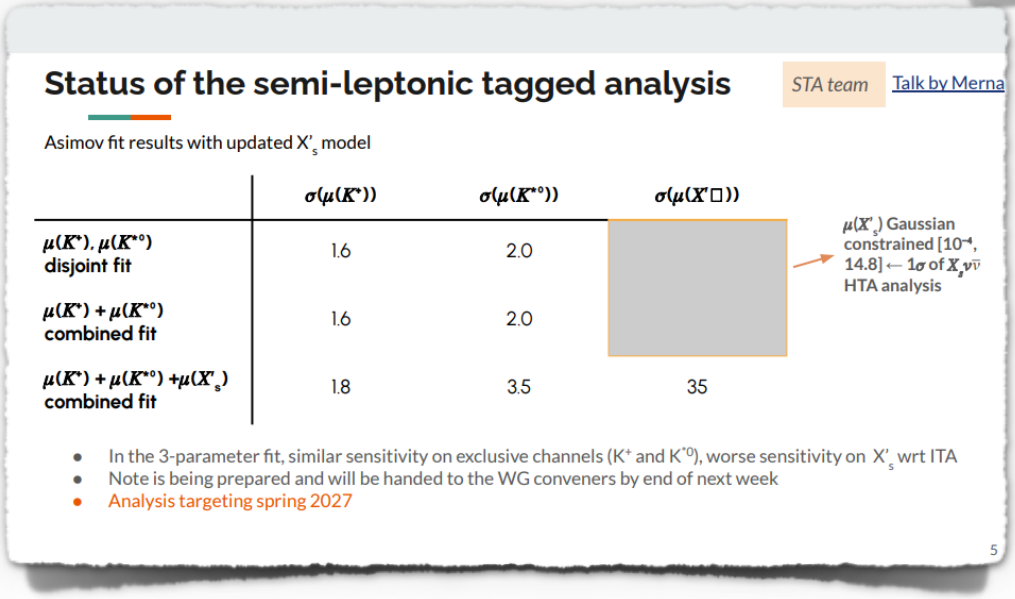


Give credit to your colleagues

How are we doing?

Image Credit





Status of the semi-leptonic tagged analysis STA team Talk by Merna

Asimov fit results with updated X'_s model

	$\sigma(\mu(K^*))$	$\sigma(\mu(K^{*0}))$	$\sigma(\mu(X'\square))$
$\mu(K^*)$, $\mu(K^{*0})$ disjoint fit	1.6	2.0	
$\mu(K^*) + \mu(K^{*0})$ combined fit	1.6	2.0	
$\mu(K^*) + \mu(K^{*0}) + \mu(X'_s)$ combined fit	1.8	3.5	35

$\mu(X'_s)$ Gaussian constrained $[10^{-4}, 14.8] \leftarrow 1\sigma$ of $X_s\nu\bar{\nu}$ HTA analysis

- In the 3-parameter fit, similar sensitivity on exclusive channels (K^+ and K^{*0}), worse sensitivity on X'_s wrt ITA
- Note is being prepared and will be handed to the WG conveners by end of next week
- Analysis targeting spring 2027

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Work Credit

Thanks! 

My talk is inspired by:

1. “如何准备一份“好的”学术报告“, 单葳，2025年Belle II 中国组冬季学校
2. “How to present like a rockstar”， Florian Bernlochner

Most people are!

It’s okay to be nervous

The physiological reaction to being nervous is the same as excitement

If you are really nervous, you can:

- Prepare a talk draft, and rehearse aloud more than once
- Practice with a timer
- Know your opening and transitions
- Slow down and pause after key points

About 1 minute per slide

Speak smoothly, not rapidly. Give your audience time to think.

If you lost yourself, rephase with "okay, the key point here is…"



Just like in *The King's Speech*, repeated rehearsal improves pacing, clarity, and confidence.

Be prepared!

If you mention a concept, someone might ask for details

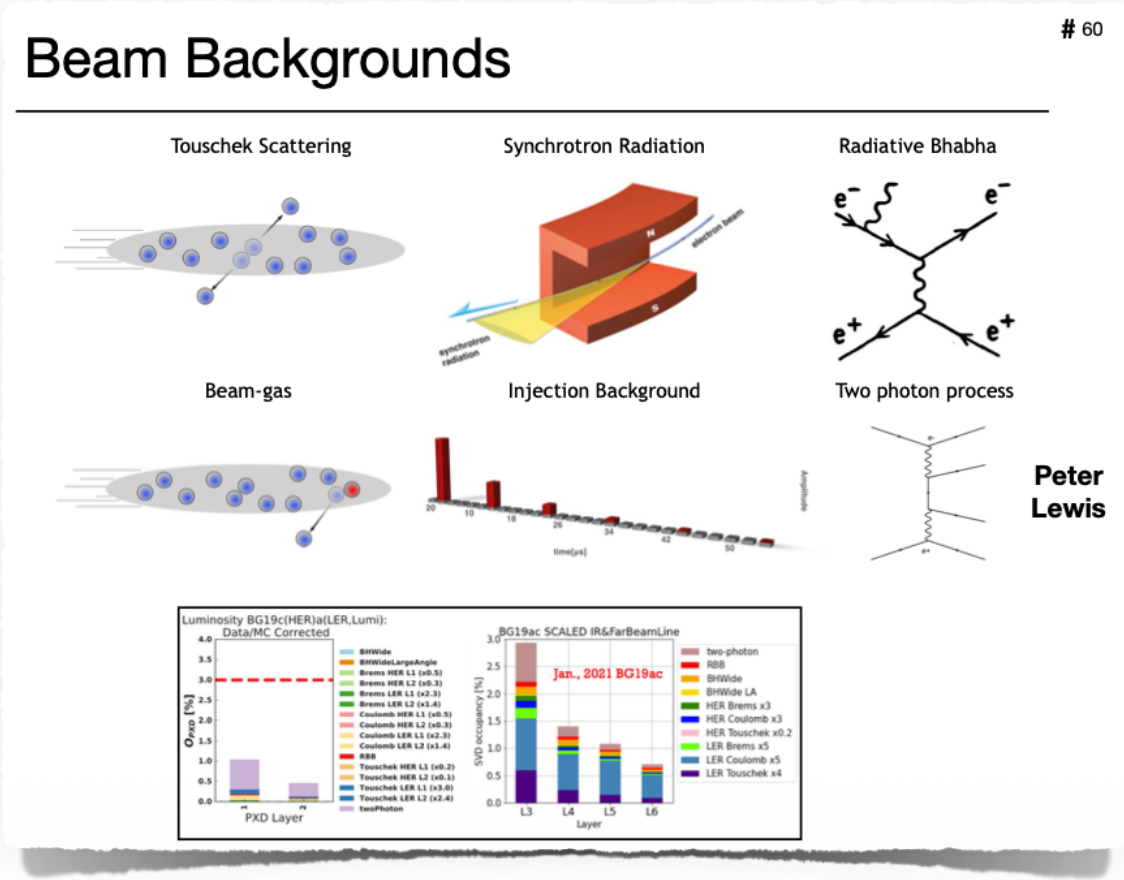
Anticipated Questions

Like if you point out large beam backgrounds during the Belle II luminosity ramp-up, someone will ask what's the deal with such.

- Backup slides are important
- Repeat or rephrase question to confirm your understanding and give yourself a moment to think.

It is ok not to know things

It is perfectly acceptable to pause and say: "I'm not sure. Let me think about it, and we can discuss it during the coffee break."



Look at the audience, not the screen.

Be confident! Dress elegantly (!?)



Most important: Be comfortable and yourself

If you are receiving a prize or present slides for a job interview, consider dressing up

It signals that you are taking things seriously

Thank you for listening ❤️